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Dynamics
Insights on Outskirts

Edited by Mats Franzén and Jean-Marie Halleux

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OUTSKIRTS DYNAMICS: TOWARDS ORDER OR CHAOS?

Mats Franzén[1], Jean-Marie Halleux[2]

1 Institute for Housing and Urban Research, Uppsala University, Sweden; Mats.Franzen@ibf.uu.se
2 Department of Economic Geography, University of Liège, Belgium; Jean-Marie.Halleux@ulg.ac.be

1 Introduction: Understanding outskirts dynamics

In a sense, cities always had outskirts making the border between the city and the countryside more or less ambiguous. Sometimes the built up area stretched beyond the city gates, sometimes the blocks within – but closest to – the wall were used for agricultural purposes. With industrial capitalism, and its concomitant urbanisation, however, came an incessant move outwards, a development further facilitated by the successive introduction of new transport possibilities, first by collective transport – trams and commuter trains – and then by private transport – bicycles and later cars. This may also be summarised as a development from the walking city to the public transport city and then to the automobile city. It is important to note, however, that each step taken in this development meant a growing transport complexity, so typical for the European city, as new transport systems did not usually substitute old ones but rather was added to them.

From the inhabitants' point of view, this enlarged not only the built up area, but also the functional daily urban region. Given the fundamental premise of time geography that we have to return to our home every day, there is a definite limit on how far away from home we, for example, can go for an eight hour working day. The implication of this for our everyday life, given this transport development, is precisely the enlargement of the area in reach. Though this area may vary depending upon where in the region one lives, on aggregate this development means an ever larger daily urban region.

Every enlargement process not only moved the city-country border outwards, but deepened its ambiguousness. This is one important aspect of the outskirts phenomenon: more and more space is made use of in ways that fit neither traditional ideas about the countryside, nor conventional view of the city. However, until some decades ago, this enlargement process was relatively easy to comprehend as it consisted mainly of the construction of suburbs and spaces for industrial uses. Of course, how planned this enlargement process was varied in Europe, not only between countries, but also within them, that is, between different cities. Anyway, the spatial relations of the city thereby was transformed significantly. Yet, what was *not* changed was the role of the urban core. It was still intact as the centre of finance, retailing and entertainment and functioned as the heart of the city towards which it oriented itself.

Currently, we are witnessing a new phase in this enlargement process, the salient feature of which is a more fundamental transformation in spatial relations of the city, turning the outskirts into a much more complex and ambiguous phenomena than it ever was. In fact, it was precisely the need to understand this transformation that motivated the present Cost Action. So how is the outskirts phenomenon to be conceptualised, how to explain it, and what are its consequences? As more and more activities now are moving out of the city centres, the city no longer remains oriented inwards. On the contrary, more and more central functions now take place in the outskirts in entertainment centres, business parks and shopping malls. For many, these new spatial relations means that they no more have to go to the city centre to live a full life. Moreover, many now living in the inner city have to go to the outskirts for sports or shopping, if not even for earning a living. The city is not just growing, in a certain sense, it could be seen as turned inside out.

In parallel, as location changes are both consequences and causes of urban mutations, this process of decentralisation is itself self-reinforcing. For instance, with the movement of economic activities towards the outskirts, people can settle their home even further out, the consequence of which is to stretch the daily urban region further outwards. The paradox is that this transformation tends to normalise the outskirts, as even the city centre may be seen as an outskirts, that is, far away from some necessary urban functions. The point with this observation, however, is not to try to generalise the outskirts phenomenon, but to stress that the outskirts of today are very far from what the Chicago School understood as the urban fringe. We do not yet know how to conceptualise it, though suggestions have been made, for example by Thomas Sieverts and the *Zwischenstadt*-concept. Purpose of this synthesis is however not to go into this conceptual discussion but to try to focus upon the outskirts *from a dynamic perspective*. That is, what is

going on in the outskirts? Or, to be a little bit more precise, what dynamic forces are shaping the present development of the outskirts, how do they do it, and with what consequences?

Of course, it is impossible to go into this question without touching upon issues of structures and governance – the task of the other two working groups of this Cost Action. Needless to say, though we have tried to minimise it, there must be some repetitions between the syntheses. Yet, in this synthesis, we try to focus upon the *forces of the outskirts dynamics*. Thus, in the following section, we identify four different kinds of forces implicated in this dynamic: background forces, social forces, economic forces and political forces.

2 Outskirts dynamic: Identifying forces

There is no such thing as specific outskirts forces shaping them. Rather the task is to identify forces of a more general kind, and then to try to show them at work in shaping the outskirts. The tricky thing is that even if we have to reckon with a set of quite general forces, their operation often produces quite specific results in each case. In other words, their working is context dependent, and their outcome context contingent. In deed, new spatial structures never emerge in a vacuum, from point Zero; in our case, they must be seen in relation to an already existing and specific city. Dealing with the shaping of spatial structures, context dependency shall come as no surprise.

Recognising this, we have identified one kind of force of a definite contextual nature. But contexts are multidimensional things, so henceforth we will talk about *background forces* in the plural. We do not see any reason to go into detail here, but it must be said that we have to take into account a broad variation of conditions, from conditions of nature and patterns of land ownership, to traditions and mentalities as the nature of urban culture and the home-ownership ideal. Also of importance here are factors as regular traffic congestions in the city centre and elsewhere. Whatever kind they are of, background forces always work as conditioners, setting the conditions for the outskirts dynamic by simultaneously setting limits for it, and giving it direction.

Another bundle of forces are of a social kind. To delineate something as social may seem quite arbitrary since most forces of the outskirts dynamic are of a social kind, that is, societal. Yet, we insist on distinguishing a set of *social forces* in distinction to on the one hand, background forces, and, on the other hand, political and economic forces. This does not mean turning the social forces into a conceptual sink. We rather use the concept in a quite specific way, relating

it to *emergent* values and tastes in the population. It is from the population, from individuals and their creative interaction, that new actions and choices, even lifestyles, could be expected. Emergence here means new values and tastes, while habits are what are given, thus belonging to the background forces.

Though this is a relatively strong specification of what we mean by social forces, it is still open when it comes to its content. So what values and tastes do we have in mind? Mainly such values and tastes that relate to how life is to be lived, and not only everyday life, but also leisure time, including tourism. Of course, there is a market aspect in much of this, consumerism being an integral part of many new life styles for example. Nevertheless, we hesitate to posit this as an economic force, even though it also operates through the market. However, new life styles may as well operate through the state, as a political force, censoring, or promoting, certain values and actions. One argument for our conceptual strategy here, however, is that such new values and tastes primarily are to be seen as belonging to civil society, or the individual scale, not to the market, or to the state. Thus, new values and tastes are born through social relations, out of how people interact. Consequently, we conceive them neither as economic, nor as political, forces.

Economic forces, then, are to be related to economic actors of different kinds. Also here we can recognise actors of different types. Yet, an important analytical distinction can be made between, on the one hand, those that want (re)locate their activities to/in the outskirts, such as households or firm managers, and, on the other hand, actors engaged in property development, such as professional developers. Of course, in practise, these roles may, to a greater or lesser extent, coincide, for example in the case of "self-provided" developments where the first occupant of the building is in charge of the construction process.

Of importance here is also questions of land ownership in a more general sense. Is land seen as nothing but a site for economic exploitation (via land rent appropriation), or are other values at stake in the ownership of land too? For example, it may be a family obligation among rural landowners to pass the land on to the next generation, making it almost inalienable, and thus not prone to redevelopment. The same may be the case of church owned land, though for other reasons of course. Such differences may be at work *within* a certain region, making some land more available for redevelopment than other land. Yet, there are also national differences to be recognised here concerning the nature of land ownership rights as such. In other words, are the property rights absolute, a prerogative of the owner, or are there strong regulations at work?

With this question, we turn to the *political forces*. Normally, they can be expected to relate to economic forces in a characteristic way, as the modern state is tax dependent. On the other hand, politics very much is about framing, but also directing, economic forces. Planning and the development of infrastructure are telling examples here, but the same can be said about tax systems – taxes relating to municipalities, land ownership, or car use, may, depending upon their construction, have direct, but varying, spatial effects. The same goes for many other state activities too.

Of special interest in our case is not so much the political colour of these forces as their institutional shape. Important national differences are to be recognised in the distribution of competencies between the central level and the municipal level. Also to be noticed is that most daily urban regions are made up of several municipalities, making them more or less fractured politically, even if a coordinating body may be found at the regional level. As a rule, borders of all kinds – from national and municipal ones down to the regulation of a specific piece of land with its specific limits – also make a difference. Thus, divergent dynamics are generated on the different sides of the border.

The timing of the current phase of outskirts development, turning the city inside out, has finally to be noted. It emerged more or less in tandem with a shift in political-economic regime when the long post-war boom, based upon mass production and the construction of the welfare state, came to a close. The new regime was born in the oil crisis in the early 1970s, fostered politically by economic deregulation measures based upon free market ideas, speeding up economic globalisation, implemented particularly since the 1980s. This change of political-economic regime, tipping the economy-polity balance in the favour of the economy, obviously is implicated in the current spatial transformation of the outskirts of European cities.

If this list of forces may seem somewhat undynamic, this is mainly due to how they have been identified and presented so far. In what follows we will set them in motion, in the search for a synthesis of the case studies of the working group, and of the site visits of the Cost Action too. Their dynamic, however, is not the simple additive consequence of these forces, one after the other, but rather the outcome of their combined and interactive working. Setting them in motion, we will draw as much as possible upon the case studies contributed by the members of Working Group 3, as well as upon the study visits of the joint Cost Action. In the following, references to the former are made through the name of the author, to the latter through the name of the city.

3 Outskirts dynamics: form and intensity

To get an idea of how these forces work – to observe the outskirts dynamic – we can look for at least two different aspects, one spatial, the other temporal. On the one hand, the dynamic has a certain outcome in terms of space, or, to be more precise, of *spatial form*. The not uncommon use of the pejorative word sprawl in this circumstance bears witness precisely to this: the seemingly cacophonic use of space in the outskirts, in contrast to the more well-ordered core of the

city. In short, we do not live any more in the walking city where the human body was the metric of everything. The new city, epitomised by the outskirts phenomena, rather is an intricate spatial connection of activities going on at different scale levels, from the local to the global. If sprawl is a misleading idea, the question nevertheless is what kind of order there is in the outskirts apparent chaos. For us, it seems reasonable to ask this question because we have difficulties in understanding a dynamic without at least a minimum of order, or direction of the development. However, the order does not have to correspond to the measure of the human body.

On the other hand, the temporal aspect of the outskirts dynamic has to do mainly with its *intensity*. Without a certain intensity, the outskirts phenomenon is not to be observed, or at least would it be something marginal in the present city. This being said, it is important to notice that there may be huge differences in the intensity of this dynamic, and thus in the importance of the outskirts for the region in question. In other words, the greater the intensity, the larger, and more important, the outskirts are.

The question of the nature of the relationship between form and intensity of the outskirts dynamic is important, but difficult to go into in detail. So let us take the form and the intensity aspects one by one, and then conclude this synthesis with some observations of their combined working.

3.1 Forming the outskirts: order or chaos?

The most important, if not the fundamental, question of form relating to the outskirts is if any order is to be found there, and if so, of what kind. One way of answering this question, however not without certain risks, is to visualise the urban and regional form. As the Copenhagen case so pertinently demonstrates, the visual image, in this case the open hand with its five fingers stretching outwards, is so easily turned into a powerful icon, here an effective planning instrument for the post WWII-planning of the region. Now, there are several other such images, as Pekka Lahti demonstrates (see his contribution in the volume on Structures), for example the linear city and the satellite city. However, these all belong to the category of traditional models, and as such they have also been used, more or less effectively, in urban and regional planning. Yet, in Lahti's paper, there are also new forms that perhaps are more characteristic for the kind of outskirts phenomenon that this Cost Action is facing: the Paradox City, the Dispersed City, and the Fractal City. Seen in this way, the outskirts definitely are about postmodernity, in contrast to the more traditional, planned city of modernity.

The risk with using such visual images however is that they help us recognise certain aspects while simultaneously ignoring other; visual forms are (too) easily turned into practical guide lines. Looking at Helsinki, Lahti comes to the conclusion that the outskirts development neither took shape according to the traditional (physical) form, nor to the new (functional) form, but

that we rather have to do with a hybrid, made up of them both. That is, the old physical forms act as a background force upon the new ones.

The problem with the sprawl metaphor is precisely that it misses the functional order that is not immediately disclosed by the eye. That being said, however, there still is some sense in this metaphor. Too much sprawl – dispersing fragments of the urban fabric out over large areas – is not compatible with sustainable development; among other problems, it generates too much automobile traffic. On the other hand, concentration of different activities along traffic arteries – particularly those meant for public transport – is the most effective measure to counteract such a negative development. Moreover, it is a most difficult thing to implement effective public transport in a region lacking a certain concentration of activities. From this point of view, it makes sense to record how much sprawl there is in the outskirts phenomenon. It may also be noted here, that this point is not just about ecology, but also about the possibilities to live a full life for those who, for different reasons, are not in command of a car.

So, how scattered, or fragmented, are the outskirts? Indeed, the variation observable here is one of the most striking findings of this Cost Action. Site visits to Berlin, Copenhagen and Paris revealed the importance of public transport for containing the sprawl. Of course, this very much is a question of comprehensive, and effective, planning. Yet, this does not mean that there are no sprawl at all. In Copenhagen, for example, the so called Finger Plan has been a practical containment device, canalising the growth of the region for a long time now; nevertheless, people working in Copenhagen are now settling all over Zealand, beyond the area reached by the Finger Plan. This can also be seen in Paris and Berlin. In the latter case, many people searching for a one-family home find it in Brandenburg, outside the border of the Berlin Land. In the Belfast case, we see that the outskirts development now is taking place outside the green belt, once planned to contain city growth. According to Jean Marie Halleux's analysis of the peri-urbanisation in Belgium, this now has gone so far that on a daily basis Brussels attracts commuters from all over the country. A very spread out situation seems also to be the case in Nicosia, though this is a much smaller region in terms of area and population. Here, planners have difficulties in concentrating developments into traffic nodes and the outskirts are scattered by one-family houses and also by a lot of services of different kinds.

If public transport lines, and planning, are of utmost importance for the containment of the so-called sprawl, it must also be noticed in this circumstance that the capacity and design of the main road system are powerful directors of the outskirts development too, as highlighted for the Milan case by Gianluigi Sartorio and Luca Studer. This goes not only for housing, but also for services and offices, for which the most attractive locations are close to important traffic nodes. It is precisely there that shopping malls, cineplexes and other leisure facilities are to be expected in the outskirts, as well as offices. This is an almost general observation.

The shape of the outskirts are also the effect of background forces. Besides existing railway lines and the road system, the physical geography of the region in question is an important

background force shaping outskirts development. This is easily seen, comparing for example city outskirts on a plain with city outskirts in an Alpine valley. Christoph Stadel shows this for Innsbruck. The east-west orientation of this city region very much follows the Inn valley floor. On the plain, on the other hand, development can comfortably settle in all directions. Political forces may also have observable effects here, as some municipalities are more favourable to new investments in land than other ones, which contributes to the unevenness of the built up fabric in the outskirts. Such differences may also be seen on a lower scale, within municipalities, most commonly depending upon differences between landowners in their willingness to make land available for investment. This is a relatively general observation, and a lasting impression of the Limmattal (Zürich) site visit.

Of importance here is also if land is developed by professional developers or in the self-provided way. While the former economic force favours relatively large land properties for the contiguous construction of houses, the latter is just looking for a small property, thus further fuelling fragmentation of the outskirts. Moreover, when this search for a small property is motivated also by beautiful scenery or values as solitude, this economic force becomes simultaneously a social one. Overall, the variation found here is the outcome of a specific balance between economic and political forces, between property rights and planning instruments, between individual expectations and collective regulations.

3.2 Dynamic intensity

The temporal aspect is at the heart of the ouskirts dynamic. If form makes it visible, time constitutes it. Looking at the dynamic more concretely, however, it becomes clear that the dynamic is the combined aggregate of a specific composition of forces. Moreover, these forces are not to be expected to harmonise, but rather work with, and against each other, thus contributing to the fragmented nature of the outskirts.

First of all, we may ask if there will be any dynamic at all *without a population increase*. Historically, urbanisation equalled the outward expansion of the city as more and more people had to be housed; the stronger the urbanisation, the more intense outwards move could be observed – with the possibility of some time lag, of course, since this could first produce a housing shortage rather than new dwellings. This relationship still is true, and times of sharp population increase can be expected to intensify the dynamic. Urban developments in general, and urban outskirts development in particular, are related to economic and population growth. It is about the accommodation of new households and new economic activities. Other things being equal, outskirts development is therefore dependent upon general economic and population trends.

But the really interesting thing to note is that even without a population increase, the dynamic is still there. It is so because, first of all, the outskirts phenomena nowadays relates to not all, but

most activities in the city region. Their change of location is of crucial importance here. There may also for several reasons exist a demand for new housing in the outskirts with a stagnating population. A change in values and tastes in favour of a single-family home and/or a living in the countryside will suffice to launch the dynamic, or given such values and tastes, a rise in the means – economical and other – will make such a way of life possible.

The force at work here may be either a social force, or a determinate combination of background and economic forces. On the one hand, as has been shown by Geneviève Dubois-Taine in her contribution, discussing social dynamics, people may look for a home in the outskirts to satisfy deep aspirations, searching via a new life style for the quietness in the outskirts, as distant from the city as possible. In this move will probably be found a longing for the countryside or for a certain landscape scenery. The same choice may as well be the consequence of a more general longing for living in a one-family house – because of an anti-urban mentality, or an ideology of what is the right way of living for a family. Metka Sitar's analysis of the Slovenian case illustrates this configuration. In Slovenia, the sprawl of self-provided single family housing was very strong even under the socialist regime, when constructions were tolerated without building permits.

In his analysis of the Belgian case, comparing it to the Danish and Swiss ones, Jean-Marie Halleux points at an important difference in background forces in this circumstance between North-Western Europe and the Mediterranean. In the former, an anti-urban mentality is observable, that is not to be found in Southern Europe, where thus a denser settlement structure is to be expected, as it is seen in the Florence and Madrid cases for example. But the case of Nicosia, in Cyprus, breaks this pattern, demonstrating a massive construction of one-family houses in the outskirts, perhaps as a consequence of a long-lasting British influence?

As Halleux demonstrates for the Belgium case, there is also the possibility of a push factor at work here. The difficulty of finding an appropriate home, given certain financial means, in more central locations, may be a sufficient reason for people to relocate their home to the outskirts, even if it means that they have to rely on two cars. In practice, it may be difficult to determine exactly how these forces combine, or what force is the stronger, but it seems reasonable to suggest that in cases where they all are at hand, the dynamic will be intensified.

Coming now to other activities than housing, it is precisely the (re)location of such activities to the outskirts that are significant for the current spatial transformation of our city regions. Basically, this transformation is driven by economic forces and part of it has become known as the new economy. Part of it also hits many branches of the old economy, as they are becoming rationalised and adapted to motorised customers. This is also an observation of a general kind – though there are important variations in its intensity between cities as well as between countries, the intensity depending, among several things, upon the mix of new and old economic branches involved in the out-of-town movement.

In the Salzburg case, studied by Christoph Stadel, this process seems to have been quite intensive. At least it was remarkably intensified when the German border was lifted and Austria inte-

grated with the European Union. This enhanced cross-border mobility, the effect of which was further strengthened by connecting Austria and Germany by the *EuRegio Salzburg – Berchtesgadener Land – Traunstein*. Massive investments into industrial, commercial, recreational and residential activities have thus taken place in the outskirts of Salzburg. This has contributed to a reverse commuting flow. In Salzburg, however, this also seems to be the effect of the touristification of the old urban core, Salzburg *Altstadt*, pushing other activities out of the core. Of course, such intensification of outskirts developments are taking place also elsewhere when former borders are being dismantled. Our Cost Action had the opportunity to study it at the Atlantic end of the Spanish-French border. In such cases, political decisions trigger economic forces to make one functional region out of what once was several.

Many new business services and similar companies now are located in the outskirts, an expansion that seems to have started in the 1980s. By taking use of the new IT-technology, many firms no longer were dependent upon a central location. On the other hand, this did not mean that they located everywhere, as they rather showed a propensity to locate close to the large roads for through traffic, not seldom along the one going to, or passing, the airport. Of course, this holds mainly for the larger cities, with a relatively high position in the global networks – another aspect of the current socio-spatial change. Now some caution is needed at this point since it is easy to exaggerate the importance of the new economy in the current move to the outskirts. Not seldomly, firms in traditional branches are being pushed out, away from more central locations. First of all, they may face difficulties to expand on a central site, surrounded by neighbouring activities on all sides. In deed, this has since long been an important cause for moving many industrial activities further out. There may also be political forces behind such a move, that is neighbours claiming nuisances due to the activity. The move may also be made for logistic reasons, be that because of congestion in the more central location, or just depending on better accessibility, or more attractive environments, in the outskirts.

This move to the outskirts, into locations conveniently reached by car, started earlier in retailing, particularly in food and relatively bulky household goods. This is demonstrated for the Swedish case by Mats Franzén, who also notices that this was followed later by cloth retailing, so that nowadays there is no need to go into the city centre. Economic forces has restlessly been leading this development towards greater and greater supermarkets, while customers have had to adapt to the new situation – new customer behaviour has been shaped, *e.g.* week-end shopping. Moreover, political forces have decisively speeded up this process by the deregulation of opening hours. Competition for investment between municipalities has further deepened the dynamic in Sweden. This situation may be compared to Denmark, where outlying shopping centres has been restricted quite effectively, as we could see in the Copenhagen case. On the other hand, Copenhageners now are moving over the new Øresund bridge to Sweden for shopping.

Overall, in many places the tempo of this move towards the outskirts has been quite impressive. Though different political forces may counteract it, the force of the development has made it seem almost irresistible, fuelling the imagination of an intensified sprawl. Even if it is easy to exag-

gerate this feeling of sprawl, the intensity of the dynamic is observable as it produces environmental and ecological problems. Gibelli and Pinto, in their study of the Milan region, point at precisely a high speed of transformation as a specific problem since it blocks the memory of the ecological system and thus its adaptation capacity. Moreover, high specialisation of the fragments severs the problems. This point to an important planning problem: to co-ordinate the development in space and in time. Sustainable development thus means a balanced development.

4 The outskirts dynamic process

The outskirts dynamic produces a more or less fragmented space, not just for housing, but increasingly for many different, and vital, urban activities. Thus the traditional city is turned inside out, and the outskirts made into a more complex and, in important aspects, more urban space than what is found in traditional suburbia. In short, the daily urban region is becoming multi-centred.

This dynamic varies in its intensity. This is to be seen at two scale levels at least. First of all, there is a difference between different cities. But there is also a difference in its intensity within the city, as some parts of it are more prone for exploitation than others are. Consequently, some cities are turned inside out more completely than others, and some parts of them more so than other parts.

Given that this outskirts dynamic is of a certain intensity and is about fragmentation, but also, to some degree, a certain recentralisation, the final question becomes one about how the temporal and the spatial aspects combine. Perhaps their combined working has to be understood as *a cumulative process*. In this process, each step taken results in a new spatial condition for the next step. Each such stet implies a reuse of land, be it brown field or green field. This is easy to see, but the process in its entirety is more difficult to catch since it is made up of thousands of such steps, taken more or less instantly.

In principle, it is possible to reconstruct such processes. For the many actors engaged in the process, each one preparing to take a step of one's own, such a retrospective view is, however, uninteresting. They have to look forward, making their decisions by themselves, in a chaos-like situation. The consequence of this is to lend a certain blindness to the process. It is precisely this relative blindness, so characteristic of a cumulative process as the outskirts dynamic, that lends a certain meaningfulness to the idea of sprawl.

This makes planning doubly important, first as a political force with the capacity, at least to some degree, to canalise the process, but also as a kind of future strategic horizon for each actor to recognise with and act with or against. The question is, however, how planning is to be understood, and accomplished, in this kind of situation. If the impression of sprawl comes together, with some kind of functional order, a system-theoretical approach to urban planning may, however, be a reasonable solution, as argued by Eckard Wolf in his contribution.

But it is also possible to identify a moment of self-reinforcement in this process – at least beyond a certain threshold. If fragmentation in a sense breeds the need for planning, in practice fragmentation may rather reinforce itself. It is particularly so if the traffic system is highly dependent upon private car use, the other side of which is a released mobility, discussed explicitly by Jean-Marie Halleux in one of his contributions, but also observed by Sartorio and Studer in the Milan case. And, as we have seen, such a development in its turn makes it more difficult to uphold a reasonable public transport system. Moreover, it is quite reasonable in the future to expect a further increase in the scale of fragmentation, as some of the problems thus induced are possible to overcome by the use of new communication technologies. In other words, fragmentation does not exclude some kind of functional order in the process.

However, it would be false to regard this process as inevitable, even though it is correct to identify a moment of self-reinforcement within it. There are always possibilities to canalise it, not only through planning, but also through taxes, for example, or in more general terms, through political forces. Nevertheless, a reasonable conclusion seems to be that if the outskirt dynamic is to be contained, this would be easier, the earlier in the process appropriate means are taken to counteract it.

Another reasonable conclusion seems to be that there is no possible way back to the traditional city. The outskirts phenomenon has to do neither with the traditional city, nor with the conventional countryside. As difficult as it is to understand this, as easy it is to keep to the idea of sprawl to try to understand it. The question, however, is if this does not miss the potentials for a functional order within this dynamic, how chaotic it now may look like. Accepting this is necessary to be able to canalise the development in a sensible way, for example, into some new centres at the heart of the outskirts.

One of the tricky things in understanding the outskirts phenomenon that we particularly has tried to demonstrate in this synthesis could be summarised in the observation that the outskirts dynamic, though driven by forces of a general kind – economic, political and social ones – produces quite specific results since they always interact with a particular set of background forces. In short, their working is context dependent, their outcome context contingent. Thus, to be able to contain – or to steer – the outskirts dynamic, knowing the working of the general forces is not enough. Identifying the working of the background forces becomes crucial for the success of such a venture.

PROCESSES AND FORCES AFFECTING THE DYNAMICS OF THE OUTSKIRTS OF EUROPEAN CITIES

Christoph Stadel

Department of Geography and Geoinformation, University of Salzburg, Austria; christoph.stadel@sbg.ac.at

Abstract

The outskirts of European cities are shaped and transformed by an array of dynamic forces and processes. They are also greatly influenced by a host of different agents and actors, at the local, regional, national, and international levels. Furthermore, human perceptions, preferences and changing lifestyles in different cultural, socio-economic and political settings are contributing to the formation of complex and diverse urban-rural landscapes at the edges of European cities. With the aid of two conceptual models, attempts to provide and overview of the various forms of impacts and influences on urban outskirts an don the mosaic of functions and land uses – some of them complementary, some of them conflicting in nature. Based on specific empirical evidences, some references will be made to specific European cities, with somewhat more detailed comments on the two "Alpine" cities of Innsbruck and Salzburg. In the concluding remarks, a tentative list of recommendation for harmonious, well planned and accepted sustainable urban peripheries will be mad.

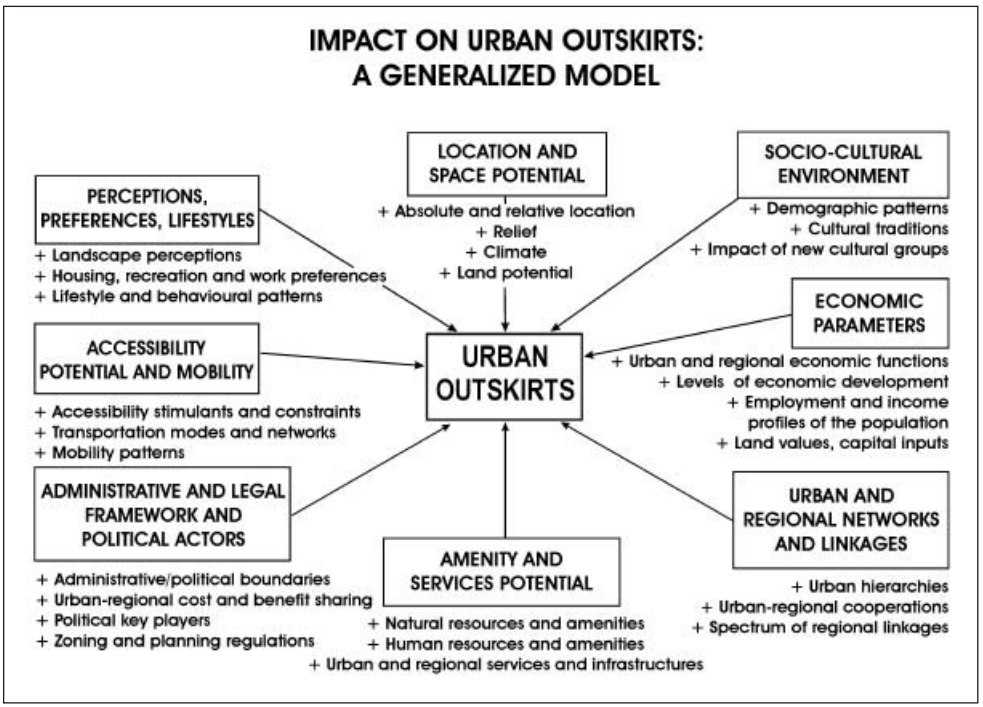
1 General comments

The outskirts of cities are shaped and transformed by a complex set of geographic, economic, social and political forces and processes. These forces and processes generate a rapidly evolving dynamic urban-rural fringe, the most visible expression of urbanization and city growth which tends to deeply transform the physical and cultural landscapes as well as the social and economic structures at the edge of cities. Conversely though, a series of barriers, checks and controls does frequently exist which tends to limit or retard the dynamics of urban expansion and of the transformation of the fringe zone. These factors of inertia and control may lead to an apparent stability and continuity of land use and of the socio-economic structures, although the urbanization process may continue at the outskirts of cities in a more hidden fashion (e.g. in the form of a belt of urban speculation and strengthening ties of the "rurban" population with the city). These factors retarding the urban expansion may exist in the form of topographic barriers which may impinge on accessibility and mobility, of administrative boundaries which may safeguard a certain degree of autonomy of communities beyond the city's political limits, and of less favorable locational aspects of certain fringe areas for housing, commercial or recreational land use. At times, a "leapfrogging" effect of urban influence or land use may be observed leading to a non-contiguous mosaic of urban and rural landscapes in a wide area around the cities.

2 Factors and actors affecting the development and structure of the urban fringe

The development and transformation of the outskirts of cities is shaped by a complex and ever changing set of natural and human influences and forces. This leads to dynamic impacts and processes which tend to affect the environmental conditions, land tenure and land use, the social and economic fabric and the political landscape of the urban-rural continuum zone. They result in a number of visible and often rapidly changing spatial and non-spatial expressions of dynamic processes (e.g. expansion and density increase of built-up areas; development of transportation infrastructures and "mobility explosion"; land use transformations). Often preceding or paralleling these visible forms of transformation are less visible expressions of changes (e.g. subtle environmental modifications; land ownership and land price changes; transformation of demographic

and social profiles of residents and their perception; modification of administrative structures and the "political landscapes"). Initiating, stimulating, sustaining or retarding these changes are numerous and diverse actors, individuals, groups, institutions, organizations or enterprises with highly divergent levels of influence and power. At times, reasonable and widely accepted consensus building over goals and strategies in shaping the outskirts of cities is possible; at other instances though, interests of different groups and lobbies may be incompatible and may clash. Among the most influential actors shaping the outskirts of cities are farmers, new suburban or exurban residents, secondary home/cottage dwellers, real estate agencies and development firms, commercial or industrial enterprises, planners, politicians or environmental agencies.



Design: C. Stadel

Figure 1

Figure 1 portrays the multiple forces and factors which shape the urban outskirts in a conceptual model. Relating to the empirical evidence of the European cities which served as exemplary case studies for the COST C10 Programme (Biarritz-Bayonne and Cergy-Pontoise in France; Innsbruck, Austria; Berlin Germany; Copenhagen, Denmark; Helsinki, Finland; Belfast, United Kingdom; Zürich, Switzerland; Florence, Italy), it was recognized that while all the factors listed

in the model are significant for the shaping of the outskirts of the European cities, each city has its own urban identity, has to be understood in its specific locational, economic, social, cultural and political context, and is shaped by distinct historical and current forces and actors. As a result, the structure and the dynamics of the urban ourtskirts – while showing some common traits – exhibit nevertheless highly differentiated "urban-rural landscapes" and patterns. To illustrate this point – albeit in a rather cursory and selective way – a few specific references may be made for the European cities. Referring to the location and space potential, coastal, mountain or plain settings offer distinct opportunities and constraints for urban expansion. Furthermore, Scandinavian and Mediterranean cities are experiencing very different climatic regimes which may require specific urban planning responses. Of particular importance is the political location for border cities (e.g. Biarritz-Bayonne; Salzburg, Austria; Nicosia, Cyprus). In the case of "open" boundaries, urban peripheries may exhibit a transboundary expansion with a complementary functional mix. Rigid "barrier" boundaries in contrast will curtail an urban expansion or may even result in a blighted urban wasteland on both sides of the border. Locational aspects impacting on the outskirts of cities are also related to the urban and regional networks and linkages, to the hierarchical pattern of settlements and to types and the effectiveness of urban-regional cooperations and/or competitions. This was evident in the case of the Scandinavian cities of Copenhagen and Helsinki or the new town of Cergy-Pontoise where the direction and intensity of urban expansion is shaped by the proximity or the distance to other cities and the effectiveness of regional transportation, communications and economic linkages and infrastructures. In all the cases studied, the accessibility and mobility potential and the transportation modes and networks are of prime importance for the directional pattern, the speed and intensity of development and the "reach" of the central city into the surrounding region. The transportation infrastructure and travel time gradients result in many instances to star-shaped urban outskirts along efficient transportation lines with intensive development dynamics with the interstices between the transportation lines lagging behind in development or being preserved as wilderness areas (e.g. Helsinki), green spaces (e.g. Cergy-Pontoise, Berlin) or recreational hinterlands (e.g. Florence, Copenhagen). In addition to the transportation infrastructures, other amenity and services potentials may play an important role in the shaping of urban outskirts. In terms of scenic amenities, mountains (e.g. Innsbruck, Florence), lakeshores (Helsinki, Berlin) or forested areas tend to attract urban residents "invading" neighbouring "scenic" and/or "peaceful" villages or creating new "clusters" of permanent or seasonal homes and cottages.

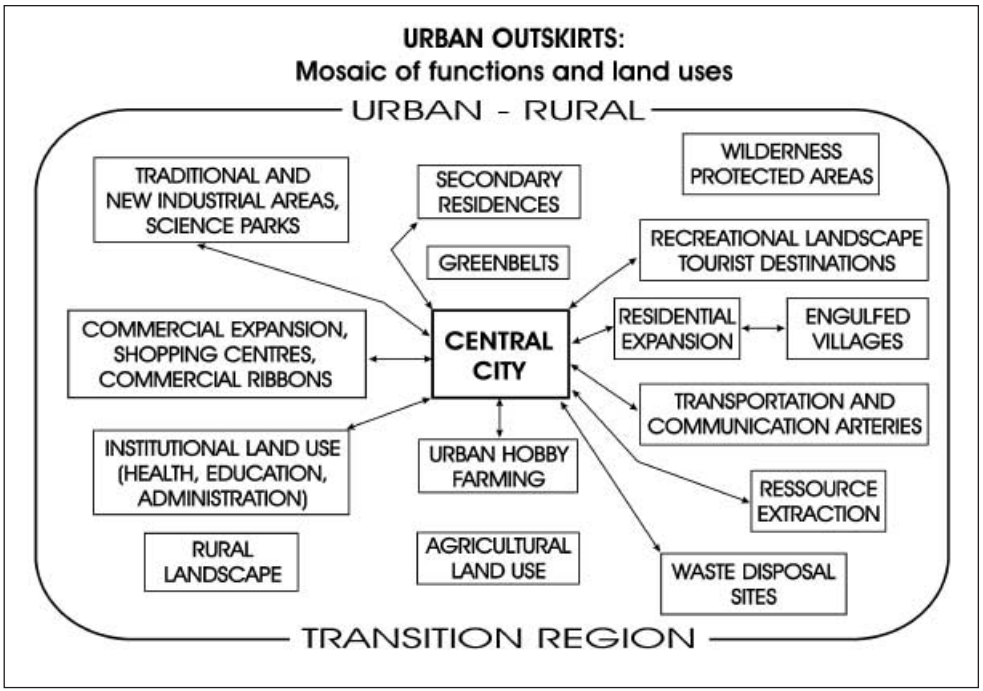
Of mayor importance for the development of the outskirts of cities are a variety of economic parameters, among them the regional functional mix and development potential, employment opportunities and income profiles of the populations, land values and capital inputs. All the urban peripheries visited confirm the significance of the "economic climate" of the region. In a number of cases, because of different economic parameters, the development of urban fringes, the land use and socio-economic landscapes may exhibit distinct and at times contrasting sectors. This was for instance quite evident in the case of Belfast or Berlin. A detailed analysis of

each of the cities studies would however go beyond the scope of this paper. The nature and development of urban outskirts is also reflected in the specific socio-cultural context of the region, in its traditions, but also in the impact the social and cultural influences of new population groups may have on suburban and exurban areas. This then is closely linked to the often differing perceptions and lifestyles of people, their perceptions and preferences of landscapes, housing, type of work and recreation. On a macro-European scale, mayor differences between Scandinavian and Mediterranean populations were noticeable; on the scale of individual urban regions, distinct human perceptions and lifestyle could be observed, for instance between long-term residents originating in the region and newly immigrating population groups. Often the mayor determinant for the planning and development of land use at the urban outskirts and at times overruling many of the other factors mentioned above are the administrative and legal frameworks and the role of political actors. In terms of the administrative boundaries, some cities are "underbounded" (urban land uses "spill over" the city boundary), while others are "overbounded" (urban land uses have not yet reached the extent of the city boundary. Relating to this, the proposals for expanding boundaries of the central city and the amalgamation of neighbouring communities has led to highly emotional and controversial debates. It is obvious that the boundary question which is a key issue in the relationships between the central city and adjacent communities or municipalities, especially in terms of planning regulations, land development, regional transportation and cost and benefit (tax revenue) sharing. Finally, the shape, structures and development processes at the urban outskirts are greatly influenced by the rules and regulations of planning policies and zoning by-laws.

The outcome of these complex dynamic forces and multiple impacts, is a highly diverse spatial mosaic of functions and land uses, some of them truly urban, others though rather rural in nature. **Figure 2** portrays these functions and land use categories in a generalized model. The term "urban-rural continuum" suggests that there is often no clear spatial separation of urban-type and rural-type land uses. Also, the classical economic models of a "distance decay" of land rents and land uses, are today only of a limited validity and applicability. While the outskirts of European cities exhibit some common features in the constant "tug of war" between the dynamics of urban sprawl and constraints and policies aimed at containing the urban "spillover" into the rural countryside, the experiences of the COST C10 Programme has clearly shown, that the outskirts of each city studied, for many reasons, has its own "identity" in terms of the spatial expressions of the functional and land use mix.

While only few European cities are bounding on genuine wilderness areas (e.g. Helsinki), most of them are surrounded by greenbelts or are including green wedges in their fringe areas. There is often not only an attempt to conserve "natural" environments, but especially in Central Europe a major planning objective to save farming and a rural landscape from urban encroachment. Related to the "green function" of the outskirts of cities are various forms of gentle and less gentle forms of recreational activities. In the first category parks, hiking and biking areas, picnic spots and nature observation points can be mentioned as examples; in the latter category,

often rapidly emerging new forms of recreation, e.g. amusement and theme parks, motorbiking circuits, discos or casinos. Following a world wide trend, the urban outskirts are preferred residential areas. These appear in many forms and are also often geared to different social classes, age and lifestyle groups. Housing may be public or private, and housing densities and styles exhibit a wide rage of options. While some residential exurbanization may spill into pre-existing villages often leading to some problems of social "engulfment" and the "erosion" of the traditional character of these communities (e.g. in the case of many Central European "urban fields"), residential sprawl frequently transforms former "open spaces" or creates "new towns". The suburbanization and exurbanization processes were greatly simulated by the enhanced mobility of urban populations.



Design: C. Stadel

Figure 2

This in term required a massive expansion of the transportation infrastructures and public as well as private transportation services with the major objective of facilitating the linkages between the central city and the outskirts. Counteracting this trend has been the foundation of largely "self-sufficient" new towns, the creation of new employment possibilities in the fringe

(e.g. new industrial parks and commercial areas) and the building of large shopping centers, institutions and new recreational facilities in the "countryside". This has significantly changed some of the commuting patterns and trip destinations of the population of the whole urban area and the regions at large. Land uses that tend to conflict with most other forms of land utilization are the resource extraction activities (e.g. quarries, sand and gravel pits) and the highly controversial waste disposal sites. Planning strategies and policies have ranged from a prohibition or a severe restriction for these activities, to spatial segregation, more environmentally compatible and less obnoxious forms of operations to "laissez faire" approaches. These general comments clearly show that the outskirts of European cities are shaped by multiple sets of highly dynamic forces and processes. This in turn has created very complex and rapidly changing landscapes and socio-economic environments at the edge of cities.

3 Dynamic processes shaping the outskirts of the two Austrian cities Innsbruck and Salzburg

Locational aspects, topography and other environmental conditions are of particular importance in shaping and developing the urban fringe of cities with a location inside the Alpine realm (Innsbruck) or at the edge between the Alps and the Alpine foreland (Salzburg). These impacts of the natural environment do not represent a static framework. In some ways they have been modified by human interference (e.g. control of flooding). Also, the perception of environmental conditions and their valorization and use, has also changed (e.g. the enhanced attraction of scenic mountainous residential locations by city dwellers).

It is obvious that the location of Innsbruck at the confluence of the west-east flowing Inn River with its broad valley and the Sill River entering the Inn Valley from the south in a deeply entrenched valley ("Wipp Valley") determined not only the original town site but also influenced the subsequent spatial expansion of the city. To the north and south the Inn Valley and the urban area of Innsbruck is bordered by mountainous relief: to the north by the steep and rugged limestone Alps; to the south by the more gentle mountainous relief of the "Mittelgebirge" and the crystalline central Alps. Whereas the "wall" of the limestone Alps has remained a formidable barrier and prevented any expansion of the city to the north, the Wipp Valley since Roman times served as a cross-Alpine transportation corridor with the relatively easy crossing of the Brenner Pass. The accessibility of the Wipp Valley and the transportation link with Innsbruck was further

enhanced in the 19th and 20th century by the building of the cross-Alpine railway, a new pass road and in the 1970 by the first transalpine Brenner Expressway. This transportation "revolution" enhanced the para-urban industrial development of the Wipp Valley and the exurban, fingerlike expansion of the urban zone of influence of Innsbruck. In spite or these developments, the flat and broad valley floor of the Inn Valley stimulated a highly dynamic development and spatial expansion of the outskirts of Innsbruck in a linear west-east direction. Adding to the favorable relief conditions was a more effective control of the flooding in the Inn Valley and the enhancement of the transportation infrastructure by a major railway line, a highway and the "Inn Valley Autobahn". In the post-World War II-period, the residential trend to seek out scenic rural areas with superior micro-climatic conditions (less fog and pollution, more sunshine) has led to an expansion of the residential outskirts and commuting zone of Innsbruck to the surrounding "Mittelgebirge" to the south. In the Inn Valley, the process of urbanization and the "filling-up" of vacant land intensified except for the areas zoned as agricultural land use, e.g. the market gardening areas at the eastern outskirts of the City.

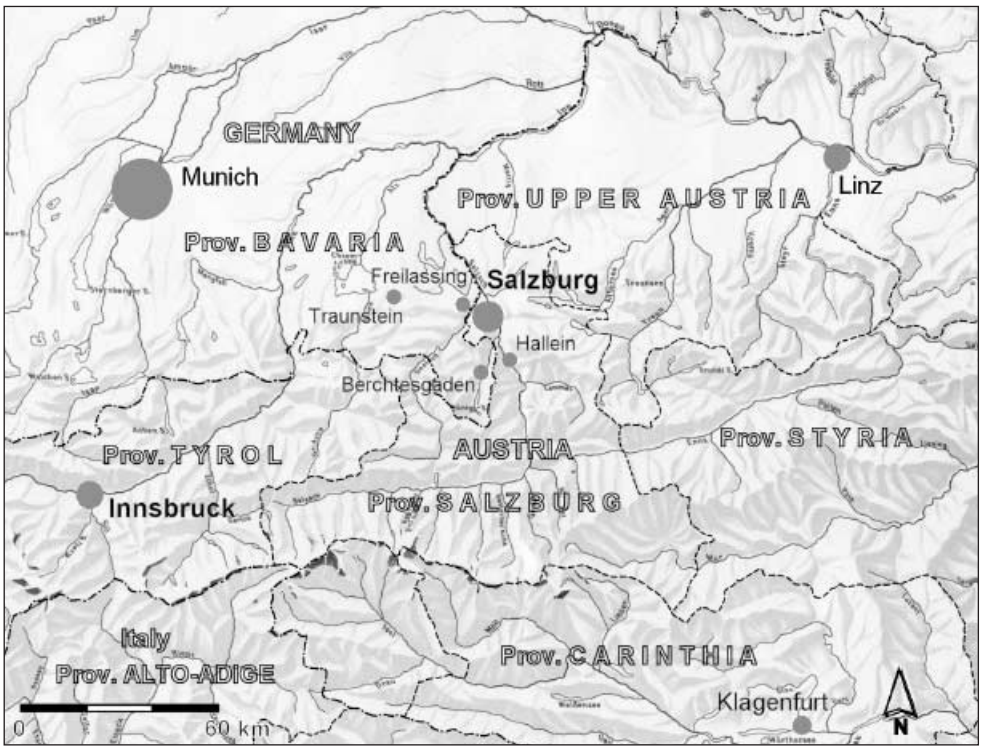


Figure 3: Location of Innsbruck and Salzburg (Austria)

In the development of the outskirts of Salzburg, the topography played a less significant role as could be observed in the case of Innsbruck. Salzburg is located in the broad valley of the Salzach River and an expansion of the city is not greatly hindered by topographic barriers. On the other hand, the Salzach River Valley has favored for a long time the development of a dense network of villages and towns and of transportation lines linking the pre-Alpine hills and plains of Bavaria with inner Alpine valleys and pass routes. However, at least until the end of the 19th century, the frequent flooding of the unpredictable Salzach River represented a major environmental constraint and restricted the dynamics of the settlement process. Although the Saalach River, a tributary of the Salzach River, can hardly be considered a "natural boundary", it represents the western limit of the City of Salzburg and since 1806 the international boundary of Austria with Bavaria resp. Germany. During most of the time in the past, this has not prevented intensive social and economic linkages and interactions across the boundary, and the cities of Salzburg and Freilassing in Bavaria form a contiguous urban space. Freilassing and Salzburg are linked by the Salzburg public bus system and both cities have served as alternative commercial outlets for each other. Especially since Austria's joining the European Community which further encouraged cross-boundary residential location and employment mobility, and the subsequent virtual disappearance of international boundary controls and restrictions through the Schengen Agreement, the dynamics of Salzburg's outskirts have intensified across the Austrian-German border. This trend has been further enhanced by the establishment of the trans-boundary EuRegio Salzburg-Berchtesgadener Land – Traunstein.

In spite of this extension of the outskirts of Salzburg in a westerly direction into Bavaria, the core region of Salzburg ("Salzburger Zentralraum") has taken the shape of a predominantly linear band extending from the edges of the rugged limestone Alps in the south to the gently rolling hill and lake district of the northern "Flachgau" region bordering on the province of Upper Austria. This extended fringe area of Salzburg exhibits extraordinary growth and transformation dynamics. While the urban sprawl has become more effectively controlled by the implementation of a new law of territorial and land use regulation in 1993 ("Raumordnungsgesetz ROG"), the preservation of green spaces and politically autonomous communities can only barely hide the intensive social and economic urbanization process: a high proportion of the labor force of Salzburg resides in these communities and commutes to Salzburg. Conversely, new industrial and commercial enterprises including shopping centers and city-oriented recreational facilities have established themselves at the outer urban fringe of Salzburg and have resulted in a reverse commuting flow and recreational mobility out of the city. Although the core region of Salzburg is well served by a corollary of transportation lines, among them the "Westautobahn" and railway to Vienna and the "Tauernautobahn" and the transalpine railway in a southerly direction, the peak saturation of transport capacities represents a major problem for this region and a challenge for innovative strategies. The massive investments into industrial, commercial, residential and recreational development at the outskirts of Salzburg outside its administrative boundaries has resulted in a building boom and rapid population growth in this urban-rural fringe. This has also

meant that the "bacon belt" (Speckgürtel) around Salzburg has siphoned off tax revenues and consumer spending from the city. In a recent newspaper article (Salzburger Nachrichten, 28/07/2001:IX) entitled "Shopping im Speckgürtel" ("Shopping in the bacon belt"), N. Mayr states that the shopping centers and specialized markets at the outskirts of Salzburg, in particular near the circumferential expressways, represent an ever growing competition for retailing in the inner city districts of Salzburg and in the communities of the region. In the year 2000, the retailing space of the city center of Salzburg stagnated at 50,000 m^2 while that of the surrounding communities of Wals-Siezenheim, Bergheim, Anif, Hallwang and Eugendorf skyrocketed to some 160,000 m^2. The community of Wals-Siezenheim at the western periphery of Salzburg, under the aggressive promotional activities of its mayor, has already a retail space per resident which is three times as high as that of the core city of Salzburg. It has become obvious that such unbalanced developments and competitive tensions between the city and its surrounding region can only be attenuated by a cooperative regional planning and development strategies within the whole "urban field" of Salzburg, or even within the wider zone of urban influence extending into the province of Upper Austria and into Bavaria with its combined estimated service population of some 600,000 people.

4 Concluding remarks

The processes taking place at the outskirts of European cities are highly dynamic in nature. Empirical evidence shows that depending on the geographic, socio-economic, cultural and political framework and on different actors, these processes may be highly complex and may exhibit considerable variation from city to city. Furthermore, the impacts of factors, processes and actors may have divergent impacts on the development and structure to the urban fringes.

In many cases, the dynamic growth processes of the city outskirts and spatial, functional and social urbanization processes within an expanding zone of urban influence represent key challenges for both the city and the surrounding areas. Based on the relevant literature and on personal observations and experiences, a tentative list of recommendations – albeit of a rather general and subjective nature – may be formulated with the aim of contributing to harmonious well planned and excepted sustainable urban peripheries:

- a growth and spatial expansion of urban land uses at the edge of cities which are well controlled and managed;

- a preservation of "green spaces", agricultural land or conservation areas, and a protection of a sustainable use of natural resources;
- a respect for and a protection of the autonomy, cultural identity and economic viability of communities surrounding the central city;
- a transportation system based on the principles of facilitating the mobility of people while avoiding excessive land consumption and environmental impairment;
- the creation of a "commercial landscape" with a balanced and complementary system of shopping facilities in the inner city and at the outskirts of cities;
- the provision of attractive and well-managed industrial and technological parks in the urban fringe which reduce or reverse the direction of commuter flows;
- the avoidance of low-density and ubiquitous sprawl of permanent residences and secondary homes (cottages) at the outskirts of the cities
- a harmonization and effective cooperation of urban and regional planning and development/ conservation strategies between the central city and the surrounding "rural" municipalities;
- a balanced share of tax revenue and other incomes between the central city and the surrounding municipalities, a shared responsibility for providing good infrastructures and services for the people of the entire urban-rural transition zones, as well as a joint promotion of employment, shopping and recreational facilities and of an enhanced quality of life for the population living in the urban-rural field.

According to M Parkinson (2001:79) in his observations on "Key challenges for European cities: achieving competitiveness, cohesion and sustainability",

"successful cities have the strategic capacity to mobilize the social, cultural and political resources from the public, private and community sectors to create and implement a long-term economic development strategy for the city".

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THE DYNAMICS OF URBANIZATION PROCESSES IN SLOVENIAN TOWNS AND SETTLEMENTS

Metka Sitar

Faculty for Civil Engineering, University of Maribor, Slovenia; metka.sitar@uni-mb.si

Abstract

The idea of this paper was to recognize the dynamics of economic, political and social changes in the outskirts of Slovenian towns and settlements[1], by analysing the most important forces of spatial development during the past few decades, in order to contribute to the understanding of European conditions and trends of urbanization processes.

Dispersed housing is the most widespread type of the settlement structure, with the single-family home being its most characteristic fabric. This phenomenon demonstrates the fact that land- and housing policy, supported by strict planning system regulations, did not correspond to the needs and images of the population in the post-WWII period. The lack of appropriate typologies and suitable residential plots encouraged people to fulfil their dream of the single-family house in natural green surroundings in the urban outskirts and hinterland, where self-built housing spread.

The national concept of polycentric development for steering urban development, based on the network of relatively small towns, was introduced some 30 years ago. During the last decades the sub- and peri-urbanisation processes in the outskirts and hinterland are facilitating achievement of the common vision on housing. The specific development dynamics, related to the changes and forces behind those processes, will be presented in this paper.

Keywords

Slovenia, Outskirts, Settlement structure, Polycentric development, Sub-urbanisation, Urban sprawl, Single-family housing, Housing policy, Land policy.

1 Introduction

During the last decade spatial development was conditioned by global political, economic and social changes. One can add the potential of European space, effective even outside the borders of the European Union. The influences of its economic, social and cultural development are also reaching into neighbouring countries. Because of its geo-political position Slovenia is increasingly being influenced by global economic development, caused by new productions and services.

From the historical viewpoint, the main impacts on urban development in the post-war period resulted in the formation of dispersed settlement development. The same urban fabric was maintained even under new circumstances after 1991, when the Republic of Slovenia gained its independence, although development dynamics during the last decade have nevertheless fundamentally changed. However, dispersed settlement development, determined by the sub- and peri-urbanization processes, is considered to be the most important urban phenomenon of the post-WWII period and it is still one of the main topics of regional planning research.

At present, the spatial impacts on urban development are similar to those in other European countries. The dynamics of economic, political and social changes have caused multi-level processes, which have significant impacts on settlement structures and changes of traditional images of cities and settlements. One of them is the strengthening of urban centres and city agglomerations, which compete by promoting advantages of their location, with emphasis on traffic accessibility and investment opportunities.

As the dispersed and scattered settlement structure is the most characteristic urban fabric in the outskirts of towns and hinterland, this phenomenon was analysed as an unavoidable part of almost all studies on conditions and trends of urban development in Slovenia. This paper summarises information and data related to dynamics of urban processes, mostly focusing on publications by Slovenian authors in the Slovenian language. Though this topic is constantly present in various research projects, mainly geographers have dealt with it. The Ministry for spatial planning and the environmental protection commissioned the majority of studies concerning the new concept of the spatial development strategy at the national level. In order to analyse the conditions and trends for designing guidelines for the new documents at the national, regional and local level, the Ministry also sponsored most of the studies.

2 Background forces

2.1 Geographical and environmental conditions

Geographically, Slovenia is a distinct area lying between the Alpine, Pannonian and Mediterranean region. As a predominantly mountainous country, with varied relief of alpine and sub-alpine covering 45 % of the territory, the settlement structure is characterised by rather high density and large dispersion of towns and settlements , related to historical influences of the prevailing agricultural activities in the past and rather late industrialisation. The urbanisation processes are reflected in agricultural decline; presently only 10 % of the territory is agricultural land. In addition, more than one half the Slovene territory is covered by forests, which are still expanding. The consequences are the restructuring of rural areas and increasing sub-urbanization of areas close to employment centres. In 1991 the percentage of mostly agrarian population decreased from over half of the total population to as little as seven percent.

The urban system is characterised by the large number of relatively small towns and settlements (6.000 all together), modified to the natural morphology by traditional attachment to the rural landscape. Following the concept of balanced regional development, the distribution of urban fabric is based on the polycentric concept of the planned urban system, introduced 30 years ago as the main goal of urban structuring. To conclude, the settlement structure is characterised by different types of areas, which are based on specific development trends:

- ursbanized areas in valleys with economic and population concentration, gradually spreading to the hinterland and towards the mountains,
- urban development concentration in the functional regions of the large cities; with increased need for building land in this areas,
- peripheral areas with often unplanned suburban areas in the outskirts of towns, accompanied by dispersed development of single family housing in rural areas,
- peri-urbanization of lower densities along the main traffic corridors positioned in the natural environment, marked by fragmented ribbon patterns,
- rural areas characterised by depopulation of peripheral areas in the countryside and disintegration of the cultural landscape.

2.2 Demographic changes

Slovenia is a relatively densely populated country, with almost two million inhabitants, and an average population density of 97 inhabitants per km^2. Since one-fifth of Slovenia is not inhabited, the density is indeed much higher. In recent years the population rate has been stagnating and it is unevenly distributed, mostly according to geographical conditions sup-

ported by current urban trend of centrifugal forces of the main urban areas. In those areas two thirds of the population inhabit 12 % of the land. This population is increasing fast; it doubled in the past three decades, since 50 % of the present urban population migrated from rural areas. More than 80 % of the economic power is estimated to be concentrated in these areas (Kreitmayer, 2001).

At present settlement development is related to the specific conditions of demographic trends similar to those in other European countries. The changes of household structure, where the average family size decreased to 3.1 family members, and the lifestyles, are apparently the main factors for current urban processes. In the future, ageing and the stagnating population are also considered to be the most problematic issues or "structural weaknesses" in two thirds of the Slovenian territory (Ravbar, 1999).

Year	Population growth rate	Mid year	Previous year
1980	1.00	1 901 208	1 882 304
1985	1.65	1 973 151	1 942 802
1990	- 0.07	1 998 090	1 999 404
1995	- 0.01	1 987 505	1 987 750

Source: Istanbul+5, Slovenian National Report on the Implementation of the Habitat Agenda, 2001. MOPE/UPP, Ljubljana.

Table 1: Population growth rate 1980 – 1995

In order to illustrate the specific impacts on the dynamics of urban development towards sub-urbanisation, we have to go back to the 1960s and 1970s. The huge migration of predominantly agricultural population to the neighbouring towns was the consequence of industrialization of previously agricultural regions, the former becoming the main employment opportunity. In the 1980s migration increased, attracted by the promises of economic prosperity. After 1980 extreme changes related to the gap between more or less favourable regions occurred. For instance, the geographical analyses show that the growth of urban population in the outskirts and towards the hinterland of towns was much higher than the one in the compact city centres. On the basis of different methodological approaches these phenomena were described as sub-urbanization and per-urbanization processes, documented by statistical data and illustrated in several figures (Ravbar, 1992, 1996, 2002).

In the middle of the 90s the Urban Planning Institute of the Republic of Slovenia produced a series of analyses of settlement structures and concepts, which were sponsored and published by the Ministry for spatial planning and environment protection. The authors were among the first to recognise the specific forces and dynamics of the urbanization processes, namely:

- increase of the population in the outskirts of the big cities, though the population is relatively less mobile,

- peri-urbanization caused that the distinction between towns and countryside is getting smaller and moving towards the urban-rural continuum,
- traditional villages in the countryside transformed to more urban places – on the basis of dispersed industrialisation and cheap building plots the mainly worker population settled down in the outskirts and hinterland,
- settlement development was influenced by the dispersion of work places and growing population in urban development areas,
- social changes caused changes in living standards; the outskirts acting as catalyst of the unsatisfactory living standards in towns, supported by low prices of land and good traffic connections to the working places and services.

2.3 Phenomenon of urban sprawl

The dispersed settlement development, a consequence of the polycentric concept of urban development, is a widespread urban fabric in the outskirts, which exploits the existing community infrastructure systems and more liberal urban planning control. Urban sprawl is considered to be the most controversial urban issue, researched and criticized by many experts. It is the fact that in times of economic uncertainness, it often enables further urbanization, which supports possibilities of new urban activities in smaller communities lying in the outskirts of the cities. Illegal housing follows in close relation, which is a specific phenomenon from the times of the socialist system. Namely, the municipal authorities tolerated construction without permits, although private property of land was categorically denied. At the same time landowners of such illegal buildings, often lying in the most attractive areas, acquired significant property rights, by avoiding any administrative control.

In fact, single-family housing based on private property was a very negative issue as well, but there is almost no research work about this sensitive topic (Gabrijelcic, Fikfak, 2002). In spite of its' negative political image, the self-provided single-family house was somehow tolerated and in the 1970s their share expanded to 50% of all annual housing production. This negative attitude was one of the reasons why the typology of detached, semi-detached and row houses as the alternative models to high-rise multi-family residential blocks has almost not been developed.

The extreme criticisms of dispersed and scattered housing in the mid 90s (Gabrijelcic, Drozg) were generated by renewed revision of the balanced settlement structure, which hadn't been achieved in the past. At that time the very explicit phenomena of pressure on building land for housing and business activities moved to the outskirts and hinterland. These global trends were supported by the construction of roads and the motorway network, controlled by the government institutions, that was serving the populations preferences for mobility by motorcar.

Because of the working places, housing development moved to attractive locations along the main roads in a very intensive manner. We can say that the traffic network was the main support for sub- and peri-urbanisation, enabling the development of urban fringes and belts of different size and density around the cities, which are seen as "dispersed urban landscapes" (Gabrijelcic, Fikfak, 2000). The phenomenon of sub- and peri-urbanization will decisively overcome the traditional concept of polycentric development (Sendi, 2000).

2.4 Urban agglomerations and the role of the main cities

The settlement system is strongly related to the role of the central cities that has been synthetically researched by many geographers (Kokole, 1971, Vriser, 1968, 1988). They classified them according to different hierarchy levels of central functions, (based on the Christaller-model of central places), models of the settlement network at national (regional) level with specific gravitation area of 20.000 to 50.000 inhabitants and traffic accessibility within a radius of 30 minutes. Later the classical model of centrifugal forces to service functions was renewed by different variations, the majority of them being based on economic, social and cultural changes that are relevant for the current trends of spatial development (Ravbar, Pichler-Milanovic, 2000).

At present urban agglomerations represent the place where 70-80 % of the population live and provide 4/5 of all work places. The life style is typically urban and the predominant type of housing is detached single-family housing. More than half of the inhabitants migrate daily to the central locations for work, study, culture and leisure (Ravbar, 2000).

According to recent research the mainstay of economic power in Slovenia is seen in the network of functional regions of different sizes. Based on the variety of parameters, the model of town agglomerations and regional towns of different sizes and socio-economic significance, seems to be very reasonable in the context of the existing urban settlement structure. More than 80 % of economic power is concentrated in these areas as the bearers of economy, education, services, cultural activities and public functions (Ravbar, 1999). Considering their economic forces, strong interdependence between the number of work places and the education level of the population has to be estimated as a social force as well.

Cities of national importance in Slovenia are Ljubljana, Maribor and Koper with their agglomerations. Ljubljana, the capital city of Slovenia, is the largest, with a population of 274.000 inhabitants. Maribor, the second largest, has more than 130.000 inhabitants. Ljubljana and Maribor are the only two medium-size European cities, while the third city, Koper, with approx. 25.000 inhabitants is much smaller. In addition, there are 13 towns with more than 10.000 inhabitants and 20 towns with more than 5.000 inhabitants. All three main cities with their functional urban regions have special significance for Slovenian urban development in the sense of international traffic nodes.

Ljubljana metropolitan region is located in the central part of the country, Maribor in the eastern part and Koper in the southwestern part. All the three functional urban regions have special significance for Slovenia urban development in the sense of international traffic nodes, but are at the same time the areas indicated by the dynamics of sub-urbanization and peri-urbanization processes. Beside, Koper is the gateway city to the Adriatic Sea.

The issue of urban agglomeration related to functional urban regions depends on various indicators from several urban studies. The table below shows the results of analyses of urban impacts, measured by economic and socio-geographical terms, based on structural and functional criteria (Ravbar, 1997) and differentiating 3 types of urbanized areas within the urban region:
- cities (following statistical classification)
- sub-urbanized outskirts
- other settlements in the countryside

Urban Agglomeration	Type of Area	Territory km2	Population Density /km2	Work places/1000 inhab.	% Inhab.	% Work Places	No of Settle-ment	% Territory of Urban Aggl.
Ljubljana	cities	246,4	1 484,5	603,9	75	87	5	38%
	suburb.	113,0	222,3	294,0	16	9	112	18%
	other	281,9	112,7	204,7	10	4	148	44%
	total	**641,3**	**481,4**	**516,2**				
Maribor	cities	61,5	2 073,6	570,4	59	82	3	11%
	suburb.	370,5	255,4	225,7	16	9	44	66%
	other	131,4	146,7	146,7	25	9	115	23%
	total	**563,4**	**382,3**	**409,7**				
Costal cities (Koper, Izola, Piran)	cities	12,4	3 433,2	554,6	61	79	4	10%
	suburb.	43,6	309,5	272,2	28	17	16	37%
	other	62,3	173,1	148,3	11	4	21	53%
	total	**118,3**	**587,1**	**432,0**				

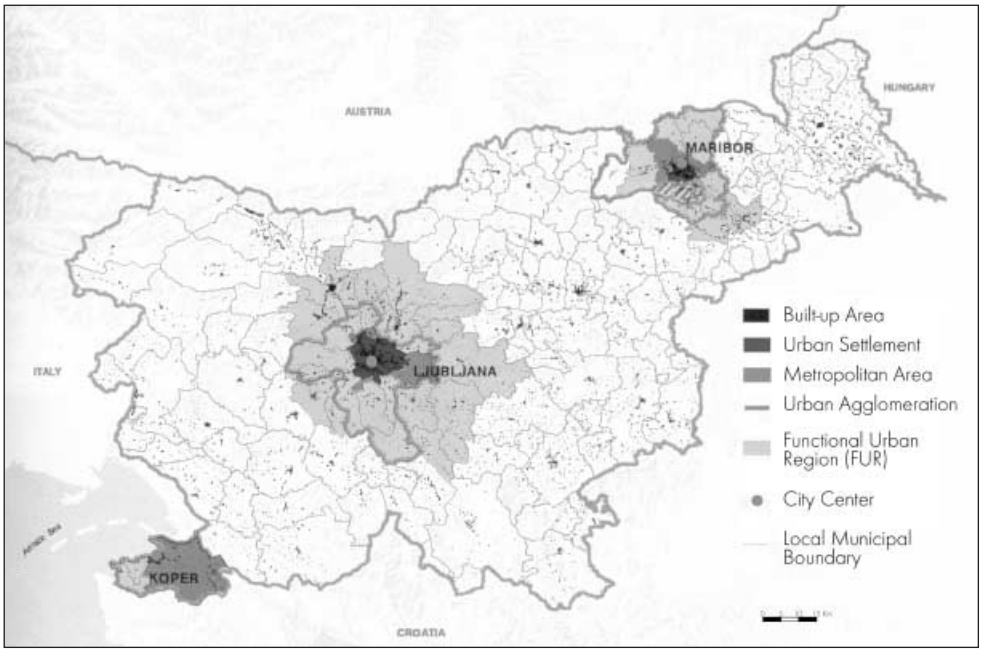
Source: Kreitmayer, J. (ed.) et al., 2001. Istanbul+5, Slovenian National Report on the Implementation of the Habitat Agenda, 2001. MOPE/UPP, Ljubljana.

Table 2: Urban expansion in the three main urban agglomerations in Slovenia

2.5 City Metropolitan Area and Urban Agglomeration

Regarding urban development in the outskirts, another interesting model is offered in the indicators database of the UN Habitat II+5 for Slovenia. In order to differentiate types of urban areas, a list of administrative, statistical and functional definitions, as well as data availability and comparability were taken into consideration at the level of the municipalities for the year 1993 and 1998 (Kreitmayer et al., 2001) for the Slovene cities (i.e. urban municipalities) of Ljubljana, Maribor, and Koper.

According to the UN Habitat recommendations an "urban agglomeration" is defined as the built-tup or densely populated areascontaining the city proper, suburbs, and continuously settled commuter areas. This may be smaller or larger than metropolitain area. A "metropolitain area" is the set of formal local government areas which are normally taken to comprise the urban area as a whole and its primary commuter areas (Kreitmayer, 2001). **Figure 1** also shows the city built-up (morphological) area, statistically defined urban settlements, and functional urban regions based on daily commuting areas.



Source: Kreitmayer, J. (ed.) et al., 2001. Istanbul+5, Slovenian National Report on the Implementation of the Habitat Agenda, 2001. MOPE/UPP, Ljubljana. Cartographic Processing : Ministry of the Environement and Saptial Planning - National Office for Spatial Planning. April 2001

Figure 1: Slovenia with three regional centers of national importance Ljubljana, Maribor, Koper

- Built-up area: morphological (land use) classification of densely populated urban area
- Urban settlement: statistical definition of urban settlement
- Metropolitan area: the administrative area of the city municipality since 1994 (or since 1998)
- Urban agglomeration: the administrative area of the city (commune) before 1994
- Functional urban region: the functional classification of urban region

To illustrate the above definition let us present the data for the city agglomeration of Ljubljana, the capitol of Slovenia, which is also the largest employment centre. The metropolitan area of Ljubljana has 274 000 inhabitants (City municipality of Ljubljana) and is surrounded by the outskirts and smaller towns in the city agglomeration of 329 000 inhabitants (5 former communes). The functional region of Ljubljana with more than 500 000 inhabitants represents one quarter of the total population in Slovenia.

3 Dynamics and forces behind the urban processes

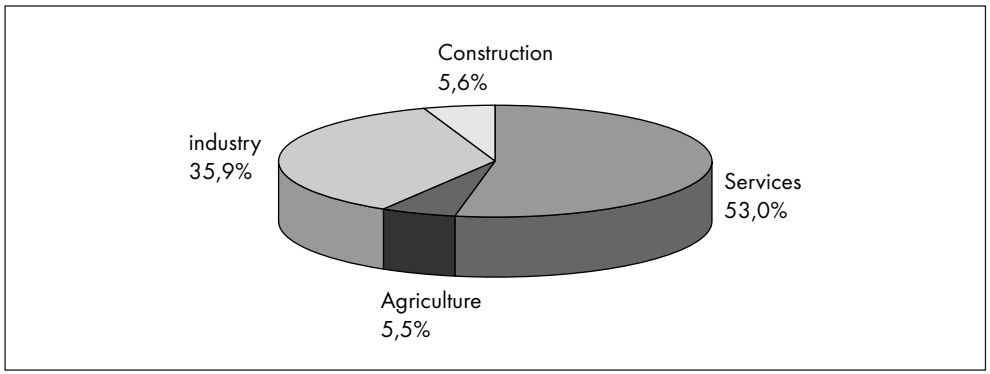
The political changes after 1991 were reflected in several reforms and regulations at all the administrative levels of government. The Constitution of the Republic of Slovenia introduced self-government at the municipal level in 1994, while the missing intermediate regional level has been the main topic of discussions of politicians and planners for several years. Namely, after1991 the number of communities increased from 63 (in former Yugoslavia) to 192, causing an ever-wider gap in relation to the centralized national administration.

However, the administrative decentralisation improved the strength of local government and policy management of cities and municipalities. Since the 1980s the institutional and legal framework ensured a satisfactory level of local participation as a compulsory instrument in decision-making processes.

3.1 Economic changes

According to macro-economic indicators Slovenia is supposed to be the most successful transition country in Eastern Europe. The consequences of structural changes are clearly reflected in the employment structure. According to the latest data, there are approximatively 36% of the working population in the industrial sector, with the share of industrial production also

decreasing. During the transition period the unemployment rate increased to a level of 12 %, mostly in the areas within the traditional city borders. It is estimated that more than 50 % of the suburban working population living in the outskirts commute daily to the main employment centres (Zavodnik, 2001).



Source: the data from the report about regional development aspects of Slovenia, prepared by the Institute of Macroeconomic Analysis and Development, Ljubljana, 2001

Table 3: Economic structure by sectors – gross added value by sectors, 1997

Economic restructuring strongly influenced settlement development and caused an increasing differentiation of development among the regions. The most affected by economic decline are the old industrial regions with high rates of unemployment that have not yet stabilized (Pecar, Faric, 2001). Despite substantial differences, economic development generally demonstrates positive dynamics in the urban agglomerations, defining the priorities for allocation of economic investments within the centrifugal forces of the main centres.

The City of Ljubljana and its metropolitan region represent the most important location of economic activities, followed by Koper and its coastal region. In the metropolitan region of Ljubljana there are 40 % of all the working places in Slovenia - 80 % in services - (Ravbar, 2000). The City of Maribor with its agglomeration is still suffering from the process of de-industrialization and restructuring of large industrial plants. Recently small and medium size enterprises are becoming an important source of urban economic growth and are seen as new employment opportunities of the fastest growing sector, allocated in areas of urban expansion. As commuting to large towns is already an important feature, the continuation of urban trends in the infrastructure corridors and in the outskirts is expected as well.

3.2 Transportation and mobility dynamics

Urban development in Slovenia is strongly related to the trends in the transportation network. There are numerous factors, influencing the urban fabrics on the large scale: construction of the roads- and motorway network, concentration of traffic nodes in the vicinity of the main cities, traffic corridors etc., situated either close to the dense city central areas and the outskirts or in green areas and open spaces in hinterland. This development is followed by the increasing mobility by private cars and parallel to that, by needs for building plots in those areas.

The trend of transportation networks - especially of highway connections - has to be considered in connection with economic development. Additionally the regional differences are increased by quite poor transportation connections between regions, while strong traffic flows through highway corridors are creating new dilemmas due to the condensation of economic activities along them. The spatial conditions are clearly defining the advantages of economic locations, based on good access and traffic connections, tight to the wider network of regional centers, which are often in conflict with the principle of sustainable spatial development. This is becoming a basic dilemma of spatial planning, especially from the point of view of the occupation of green areas.

Owing to increased sub-urbanisation after 1990s the present public transport system cannot adequately respond and fully satisfy its' users. The use of private cars can be easily compared to data on individual motorised commuting in some other European countries. Recent analyses show that more than 75 % of daily migration is by private cars and only 25 % by public traffic (91 % by regional buses and 9 % the railway). The share of public traffic is declining at an increasing rate of almost 400 private cars/1000 inhabitants (Sitar, 2001).

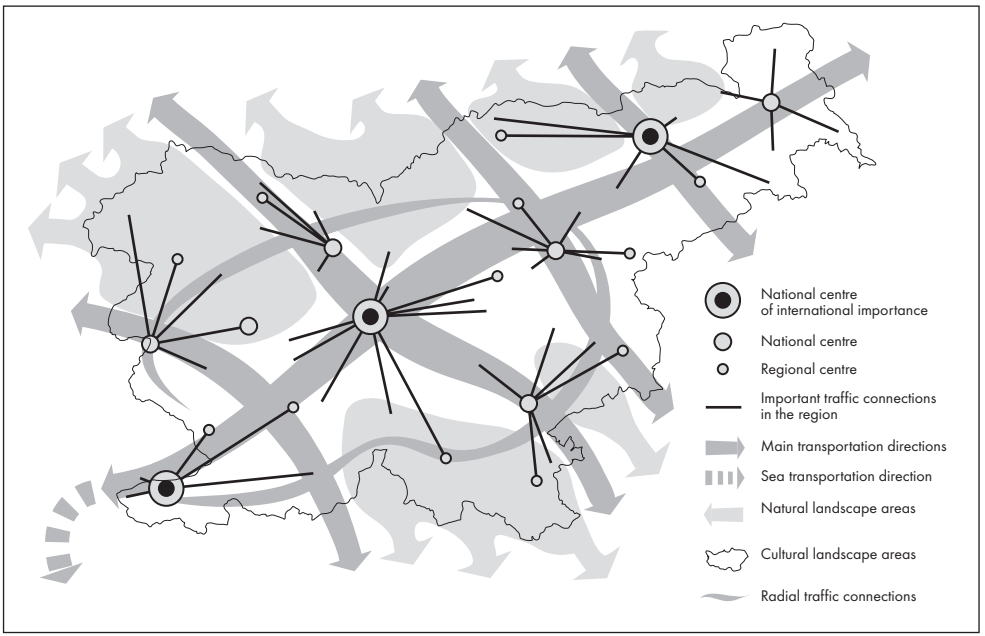
3.3 Commuting conditions

As mentioned above, the expansion of single-family housing in the outskirts and hinterland causes enormous daily commuting by private cars. This situation enables all family members to commute once or more times a day from their place of residence to the place of work, schools, recreation, leisure etc. Within the Ljubljana agglomeration travel time has increased from 22 minutes in 1993 to 45 minutes in 1999 (Kreitmayer et al., 2001). The increase in travel time is mainly due to traffic congestion, the result of increased automobile use for daily travels.

In view of the increasing independence of the working and living place the new transport network is creating even better conditions for urban settlement in the outskirts. During the last period one could recognize some contrary processes of workplaces relocating, where existing residential structures in good environment are followed by economic activities in directions opposite to the former. This phenomenon is mainly due to favourable conditions for the

development of small enterprises and even some work at home in or close to the residential location. In conclusion, it is obvious that the present economic conditions are even increasing the preference for low density housing in green areas, traditionally related to increased costs for infrastructure.

Construction of the motorway network is the one of the most important government tasks of the last ten years. It encouraged some planners to develop the vision of Slovenia as a unique urban region of 2 million people (Gabrijelcic, 2002). This idea, based on the strong main centre of Ljubljana and ribbon urban development along the main traffic axes, with emphasis on the protection of the high quality housing and open space in the hinterland, seems to be very realistic, though very contrasting to the traditional guidelines and theories by geographer and urban planners. In this matter, some newest conceptions of the Strategy of spatial development are in many details similar to this vision.



Source: The proposal for the Strategy of the spatial development of Slovenia; Ministry for spatial development, environmental protection and energy, Ljubljana, 2002

Figure 2: The Vision of the city networks (in black) and the traffic development axes (in grey)

3.4 Housing and land policies

Due to the housing and land policy of the past the housing structure manifests itself in two distinct forms: tall, multi-story construction of non-profit and social housing with a high concentration of inhabitants (33 %) and often unplanned single family housing with low density (63 %), characterized by irrational land use, insufficient traffic and services (Sendi at al, 2000).

This expansion of housing construction in early 80's, when Slovenia was still within the former Socialistic Federate Republic of Yugoslavia, was a reflection of supporting state policy with a favorable loan policy. It started to decline in 1987 with economic transformation; in the independent Slovenia according to the new housing law and parallel changes in the financial policy without any sources for non-profit and social housing the conditions got even worse. In the 90's the privatization of public-rented housing followed, which was one of the most important reforms in support of private property rights and market economy. The decline in housing construction from the late 80's is best illustrated by the fact that there was almost the same number of housing units built in 1998 as in 1959. In the 90's the amount of housing construction decreased in comparison with the past decade almost by half. It is very disturbing that the building of non-profit and social housing in that period decreased as well (from 26% to 19%). The gap between demand and supply is increasing even more, following by high prices and increasing rents.

In the past it was almost impossible to obtain land for housing for private investors, because the housing stock was state regulated and satisfying mainly the needs of specific social groups by direct financial aids. The fact that the building of one's own house was often the more realistic option for solving the housing problem of an average family, it also determined unplanned processes which often started as illegal building, followed by low building density and insufficient utilities related to very fragmented land properties in the outskirts of the cities and the hinterland. The consequences are low building density, mainly insufficient infrastructure equipment and services with very fragmented land properties.

New Housing Conditions

Because of economic, financial and institutional reforms in 1990s the role of the state in the housing sector has been changed from direct provision in the socialist system to creating the national housing strategy (Zavodnik, 2001). The new Housing Act in 1991 introduced privatisation and denationalisation of public-rented flats, houses and plots owned by the state and municipalities , as well as private property rights and market economy. The relation between privately owned and rented housing changed rapidly, with the tendency still growing.

	Private ownership	Rented
Before 1991	67 %	33 %
After 1991	88 %	12 %

In general there is a shortage of land available for housing of optimal sizes and sites, especially within the main city agglomerations, where predominantly smaller building plots for less intensive building and single-family housing are available. Their landowners are trying to sell them at the best market price. Housing is mostly provided by private developers, the housing market is very weak and characterised by high prices and increasing rents. Developers are using the advantages of the very weak planning system and land policy by obtaining suitable land in the outskirts and hinterland for building houses and flats for prices and images related to consumer preferences (Sitar, 1998).

The gap between demand and supply is steadily growing. As the answer to numerous demands for changing the land use plans to designate more building land, every year many local authorities repeatedly change their local spatial plans, regardless of the fact that a large share of land for housing remains unused.

During the last decade, the construction of residential buildings decreased almost by half. The number of flats, provided by communal housing funds, is declining. Housing affordability and availability remained major urban problems to date, left by a larger extent to be solved by the local authorities. In addition, the cooperation between public and private sector is currently almost non-existent. For this purpose the new Housing Act was followed by the National Housing Program in 2001. In 1999 the national Housing fund introduced the national scheme of housing savings in the order to provide special conditions for building and financing of non-profit housing. According to it, approximately 6 900 social and 4 000 non-profit housing units are required to cover the current demand for rental housing units. In order to cover the growing needs and fill in the gap in supply created in past period 20% social rental apartment, 25% non profit rental apartment, 5% for profit rental apartment and 50% apartments for purchase ought to be built. By this arrangement the first new residential areas are expected to be built in 2004. They will be predominantly allocated in the outskirts, ensuring new dynamics in small urban communities in the hinterland.

4 Legal framework

The market oriented economic system of the Republic of Slovenia calls for the new legislation framework that has not been completed yet. The administrative organization of Slovenia consists of national and local level, without the intermediate, regional level. In spite of the reform of local government this is in turn causing an ever-wider gap between centralized national government and crumbled, smaller and smaller local communities (from 63 in former Yugoslavia to 192 - with a tendency towards increase!). In principal, the legal framework is enabling the implementation of the basic tasks of urban development. However, there are many deficiencies in the planning system of the past decade, mainly due of the heritage of the past social system, when the role of the instruments was substituted by so-called "agreement planning". Due to the lack of instruments, the level of implementation of the plans is low.

The accession process towards integration of Slovenia in the European Union with the fully membership status is to be expected by May, 1st, 2004. In this point of view different strategic documents on economic and regional issues have been introduced. Lately, in January 2003, the new law on spatial development defines the new framework of the whole system of spatial planning which was adapted to the changes towards the private ownership generally. It calls for development of some special instruments fot the urban development.

Note

1 According to the Law on local self-government (1994) a town is a larger urban settlement, which differs from other settlements by its size, economic structure, population density and historical development. Among 192 communities in Slovenia only 11 have the status of city municipalities.

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OUTSKIRTS DYNAMICS AND NEW RESIDENTIAL DEVELOPMENTS IN BELGIUM

A comparative analysis with the Swiss and Danish contexts

Jean-Marie Halleux

Department of Economic Geography, University of Liège, Belgium; Jean-Marie.Halleux@ulg.ac.be

Abstract

In comparison with neighbouring countries, the peri-urbanisation process in Belgium is very important in many aspects. By comparing Belgium with the situation in Denmark and in Switzerland, two countries renowned for their relatively effective urban containment, the aim of this paper is to analyse why the sprawl so deeply characterises the Belgian territory. Three issues are taken into account for this comparison: land policy, housing development and the Belgian choice towards car mobility. This triple analysis shows that peri-urbanisation processes are deeply implanted in Belgium. They are indeed related with the influence of natural environment, with anthropological reticence for urban life, with a weak consciousness towards planning and, since the XIXth century, with persistent political choices in favour of centrifugal dynamics.

Keywords

Outskirts, Peri-urbanisation, Belgium, Switzerland, Denmark, Land policy, Housing policy, Mobility, Urban planning.

1 Introduction

In Belgium, there have been very significant changes in the geography of outlying urban areas during the last decades. Economic activity has multiplied in the outskirts and residential sprawl has occupied vast territories. In other words, peri-urbanisation, this process of town-spread, has taken over in a very large measure. The centrifugal forces which feed Belgian peri-urban developments are naturally common to many countries (G. Dubois-Taine, 2002). Although present all over Europe, these centrifugal forces do not everywhere produce the same results. Corresponding to each context are complex systemic mechanisms which bring into simultaneous play the influence of historic structures, the populations' preferences and the regulating mechanisms of public policies. Unfortunately, no international norms have yet been established for the concept of peri-urbanisation. It is therefore somewhat problematic to make international comparisons as to the intensity of urban spread. However, with regard to many neighbouring countries, Belgium seems to stand out for its wider and more consistent peri-urbanisation process (J.-M. Halleux, 2002). The present paper – realized on the basis of J.-M. Halleux *et al.*, 2002 and L. Brück *et al.*, 2001b – proposes to study the causes of the intense residential peri-urbanisation affecting the Belgian territory in the light of an international comparison. We shall take a particular interest in Switzerland and Denmark, two nations well-known for having set up relatively efficient policies for containing urban sprawl. Detailing this comparison between Belgium, Switzerland and Denmark will lead us to consider the three issues of land policy, housing development and car mobility.

2 Exploitation of the land supply and the centrifugal force of financial gain from urbanisation

Physically, urban sprawl requires the exploitation of a generous supply of land. Various conditions are necessary for this urban land exploitation and it is well-known that a primal necessity is greater accessibility brought about by diminishing transport difficulties (J.-M. Halleux, 2001). It is naturally land accessibility, determined by the performance of transport networks, that decides professional developers or private individuals to take an interest in a location for urban development. In order to analyse land supply exploitation, a second potential limitation must

be taken into account, that resulting from land policy. In the Belgian context we observe that this possible collective regulation of public land management has only very partially been able to contain peri-urban sprawl.

2.1 Land planning in Belgium: a necessity unfulfilled

A large number of observers diagnose, in Belgium, an absence of active land policy (e.g. Ph. Doucet, 1985 ; O. Dubois *et al.*, 2002). This observation is sometimes explained by the attitude of the population and its representatives towards land resources. For example, when ADEF experts turn their attention to Belgium and comment on how little public authorities intervene in land planning, they find surprising the predominating idea that the land is not, in this country, considered as a rare and non reproducible possession but as *"an abundant consumable commodity, which can lead to excessive consumption and waste of space"* (R. Acosta, 1994, p. 43). For such a densely populated country, this rather surprising idea can be partly explained by the abundance of usable land and by the technically easy servicing which makes the greater part of the territory suitable for urban activities. The Netherlands are often cited, from this point of view, as the opposite example: a country where the fight against water make land into a capital to be used sparingly. In our comparative studies, we point out that this deterministic explanation of the fragility of physical conditions is also noted by authors writing about Danish and Swiss urban containment. In Switzerland, because of the extent of the mountainous area, nearly 80 % of the population and activities are concentrated into less than a third of the surface area. In such a context of strong competition for low-lying land, it is hardly surprising to find that there developed, at a very early date, a rigorous planning tradition (A.-C. Werquin & A. Demangeon, 2000, p. 78). Similarly, in Denmark, the fragility of the physical milieu (7,300 km of sea-shores, low altitude, presence of marshlands, dunes, polders) and the desire for nutritional and energy independence have long made populations aware of the necessity for a parsimonious use of their space and resources (V. Renard, 1995, pp. 1-3).

Previous to the March 29, 1962, *Organic Law on Planning* (Loi organique de l'aménagement du territoire), there reigned a certain anarchy in Belgium as to spatial planning (Ch. Vandermotten, 1982, p. 1). Before the gradual implementation of the 48 *sector plans* (zoning plans) introduced at that time, land planning consisted of authorizing building work along any road as long as it was serviced (P. Gosselain, 1999, p. 33). In this ribbon development so typical of the Belgian landscape, we find the idea that the land is an abundant consumable commodity. Rather than a consideration of the need to use a rare resource in order to house the population, we see here that it is supply characteristics that leads to building land delimitation. Nevertheless, this method was relatively economical with land and infrastructures as long as towns were dependent on slow collective transports. Unfortunately, problems arose when the tradition of land abundance held good at the same time as mass diffusion of car-use, mainly on account of the

abundance of residential zones included in the *sector plans* (G. Géron, 1997; P. De Decker, 2002). When it comes to accounting for excessive growth of possible residential zones and the way in which the *sector plans* allowed peri-urbanisation to continue and prosper, writers point out the intermingling of many explanatory factors. We first read that the *sector plans* are the spatial expressions of the Keynesian development model in the "thirty golden years", and are therefore related with the conditions of economic development at the time (R. Schoonbrodt, 1975; Ch. Vandermotten, 1982; G. Géron, 1997). In face of this growth and "progress" logic, environmental limitations were only marginal and ecological objectives were considered as limitations to be respected rather than as fundamental aims (Ch. Vandermotten, 1982, p. 1). It has also been noted that, within the planning administration, there was the fear that "too great a fall in the offer of building-sites would cause a price rise for these sites, making housing for families more difficult" (R. Schoonbrodt, 1975, p. 19).

Because it opens up a lot of land for building by improving accessibility, released mobility produces an enormous potential of urban land rent: when a plot originally destined for morphologically rural activity interests urban demand, it is the chance to make money from urbanisation ! In the Belgian context, we see that the dynamic inspired by this possible source of gain is a determining factor in peri-urban intensity. Indeed, in order to explain the over-extension of many residential areas in the *sector plans*, the procedures taken by land-owners must also be taken into account. In order to be "well-placed" on the zoning map, land-owners in great numbers made representations to planners during the elaboration of the *sector plans*. The pressures exerted, in particular, various individual claims[2]. At the same time, it appears that politicians were willing to listen to lobbying by land-owners: the *sector plans* have been described as hardly democratic (R. Schoonbrodt, 1975; Ch. Vandermotten, 1982, p. 4) and numbers of elected representatives are said to have intervened in favour of certain individuals. Finally, from the writings on the elaboration of *sector plans*, we note that the opposing forces of the centrifugal dynamic of financial gain from urbanisation as against collective planning regulations have rather favoured the former. Faced by civil servants fearing a rise in land prices and political decision-makers with little awareness of the consequences of urban sprawl, the actions of land-owners anxious to make a quick profit from urbanisation seems on the whole to have succeeded.

The legal mechanism for planning servitudes is also an important factor to be taken into account in trying to explain the configuration of potential development zones in the *sector plans*. The March 19, 1962 planning act included a clause providing compensation for a ban on building or housing development resulting from a plan terminating the use to which a property is affected or normally destined (I. Gabriel *et al.*, 2001, p. 23)[3]. The specific inclusion of a procedure for granting compensation to land-owners whose property was to be burdened with new development servitudes in consequence of the planning act perfectly illustrates the predominant idea in Belgium that land is an abundant merchandise and a source of legitimate profit. Rather than the need to meet a legitimate demand, it is, here again, the logic of the land supply that is taken into account in order to determine which land has to be considered as potentially urban. Assimilating the idea of "normal purpose" and "building

land", jurisprudence became imbued with the landowner's point of view in fixing the three objective conditions defining building land: meeting technical requirements for building, being next to other housing or building-plots, and lying along a serviced road. Following the idea that land is abundant, the application of this principle of compensation for development servitudes largely explains the extent of ribbon development and, at the same time, the over-abundance of land typical of many residential basins: during the elaboration of the *sector plans*, public authorities gave building destination to large numbers of plots where they were likely to have to pay compensation (F. Haumont, 1990, p. 478).

In the Belgian context, the transformation processes of the potential legal supply (as defined in the *sector plans*) to the actual supply of building land on the market also shows the poor awareness of waste of space. Transforming the potential offer into actual offer in order to start building work involves meeting two conditions. First of all, the plot must be put on the market. On account of land-owners' attitudes towards their property, this is far from automatic. Transforming potential legal offer into actual offer also involves a technical production process of servicing. In order to limit wasting of land resources, an efficient method is for the collectivity itself to be responsible for the technical servicing of the actual offer by a policy of "land production" (J. Comby & V. Renard, 1996). It is often in this way that new urban developments are managed in countries anxious not to waste unspoiled land, for example in Sweden and the Netherlands, by means of long-term land reserves for towns in Sweden and a near monopoly held in practice by municipalities on the production of building-plots in the Netherlands (V. Renard, 1999, p. 10). In Belgium, the non-parsimonious tradition has led to other modalities for matching the potential offer to actual offer. We see here a "land-offer" policy (J. Comby & V. Renard, 1996), which involves public delimitation of the legal development offer, but also the need for private initiative when it comes to transforming the potential offer into actual offer. The large part left to private initiative in the urbanisation process shows that public authority does not find it necessary to spatially concentrate new developments by making sure that potential development land will actually be built on. Because of the speculative retention of land practised by many landowners, in particular for certain sites lying within or neighbouring agglomerations, such practices inevitably result in waste of space and scattered housing.

2.2 The annihilation of the centrifugal dynamic of urban land rent in Northern Europe

In Denmark, matching potential offer to actual offer falls within a general context of private ownership of land, as opposed to the Netherlands or Sweden. Rather than massive public land production, it is fiscal measures that are used in Denmark in order to encourage potential development zones, through two measures: the development tax (*Frigorelsesafgift*) and the tax on land-value of the site (*Grundskyld*) (V. Renard, 1995). The *Grundskyld* is a land taxation whose originality lies in its fiscal base: the taxable amount does not depend on building structures but is determined only by location and the relevant planning rules. This taxation of plots according

to the "best possible use" naturally constitutes a powerful incentive discouraging various forms of speculation. To reduce retention of the potential development offer, the urbanisation tax (*Frigorelsesafgift*) is an essential element in the Danish system. It may represent 60 % of the profit and the land-owner has to pay it as soon as a plot changes designation in the zoning plan from agricultural to urban. Of course, this encourages him to go directly to the building-land market. This urbanisation tax mechanism limits pressure by landowners on the planning authorities: added to the landowners' participation in servicing costs, payable on obtaining of the building permit, this finely calculated tax achieves the feat of neutralizing the effect of zoning on land values (V. Renard, 1995, p. 40). In other words, it annihilates the centrifugal dynamic of development gains for landowners. Over and above a sophisticated land evaluation system, the concrete operation of this fiscal mechanism obliges Danish local authorities to be well versed in the demand on the land market and to plan carefully for the real needs in new housing.

In modern western societies, property rights correspond to an essential element, considered as a legitimate individual liberty to be protected by public authority. However, the possibility of enjoying one's property is absolute only insofar as existing regulations allow. The more or less extreme nature of this right thus changes according to the laws which, themselves, depend on the needs and requirements of society. The content of property right is in fact divided into different categories. John Christman (quoted by D.A. Krueckeberg, 1995, p. 38) identifies nine of these: possession, use, rights of disposal, consumption, modification, destruction, management, exchange and profit. With reference to land and building mechanisms, property rights can be read as an individual component. Opposed to this individual dimension of full enjoyment of the property are the two collective dimensions of spatial planning and collectivisation of land rent, which explains why public powers must intervene with a land policy. Arbitration between individual liberty and collective regulations is therefore inevitable and the balance will constantly be renegotiated, according to technological change, social developments and socio-political power-plays (H.M. Jacobs, 1997, p. 58). In our comparisons between the Belgian context and countries like Denmark or the Netherlands, we have noted a major differential as to the legitimacy of allowing the landowner to "pocket" the gain when a plot of agricultural land is turned to urban use. This conclusion can be found in the analyses developed by V. Renard (1999, p. 10) when he observes that two conceptions of property rights exist side by side in Europe. In Northern European countries, the widespread conception is that land ownership does not include the right to profit from general land development. In the case of the Netherlands or Sweden, people do not make money from land since the extra profit is directly taken by the collectivity through land production. As for Denmark, we have seen that the integration of physical planning tools and fiscal incentives neutralise the inequalities of land gain. On the other hand, in Southern European countries, there is, in general, a conception that deeply respects property rights and consists of leaving the benefit of profit to the original owner, on condition of some fiscal corrections. From this point of view, a country like Belgium clearly belongs to the "southern" model. The idea that it is perfectly legitimate to make one's landed property yield a profit certainly seems to be embedded in people's mentalities.

2.3 The limitation of the area for building land in Switzerland

In Switzerland, there is no really active land policy aiming, as in Denmark, to restrain speculative retention of land or, as in the Netherlands and Sweden, to make public authorities responsible for technical servicing of land. In Switzerland, we see, as in Belgium, a discrepancy between legal development zones and the immediate supply of building plots (J. Ruegg, 2000, p. 156). In this country, we also see, as in Belgium, the influence of landowners on the planning authority. We read, for instance, that many municipalities are aware of the risk that zoning may introduce inequality between landowners and that "to avoid it, it is fairly common to find that every landowner has been accommodated in the zoning plans. The authority has taken care that each – or at least a majority – of them has a share in building land" (J. Ruegg, 2000, p. 147). In comparison with Belgium, we see, however, three important factors that limit the area for legal building work. The limitation results first from the political will to preserve a 4 500 km^2 surface for agricultural activity, i.e. 13 % of the land. The sector-based plan for this land-surface, originating in the scarcity of "usable land", is a planning document drawn up by the Swiss Confederation to comply with the abstract legitimacy of ensuring the country's self-sufficiency in case of war. Without state intervention, a part of this area would be available for building (J. Ruegg, 2000, p. 153). In Switzerland, a second important factor limiting the development zone, and which is determined by the physical conditions, is that of infrastructure planning. Services for a large number of residential centres require canalisation work on steep rocky land, and the resulting costs explain the desire to limit scattering of building-sites (N. Sayagh, 1991, p. 49). At the same time, the presence of many lakes lying below urbanised slopes explains why the building of waste water treatment infrastructures has long been a priority. It was already in 1955 that federal law on water protection was put in place. This legislation was a determining element in planning battles against the spread of individual housing (A. Garnier, 1984, p. 54). A third factor limiting potential offer is, in Switzerland, the absence of compensation for development servitudes. On this level the Belgian situation is the opposite of the Swiss, since Swiss planning authorities are allowed to change a development zone classification without having to pay compensation for loss in value of a "declassified" plot. The underlying logic to this legal mechanism consists of differentiating between the ownership in the formal sense from ownership of land-use (J. Ruegg, 2000, p. 144). In other words, even if the centrifugal force of urban land rent is not as well controlled as in more northerly parts of the continent, depriving landowners of development gains by refusing the right to develop their land is not considered, in Switzerland, as breaching property rights. As opposed to Belgium, the requirements of collective regulations such as planning take precedence over property rights. Finally, in this comparison between Belgium and Switzerland, we note that the better containment of Swiss towns results, of course, from physical conditions, but also, on one hand, from a better awareness of planning necessities and, on the other, from a lesser influence of property rights. The arbitration between individual and collective rights is better balanced than in Belgium and the balance is in favour of keeping towns more compact.

2.4 Why this traditional absence of land policy in Belgium ?

Beyond the characteristics of the natural environment mentioned above, could other factors explain this deep-seated idea in Belgian society that it is not immoral to consider building land as an ordinary commodity and as a source of profit ? For Ph. Doucet (1985, p. 71), this situation is also a result of a historical factor: the long-standing complicity of business with landed property[4]. This fusion, whose precise story is yet to be told, can be explained in part by the religious scruples of the agricultural classes which, at the time of the sale of state property[4], prevented them from buying up the vast landed capital on sale, to the advantage of a pragmatic business community. Hence, the enormous power of the great landowners at the time when, in the early XIXth century, the country was embarking on its industrial revolution (H. Pirenne, 1975, p. 186). The importance of these events on the urban sprawl that affects Belgium can be measured by the huge political influence of land owners. Convincing proof about this is supplied by Ph. Doucet (1985) in his account of the various obstacles to change placed in the way of land reformers. On a more ideological dimension, it is the housing policy that, dating from the 1889 Housing Act, allowed large landowners to exert their influence on Belgian society. It is from this period onwards that home-ownership becomes the main pillar of housing policy, one of the main aims being to encourage the best educated workers to adopt the ideals of the ruling class (Ch. Kesteloot & F. De Maesschalck, 2001, p. 44). As a result, there soon appeared, through various subsidies to building and to individuals, a class of small landlords (Ph. Doucet, 1983) and a mass of home-owners. In the end, such a long-standing policy of assistance to acquisition and valorisation of property led to the gradual build-up of a cultural context in which it was recognized that the most respectable way of managing one's property in the interest of the family was to invest in bricks and mortar, which is why Belgians are said to have "a brick in the stomach".

3 Residential choices, housing policy and development

After explaining the reasons for the lack of an active land policy, we can now go on to the causes of intense urban sprawl in Belgium by looking at residential choices. While we now know why people have such vast territories at their disposal, we still have to explain the reasons that incite them to leave urban centres in such large numbers in order to find a separate individual house with rural attributes, on the peri-urban model. From international comparisons, it is clear that the centrifugal preferences massively expressed by the Belgian population can be explained, above all, by a long-standing aspiration to own a single-family house. We shall see, however, that beyond this initial factor, there is also in Belgium a long social process encouraging this type of housing: more than elsewhere public authorities have, in fact, acted massively in favour of peri-urbanisation. Moreover, we shall see that public authority interventions have contributed to setting up a dynamic that imposes the development of the one-family peri-urban house.

3.1 Old reservations for urban lifestyles

One reason that encourages Belgians to take advantage of land made available by easier mobility and lack of strict planning is their strong preference for the one-family house. To explain this situation, it is useful to examine the European comparisons presented in table 1, where a great difference between countries can be seen as to the proportion of households living in individual houses. On this scale of analysis, an account of the composition of housing areas has led different analysts to highlight the relationship between housing supply and urban culture. To explain the prevalence of apartments in Spain and Italy, the Mediterranean high-density tradition must be stressed (E.T. Hall, 1966, p. 177; P. Merlin, 1998, pp. 85-87). To explain the extent of collective housing in Switzerland, Germany and Austria, the deep-rooted urban culture can also be taken into account. From this point of view, we can quote the culturalist explanation of the "Rhineland" model, developed by J. Lévy (1997, p. 54; p. 142), which link town-forming modalities with the differentiation between scattered rural population and traditional grouped habitats. In the parts of Europe – eastern France, central Europe – where populations have had to regroup because of recurrent risks of invasion and wars, the presence of near neighbours may have accustomed people to strict agglomeration regulation and a collective discipline better adapted to urban concentration. As along the shores of Mediterranean, this has led to a strong urban culture. The urban valorisation of Mediterranean and Rhineland models contrasts with the particular identity of Western Europe, from Scandinavia to northern Portugal via Great Britain and Belgium. This "bocage" landscape in north-western Europe, which was better protected from invasion and had a more family-type productive organisation, has always remained an area more reluctant to adopt town-living, traditionally seen as an unpleasant restraint. The free-standing house model,

owner-occupied and with a garden is, in these areas, with its suburban and peri-urban variants, spectacularly successful (J. Lévy, 1997, p. 142). The research carried out by M. Wiel (1999, pp. 34-37) on France confirms the importance of the cultural base: the break-down of collective and individual housing in French towns reflects perfectly the European typology, where the main dividing line can be traced between preponderant Atlantic – North Sea proximity and that of the Mediterranean. France, the narrowest part of the European isthmus, could thus be said to be "astride" the three configuration types of north-western Europe (from Bordeaux to Valenciennes), Mediterranean Europe (Toulouse-Lyon-Nice triangle) and Rhineland Europe (Reims-Mulhouse-Strasbourg triangle).

	Single-family house	Owner-occupiers	Tenants private sector	Tenants public sector	Sub-standard housing
Great Britain	79 %	67 %	10 %	23 %	8 %
Belgium	**73 %**	**65 %**	**28 %**	**6 %**	**13 %**
Netherlands	71 %	49 %	13 %	38 %	8 %
Denmark	61 %	53 %	19 %	26 %	6 %
Portugal	61 %	65 %	15 %	3 %	20 %
Norway	58 %	59 %	19 %	3 %	5 %
France	56 %	54 %	22 %	18 %	6 %
Sweden	54 %	42 %	17 %	23 %	1 %
Austria	48 %	50 %	29 %	10 %	6 %
Germany	46 %	39 %	37 %	24 %	5 %
Spain	36 %	85 %	14 %	1 %	9 %
Italy	32 %	70 %	20 %	4 %	9 %
Switzerland	21 %	31 %	67 %	2 %	1 %

Source: P. de la Morvonnais, 1998
Référence: early 1990

Table 1: International comparison of housing supply

3.2 Long-standing and persistent policies in favour of dispersal

In comparison with the Mediterranean and Rhineland contexts – especially Switzerland –, a long-standing population preference for individual housing seems an acceptable explanation for the badly contained Belgian agglomerations. We may suppose that this anti-urban bias explains why, during the second half of the XIXth century, the Belgian bourgeoisie was quickly attracted by the "joys" of suburbia and by the Anglo-Saxon "country gentleman" model rather than by the

great urbanistic operation taking over town centres (for instance in Brussels). Nevertheless, the anthropological reluctance to adopt town living, so typical of Belgium, cannot, in itself, explain the urban spread now existing. In comparison with other areas belonging to the same "northern Atlantic" context – Great Britain, the Netherlands and Denmark in particular –, the spread of individual housing is in fact far greater. To explain this situation, we have to go back to political choices made in the second half of the XIXth century (O. Dubois, 2002). It was at this time that public policies leading to the promotion of individual housing were put in place (C. Mougenot, 1988), also resulting in the dominant contemporary ideology of the country as ideal place of residence. Among political choices specific to Belgium and which produced the present centrifugal forces in favour of rural living, we must also note the introduction, as from 1870, of workers' season tickets (G. Juchtmans *et al.*, 1999, p. 10), designed to limit the concentration of poor populations in urban slums. Relying on a dense rail and outlying tramway network, these season-tickets made it possible, from the end of the XIXth century on, to reconcile the traditional, and cheap, country way of life, and permanent paid work in the burgeoning towns and industrial centres. By comparison with other European countries, commuting and the accompanying slow-down in urban centre growth appeared several decades earlier in Belgium. On this subject, analysis of the Danish situation shows that it is only in the twenties that the improvement of transport techniques slowed the growth of Copenhagen's central areas (H.T. Andersen, 1991, p. 368-369). To find out the precise reasons for the Belgian anti-urban bias, we must consider the socio-political motivations for the season-ticket measure. As with the explanatory factors noted above for the influence of land property values, here again we find factors involving action by a part of the bourgeoisie as well as Church influence. We see, in fact, that a primal aim of this measure was to limit an urban concentration that might feed the socialist movement at the expense of Roman Catholic influence and the interests of the ruling class (Ch. Kesteloot and F. De Maesschalck, 2001, p. 43).

The connection between the political choices of the late XIXth century and contemporary urban sprawl also means bearing in mind the choices made on housing policy. We already know that, after the August 9, 1889 Act for social housing policy, Belgian public authorities acted to constantly subsidise home-ownership and, as a corollary, new building-work on the outskirts. To explain the early political orientation in favour of ownership, we can think back to the importance of landed property mentioned above and also the social control measures desired by the Church and the bourgeoisie (Ch. Kesteloot and F. De Maesschalck, 2001, p. 43). For civil authority and the business community, increasing the number of home-owners seemed an effective way of steering the working class towards "serene" preoccupations. In the eyes of the Church, it was a question of promoting domestic and family rather than collective values. This encouragement of ownership, which was never fundamentally brought into question even when the socialists shared power, gave rise to the setting up of various well-known systems on which we will not elaborate (development of the mortgage market, building under the aegis of local authorities, allocation of grants, low-interest loans,…)[5].

In contrast to persistent support for ownership, there has been, historically, little assistance to renting. Almost nothing exists for personal support (C. Mougenot, 1987, p. 78) and, as compared internationally, council housing for rent is scarce. From the data assembled in **table 1**, it can be noticed that, in this respect, the Belgian situation is very different from that of its two "Atlantic" neighbours, Denmark and the Netherlands. Compared with these two countries, where the authorities played a great part in reconstruction after the Second World War (P. Boelhouwer and H. van der Heijden, 1992), Belgium was able, during this period, to rely on the private initiative tradition. It was, in fact, at this time that the combined forces of traditionally subsidized out-of-town housing construction and Keynesian economic growth set off mass peri-urban spread. Historically, the "property acquisition" pillar of housing policy is not linked to home-ownership alone. A number of methods put in place since 1889 have also enabled the middle classes to invest their savings in the building of new property for rent. Until the sixties, this activity also played a part in solving fairly effectively the problem of housing shortages, which did not last as long in Belgium as elsewhere. In recent decades, however, building-work on the part of future "small lessors" has fallen in volume, particularly on account of higher and higher returns from financial investments. With regard to housing policy in Belgium, we must also note that it leaves much to be desired as far as maintenance and renovation are concerned in existing rented property (P. De Decker, 1990), as can be seen in the large proportion of sub-standard accommodation[6] (**Table 1**). Because there is too little council housing and private investment in rented residential property is falling, today's situation presents considerable social problems and an accentuation of home-owner – home-tenant polarisation (P. De Decker, 2002). In comparison with Belgium, the intervention of Swiss and Danish authorities in housing support shows a better balance between the two sectors of ownership and tenancy. This balance resulting from both fiscal policies (lower support for new home-owners and lower real-estate taxation) and explicit housing policy measures[7] has maintained the profitability of rented property investment. In Denmark and Switzerland, as a result, there is better quality rented accommodation and households are not, like in Belgium, obliged to become home-owners in order to find adequate accommodation.

3.3 Contemporary mechanisms in housing production

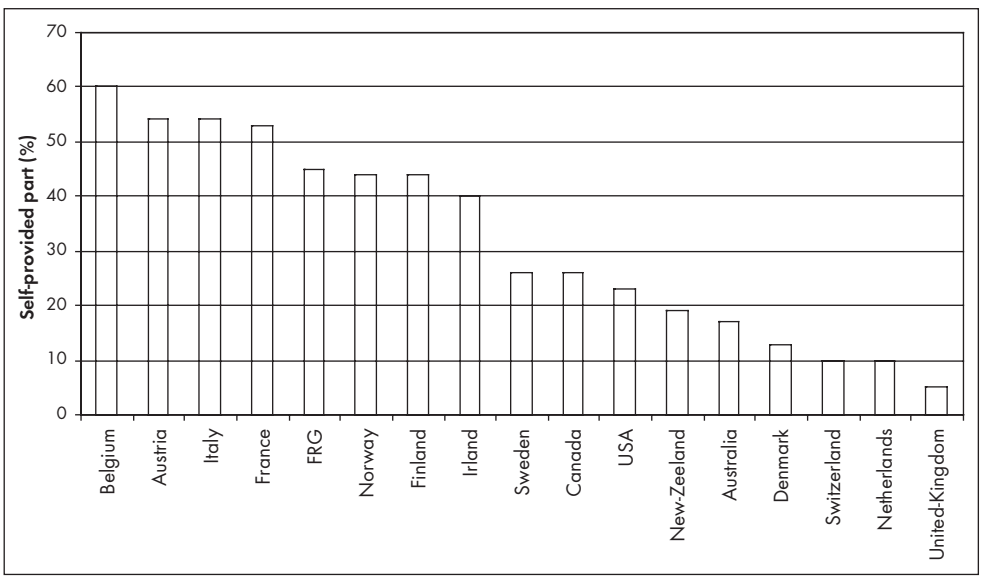
In comparison with other "Atlantic" countries favouring the one-family house, a specific feature of Belgium on housing supply is the role of the first occupier of newly built property. Referring to **figure 1**, it can be seen that, among the main western countries, it is Belgium that tops the list for self-provided housing[8]. Unlike in Belgium, the greater part of new houses in the United Kingdom, the Netherlands and Denmark is produced by professional developers[9]. To explain the predominance of self-provided housing in Belgium, we have to refer back to the abundant building-land tradition. Other land market characteristics would probably have resulted from a different configuration as, with a lower offer and higher prices, professionals would have been encouraged to undertake construction work. For building firms, the acquisition of land may become a necessity when the supply is low and, as a consequence, individuals unable to acquire

a plot. In certain areas of Belgium, which now lack a sufficient actual offer of building land, this situation explains why construction firms wishing to boost their activity buy up land in order to develop it themselves. Rising land prices can also drive professionals to take on construction-work, this time through speculative developers attracted by the possibility of adding a source of considerable land rent to legitimate development gains. Various national studies confirm this connection between land mechanisms and those who take residential building initiatives. Whether in France, the United Kingdom or Belgium, it is in outlying areas where there is an abundant and relaxed land market that we find the smallest number of professional developers engaged in building (O. Dubois, 2001, p. 43). Together with the land-abundance tradition, the tradition of state support to home-ownership could also explain this specifically Belgian feature of owner-development. We have seen above that this policy has led to the formation of a mass of "small lessors", whose action, at the end of the Second World War, quickly solved the problem of housing shortages. As well as offering an alternative to a meagre public housing supply, building undertaken by these operators may also have delayed the appearance of professional developers, thus helping to limit their degree of influence in construction work (Ph. Doucet, 1983, p. 10)

Picture: Christine Partoune

In Belgium, the demand for single-family house is very strong
Peri-urban area in the South of Liège

The analysis carried out by V. Kaufmann *et al.* (2001) on the degree of liberty in residential choices for French peri-urban inhabitants shows that many households are held back by property market mechanisms. In French peripheral areas, can be found many families who would have liked to remain in central areas but have been forced to leave for lack of a financially accessible offer corresponding to their wishes. From this point of view, contemporary residential peri-urbanisation is not only the collective expression of individual desires, but seems also to be the result of a "totalitarian dynamic imposed to populations with other projects" (V. Kaufmann *et al.*, 2001, p. 150). Because of the historical structuring of housing production, the situation is no doubt similar in Belgium: the meagre public rented housing supply, the fall in number of private rented property and the limited influence of developers in building projects make it practically impossible to satisfy the aspirations of families wishing to adopt a model other than that of the one-family peri-urban house. In Switzerland and Denmark, on the other hand, we see that residential property mechanisms have provided an alternative offer. In these countries, the possibility of a separate peri-urban house exists, but the residential migrations of a growing family, which are the traditional cause of peri-urbanisation, can be directed towards other types of property. In Switzerland, this means essentially a supply of quality rented flats, while in Denmark, it is rather a question of one-family houses on densely built-up estates provided by professional developers.



Source: S.S. Duncan and A Rowe, 1993, p1331

Figure 1: The importance of self-provided housing, 1980-1989

4 Belgium's definite choice in favour of car-mobility

The peri-urban phenomenon belongs to a systemic context in which driving a car plays a major role. With such a high level of peri-urbanisation in Belgium, it is therefore normal that this mode of transport clearly predominates, as is, for instance, confirmed by the data on commuting presented in table 2.

Even if table 2 shows that the car is now the major means of transport in the three countries studied, the data also show that its use is significantly higher in Belgium. In Denmark, moderate car use is parallel to a relatively low level of car-ownership, i.e. 340 cars per 1000 inhabitants, compared with Swiss and Belgian levels of 462 and 441 respectively[10]. The first explanation of low car-ownership in Denmark is a fiscal policy that tends to discourage car-purchase. This may be the consequence of a social-democratic vision of the car as a socially undesirable luxury product, an idea that persists in spite of a very high level of wealth. Compared with the European average, relative car prices in Denmark and Belgium are at opposite ends of the scale. Comparative studies show on a European average of 100, the purchasing price of a car in Denmark is 131 while in Belgium it is 84. At the same time, collective transport use in Denmark is cheaper : the same intra-European comparison shows a level of 92 for the Scandinavian country and 103 for Belgium[11](A. Bieber & J.-P. Orfeuil, 1993, p. 131). Bicycle use also accounts for limited individual car-use in Denmark. In contrast to other countries, where the bicycle has been abandoned thanks to modernisation and increased wealth (P. Newman & J. Kenworthy, 1999, p. 206) great attention has been paid to the bicycle by Danish authorities, especially in terms of road-provision. This has limited car-use for covering short distances. The measures adopted by the Danish authorities for individual transport are incontestably a determining factor in keeping towns compact. As a result, a large number of Danish households tend to organize their daily life around the use of only one car, which, because of the large number of working women[12], often obliges them to find residential accommodation close to the work-place or close to collective transport networks.

	On foot	Bicycle and moped	Individual motorised vehicle	Train	Other collective transports
Belgium	5,7 %	9,3 %	70,0 %	62,0 %	8,7 %
Switzerland	10,5 %	10,4 %	51,6 %	11,2 %	16,7 %
Denmark	4,5 %	24,6 %	54,7 %	6,7 %	9,5 %

Source for Belgium: G. Juchtmans et al., 1999, p. 54
Source for Switzerland: P.-A. Rumley, 1999, p. 246
Source for Denmark: Statistics Denmark

Table 2: Modal proportions of commuting

Unlike Denmark, Switzerland does not financially penalise car-mobility, as seen in the high level of car-ownership (462 cars/1 000 inhabitants). Even if they are car-owners, however, many Swiss are not averse to alternative transport modes, as a result, in particular, of the efficiency of public transport within a densely populated urban structure where collective accommodation is largely the rule. To account for low car-use in Switzerland, we also note that the authorities continue to make great financial efforts in order to maintain and develop collective urban transport and railways (Y. Delacrétaz, 1998; V. Kaufmann, 2000). This long-standing determination to maintain the density of rail services contrasts with the situation in many European countries, especially Belgium, where collective networks have been largely run down and gradually replaced by the densest road network of all OECD countries (OCDE, 1998, p. 74).

These few elements of comparison between Belgium, Denmark and Switzerland correspond exactly with the conclusions of studies which have previously pointed out that intense car-use in Belgium results from political decisions with a strong bias towards this form of transport: "in Belgium, a definite choice has been made in favour of the road-transport offer" (A. Bieber & J.-P. Orfeuil, p. 130). In order to explain this relatively clear political choice, we can refer, first of all, to the systemic relationship between urban structures and mobility demands. Urban decentralisation, beginning at the end of the XIXth century, certainly produced, at an early date, a strong demand for mobility. Moreover, by comparison with Denmark and Switzerland, we observe that the play of socio-political power in Belgium has been more favourable to the influence of the car lobby. Unlike Denmark, the fact that Belgium has a number of car assembly plants may explain the power of car-manufacturers to influence decisions, as, for instance, has been explicitly proved for the USA (W.W. Goldsmith & H.M. Jacobs, 1982). From the Swiss comparison, we note that, in Belgium, there has not been such a long-standing political awareness of the environmental effects of automobile traffic. In the large German-speaking Swiss agglomerations, it was in the seventies that, under pressure from referendums or popular initiatives, municipalities launched urban traffic-reduction policies and measures for the improvement of public transport. We find that these policies originated in very effective action by associations militating for a transport policy based on respect for the environment (V. Kaufmann, 2000, pp. 74-75).

5 Conclusion

In the international comparison presented in this article, we note that the intensity of peri-urbanisation in Belgium makes it necessary to consider both deep-rooted centrifugal forces and weak collective regulation mechanisms. In comparing Belgium with Switzerland and Denmark, it is, of course, necessary to take natural conditions into account. As in the Netherlands, there are in these two countries objective physical reasons that explain why planning measures are more essential there. Among the serious reasons for intense Belgian peri-urbanisation, there is a long-standing aspiration towards one-family house. Belgium, following the individualistic model of "Atlantic" Europe, is different, in this way, from Rhineland and Mediterranean cultures, which are more strongly inclined towards urban living. While Belgium is "Atlantic" in its tendency to one-family housing, the population is, on the other hand "southern" in its idea of land resources. This conception, made possible by an abundance of usable land but also inherited from historic factors that we can only glimpse, consists of considering land as an ordinary commodity and as a source of normal profit. It is largely this conception that explains the limited success of the containment measures represented by the *sector plans*, by reason of individual landowners' demands and certain politicians' irresponsible interventionism and also because of the potential legal risk of compensation for planning servitudes, an institutionalisation of the privatisation of urban land rent. The political history of the last third of the XIXth century is also essential for understanding the origins of the current peri-urbanisation. On this subject, we noted how the socio-political influence of the Catholic Church and a part of the bourgeoisie led to a strengthening of anti-urban bias and of family values, and to the tradition of support to home-ownership and new construction. At the end of the Second World War, when mass consumerism developed and car-driving became common, these well-established conditions, without doubt, greatly determined individual behaviour.

In comparison with Belgium, the centrifugal forces of Keynesian economic development, of mass individualism and car-mobility seem to have been territorially better regulated in Switzerland and Denmark. By reason of the systemic relationships between mobility and potential urban accessibility, it is, among others, public action favouring transport alternatives to the car that limit anarchic peri-urbanisation there. In comparison with Belgium, the political choices of recent decades have not been so clearly in favour of individual motorised transport. In these countries, earlier awareness of environmental balance, infrastructure economy and the preservation of land resources have also constituted a powerful curb on centrifugal movement. Collective housing regulations also explain why Switzerland and Denmark are less affected by urban sprawl. Land resources being better preserved and housing support not being limited to acquisition alone, the resulting housing supply has been able to fulfil the aspirations of families looking for an alternative to the one-family peri-urban house, which seems to be more difficult in Belgium.

Notes

1 The ADEF - Association des Etudes Foncières (Association for Land Studies) is a French association active in land research (http://www.foncier.org).

2 For example, "in the public enquiry, the number of individual claims for the whole of Walloon Brabant amounted to 2,710 for 268,655 inhabitants (31.12.1976): 1 % of the population had presented claims" (IGEAT, 1994, p.189).

3 Following the decentralisation of planning competence to the Regions (Flanders, Wallonia and Brussels), the principle of compensation of development servitudes is now taken within the three regional legislations.

4 Church and monastic property confiscated by the state during French (Revolution) occupation.

5 For example: W. De Lannoy & Ch. Kesteloot, 1985 ; C. Mougenot, 1987 ; P. Boelhouwer & H. van der Heijden, 1992 ; O. Dubois, 2001 ; Ch. Kesteloot & F. De Maesschalck, 2001.

6 Accommodation is considered defective when one or more amenities are lacking.

7 In Switzerland, according to the status of the occupier, the same assistance measures facilitate home ownership and the provision of rented property, e.g. the base reduction (abaissement de base), assistance in the form of refundable loans to investment, both for the future owner occupier and the future owner lessor. As well as facilitating property acquisition, this measure thus reduces pressure on the rented property market by ensuring returns on the investment together with lower rents. The supplementary reduction (abaissement supplémentaire) corresponds to a second measure concerning both acquisition and tenancy. This is a non-refundable grant in the form of an acquisition grant and personal assistance to the tenant. Like the Swiss system, the Danish system also covers tenancy with assistance to the lowest-income tenants while also protecting owner lessors by ensuring a minimum return on capital invested (Ministry of Housing and Urban Affairs, 1999, pp.34-36). In Denmark, home-ownership and tenancy are well-balanced thanks to ample provision of council housing in which the amenities are hardly inferior to those enjoyed by owner-occupiers. In Switzerland, a system of subsidies (subventionnement) has been set up to relieve the problems of the less fortunate. It consists of financial assistance to owners of housing rented to low-income tenants. We note that this "social" accommodation is of the same quality as in the rest of housing area.

8 In the "self-provided" system, it is the first occupier who undertakes building-work on the property, whereas in the "developer" system, building-work is not undertaken by an individual future occupier but by a developer with a view to marketing.

9 In Denmark, although self-provided houses represents only 13 % of property construction between 1980 and 1989, it still seems that this is the favourite system for separate houses (Source: S.S. Duncan & A. Rowe, 1993, p.1335).

10 Source: Eurostat 1999.

11 These comparisons are based on a consumer study carried out by the European Union Statistics Bureau (Office Statistique de l'Union Européenne). This enquiry identifies, for each country, the relative level of certain goods and services in comparison with the general price-levels in the country in question.

12 In 1999, the proportion of working women in Denmark is 71.6 % and 50.2 % in Belgium (Source: Eurostat).

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AN ANALYSIS OF SOME SOCIAL DYNAMICS EXPLAINING URBAN STRUCTURES

Geneviève Dubois-Taine

Ministry of Public Works, Transport and Housing Research Department PUCA, Paris La Défense, France;
genevieve.dubois-taine@equipement.gouv.fr

Abstract

European towns have changed drastically in recent decades. They are increasingly made up of old and densely built-up centres; new housing districts comprising blocks of flats as well as individual houses; old, outlying towns; industrial zones; large shopping centres; leisure parks and recreation centres; multi-screen cinemas and so on. Sprawling, scattering, the lowering of densities, the integration of nature into the urban fabric: these are some of the key features that characterize this new urban organization.

This paper analyses the dynamics behind these developments. Three categories of forces can be identified: first, the underlying forces such as geography, history, culture, demographic changes; second, laws, rules and recommendations set forth by politicians and institutions in order to manage the processes of urban change, and the location of services and public works which influence urban growth; third, the dynamics behind the profound evolution of society in its different needs, as well as the general evolution of the economy at different levels.

The main changes in the behaviour of the people, apart from the maintaining of strong family ties, are related to the need for a quiet home life close to nature, increasing mobility which enables people to go to other places, the growing importance of non-worked time and the de-synchronization of urban time. Thus, people try to satisfy all their contrasted needs, and ask for different contrasted places in which to find full satisfaction: old centres to express their roots, shopping centres to get a feel of "what is new in the world", parks and leisure centres in which to walk about and rest, rural areas to admire the landscape and go hiking, places of ephemeral events in which they can feel integrated in our living society. All these places form a system of sites connected to one other as in an archipelago. Concepts such as centre, pole, dense places and intense places furnish the key words with which to describe them.

Keywords

Outskirts, social dynamics, economic dynamics, system of sites, intensity.

1 Introduction

European towns have changed drastically in recent decades. To a European, a "town" means an age-old centre with old houses, pretty shops, genuine urban life where everybody speaks to everybody else in the streets and in public spaces. The urban shape is very well organized with straight streets, old streets dating from the middle ages with buildings that touch one another, parks and gardens, main buildings such as theatres, community buildings and banks that give expression to local power. Around this idealized centre, the surroundings are organized with sub-centres, well-distributed residential areas and workplaces.

Unfortunately this situation is becoming more and more xof an ideal. Such towns do exist, but they are few in number.

European agglomerations today are made up of a large variety of districts. These include old and densely built-up centres; new housing districts comprising blocks of flats as well as individual houses; old, outlying towns; industrial zones; large shopping centres; leisure parks and recreation centres; multi-screen cinemas and so on. Depending on the town and the country, an urban area may be heavily or lightly populated, and it may be dense or polarized. At the same time, these urban areas share common characteristics: they are old agglomerations sprawling over dozens of kilometres; they experience high-level urbanization organized around major communications routes; there is a reduction of urban density levels; the urban fabric is fragmented and no longer continuous; there is an alternation of built-up zones and large open areas of wooded and agricultural land; the boundaries between the town and the countryside are gradually getting blurred; new polarizations are emerging in the outskirts, based in certain cases on old suburban towns that have become absorbed into larger conurbations or are located around shopping centres, or transport hubs.

Many are trying to understand the exact background to these major changes in the organization of our territories; how these changes can be explained and evaluated, how they can be described in relation to the main needs of the population, the main changes in society and the reasoning of the economic actors involved.

Territories are shaped by highly dynamic processes and forces as well as by local, regional, national and international agents, rules and laws. The structure of urban regions is essentially influenced by the following factors:

- first by the underlying forces such as geographical parameters and specific environmental conditions, the ancient urban fabric (groups of villages and medium-sized towns for example) and transport networks; it is also shaped by the demographic, historical and cultural contexts of the region in which they are located;

- second by the political, administrative and legal frameworks set up and managed by public authorities: housing policies; transport policies; services and installations (health, schools, universities, sport facilities, etc.);
- third by the dynamics and forces behind the development and the modification of human settlements: changes in individual needs and of lifestyles and changes in the economic field.

The first part of this paper will focus on some of the main changes in our society, which can explain some of the new urban forms of organization. In the second part, we shall describe the various focal points of these new urban organizations. Then we shall conclude on a major shift in the notion of the "centre".

2 Social and economic issues influencing urban organization

2.1 Needs and social issues

Data on urbanized areas

According to the "French National Federation of Town Planning", 86% of the French population is urban, living either in town centres or in surrounding built-up outskirts or peri-urban areas or communes of more than 2000 inhabitants which, for the most part, work in liaison with the neighbouring conurbations. More generally, the European population has an increasingly urban way of life. At the same time, there has been a massive decrease in density of European agglomerations: for example, between 1950 and 1995, the number of inhabitants per hectare in France halved from 60 to 30. Both housing and business activities account for the changes described in these figures (Pumain, Godard, 1996).

Demographic change and "residential mobility"

Demographic change is taking place in society in general, and in cities and their outskirts in particular. Generally speaking, population trends vary markedly between different parts of the European Union. Whereas is most regions the population is still growing, albeit slowly, there are regions such as Spain, Italy, Germany and the Nordic countries where it is already declining. Between 2000 and 2010, more regions in Germany and Italy are projected to show a decline in addition to some areas in France, the UK and Austria. On the other hand population is expected

to continue increasing at a relatively high rate in a number of regions in southern Spain, the south of France and Greece, as well as in parts of Germany, the Netherlands and the UK (ESDP, 2001).

Patterns of "residential mobility" vary greatly from situation to situation and from country to country. In some countries there is continuing residential exodus from the city to its outskirts, especially of middle and upper class young families. In other countries it is the lower income classes that migrate. In some countries such as Austria (Borsdorf, Heller, Bogner & Bartl, 2000), Finland, Ireland (Hall & Hay, 1980) rural people from outer fringe areas may move to the city for work and educational purposes; in other countries (as in France etc.) the opposite is happening: people are moving from the towns to the countryside. Also, for reasons of age and health, older people may move into or return to the city to be closer to social services while others may prefer to stay in the outskirts where they have lived for a long time. Social housing is being developed essentially on the outskirts even if many countries are trying nowadays to locate it in the town centres or, as in the British case, in the inner cities.

In Spain, researchers such as Horacio Capel (1990) have observed that the outskirts have been developed in order to house waves of immigrants from the rural areas. These outskirts, which are often shantytowns, spread in uncontrolled fashion up to the '70s. From the '80s onwards, the middle and upper classes also settled in estates on the outskirts, but in smaller numbers than members of the working classes, and they were always segregated from them.

In Cyprus unforeseen circumstances such as the forced relocation of people and the intense pressure to provide housing for refugees have led to the relocation of these new settlements in large housing estates on the outskirts. Similar problems have occurred in Belfast, where segregated housing markets have pushed public housing development for the fast-growing Catholic population into the urban outskirts in the west of the city.

Mobility: the all-options town

There has been a change in scale. Cars and other means of transport have transformed our notions of distance. All that matters is the time it takes to travel between different urban elements. The entire town and all its localities of interest are within reach of all. A range of choices becomes available: where you shop, the school to which you send your children, the sport you take up; the kind of easy access you have to the countryside: anything and everything becomes possible. The "all-options-open" town appears to be a development that is here to stay. General accessibility is now an essential component of our urban territories. The philosopher Pierre Sansot depicts the concept of the "lived-in territories" thus: "to navigate between scattered and different places and to be at the same time a player, the subject, himself scattered, in his role and in his identities; this dissemination makes possible a multiple identity, makes it possible to play different facets of oneself, offering this liberty for everyone to live what he wants to live".

In this system, the residential area and the home are places where people seek tranquillity and "no problems" with the neighbours. The place of residence is therefore considered as a "hinge" around which the richly dispersed life of its citizens is deployed. Space that is physically dispersed becomes contiguous by mobility (Le Guirriec, 1996).

People in search of "nature"

What many people are demanding is to live close to nature. For example, surveys carried in Belgium on the motives for peri-urban residential choices have shown that, for many people, the ideal place to live in is the "countryside". Annie Guedez (1996) notes that "inhabitants want to live in a nature that is, in fact, artificial". They want a town with the feel of the country, the possibility of having a house with a garden and of being able to walk in parks. Many try to live in villages located not too far away from their workplaces. They try to enjoy a "village-rural" life, with all the conveniences provided by mobility and comfortable houses (Hervieux, Viard, 1997). This hypothesis was confirmed in the work of Pierre Frankhauser (1994) who used fractal analysis to demonstrate that the fact that the boundaries between built-up areas and "green areas" have become more extended in recent decades.

photo: David Houston

For those who live in isolated houses in the countryside and in villages, the choice of location may to some extent be based on a rejection of the "hustle and bustle", perceived high residential densities and congestion as well as perceptions of insecurity. However, some of them may seek exclusive forms of living and isolation while others often maintain rather intensive professional, social and cultural ties with the city.

This relationship with nature takes different forms depending on the country involved. For example, the British on the whole have a strong anti-urban bias and prefer to live away from the city centre, in the pursuit of the "rural idyll". In Finland, Alvar Aalto's architecture is typical of this desire of man to live close to nature: Aalto's buildings are inserted into the forest which engages in "dialogue" with the town. How can the Ruhr (Thomas Sieverts work on the "Zwischenstadt") or the Randstatt be described other than as dispersed forms of urbanization, recomposed around old country towns, nature or even new centralities? More generally, the success of the garden cities lies in the satisfaction of this need for nature.

People want to live in spacious dwellings

To a great extent, access to larger private areas indicates improvements in living standards. This leads to new needs in terms of demand for space (the number of square meters per inhabitant is increasing). It leads people to settle on the outskirts because, in most property markets, large properties at lower prices are available only outside the dense areas.

The ever-growing importance of "non-worked time"

In recent centuries, all social and urban life was organized around work. Work helped people to define themselves and find their right position in society. Sometimes it led people to live in some specific residential areas. The work time organized all of urban life. Now all this is changing. Work is no longer totally connected with "workplaces": an increasing part of the population works at home, via the Internet. Besides, work is no longer the focal point of our lives. Non-worked time is constantly on the increase. Non-worked activities such as leisure, sport, walking in the countryside, cultural activities, participation in association activities are taking an increasing part in people's lives (Daris, 2000; Lazzarotti, 1995). And this is interacting with urban life in many ways.

What are the consequences ? First, the important place of nature and leisure activities in people's lives means that increasing numbers want to have their houses outside the town and minimize all the journeys they have to make at any time of the day, week or year. Second, people now travel for a great many reasons other than work: for example, in Paris, only 33% of the journeys are work-related. Earlier, town planning used to take account of the bipolar situation represented by the home and the workplace. Today, the work destination is becoming to a great extent less important in comparison with other destinations. Today, journeys from the home are often made to fairly distant places, and may be made to dense areas as well as low-density places (such as rural areas).

The "de-synchronization" of the urban schedules

With the reduction of work, "urban time" is no longer concentrated on well-defined schedules (with fixed opening and closing hours) decided by the industrial managers: people move about a great deal more and at all times of the day. Places are greatly affected by this new way of life: some may remain open round the clock to satisfy the demands of the population, others (like some markets, shops or restaurants) need to be open only a few hours a day or in the week. Some cities in Britain (Leeds and Manchester for example) now promote themselves as 24-hour cities - although this refers mainly to late-night pubs and nightclubs for the younger generation. The town is becoming a set of different places, living at different times.

It is not only places that are affected by this major change but also mobility. Traffic is no longer concentrated in a few minutes or tens of minutes (depending on the size of the agglomeration) of the morning and evening peak hours (the same goes for the weekend and throughout the year). In all countries, traffic engineers are noting an important spreading out of traffic flows over longer periods, gradually leading to a disappearance of the "peak-hour" phenomenon within a traffic continuum. This is a general change everywhere. It affects both centres and outskirts, but in different ways.

Conclusion

The main factor behind these developments is the relentless growth of individualism. In fact, this is a very ancient trend: our civilization has always tried to get rid of every kind of constraint, including human constraint.

People are ever more individualistic: they demand the right to manage their own lives as they will, to go wherever they want and when they want, to meet friends, family or others at times of their choosing. They want to be autonomous and/or independent. As during all past centuries, people continue to develop a strong family life: with their children, in their homes, with the "recomposed family", friends, and so on. The French Sunday meal is a very important tradition that is still being maintained. Besides "family life", people try to build different types of relationships with "others": meeting small groups of people in Associations (with social, cultural and leisure goals), sharing activities that they like (such as sports and hiking) with others, going to crowded places to observe changes in urban civilization (by strolling in commercial centres for example), participating in the old local customs (by visiting local markets and walking in the old town streets), and sometimes communing with local society (by joining in major events, celebrating local festivals and so on). Hence people live their social lives in many contrasted directions and in many contrasted places.

To conclude, authors such as C. Beguinot (1998) and B. Secchi (2000) see the recent transformations of society as representing an undeniable improvement in the quality of life which has also produced new needs in terms of space. This new demand has given rise to a complex form of supply in terms of the building of residential, industrial, commercial and administrative suburbs and additional settlements and the revival of ancient villages. All these forms of supply represent new components of the metropolitan areas as will be discussed further below.

2.2 Changes in the economic field

The location of economic activities and its influence

Sprawling urbanization does not stem solely from housing and people's needs. Economic activities too have played a very important role in the dissemination of human settlements. Different factors have led to this sprawl: the ever increasing number of cars, which brings extensive territories within reach; the globalisation and specialisation of the economy; the transition from Fordism to Post-Fordism which is leading to a decrease in the size of the production unit and an increase in its numbers because of vertical disintegration (entailing front offices, back offices, sets of factories, specialized trades, etc.).

The processes of economic development and peri-urbanisation

First of all, there is a strong relationship between economic development and the process of peri-urbanisation. Analyses of land consumption have clearly demonstrated that economic conditions have a direct impact on the growth of built-up areas: peri-urbanisation is strong when the demand is financially strong.

The location of economic activities

Second, the specific location of economic activities can be characterized by five different factors: accessibility from the town centre as well as from the outskirts and the hinterland (Elmqvist & Karlson 2002); the "window effect"; the price of land; the quality of the surroundings (in terms of pleasant environment, green areas etc) and, on the negative side, nuisance factors. These factors shed light on the processes of location of most kinds of human settlements: for instance, shopping malls (affected by accessibility and the window effect), front offices (the window effect and the quality of the surroundings), techno-poles (accessibility and surroundings) or housing (pleasant, nuisance-free surroundings). In some cases, this system of location leads to clusters and territorial specialisation (Perulli, 1998) and can sometimes create networks of these clusters.

An example can be taken from the Helsinki region, where most of the high-tech companies have moved to logistically attractive areas with easy access through main roads with public transport as well. There are techno-poles in the outskirts, but most high-tech companies are located in very central locations. In the main capitals (like Oslo, London and Paris) which are highly serviced, with high-quality, green surroundings, the central locations are attractive mainly for front offices.

Grouping together of similar activities

Another general trend is towards the grouping together of similar activities (or people) which often leads to segregation (it can also be said that people and activities with the same location criteria will all want to be in the same location): shops attract other shops, industrials zones along the main roads continually attract always more industries and small-scale production centres, and housing attracts housing (Paal, 1998), and so on. These criteria shed light on present-day urban shapes: clusters, industrial routes, shopping areas etc.

Location of services

But the factor of accessibility cannot explain all the transformations of land-use: location of services and especially of public services, of workplaces in the periphery, may also have a great influence on urban organization (Mérenne-Schoumaker, 2001). Moreover, the launching of new areas of economic activity, mainly offices, small industries and leisure and shopping areas, has become the engine of urban sprawl for big and medium-sized cities (Conde & Cortes Alcala, 1995).

Feedback effect

A feedback effect is leading to the relocation of economic activities on the periphery. Today, with people having moved to the periphery, shops and other economic facilities have followed suit in order to be close to their customers and to the labour force (Halleux, 2001).

Role of activities linked to agriculture

Sub-urbanisation is developing outside the town, in rural areas, with the plots being converted from agricultural to urban functions. Agriculture is therefore very concerned by urban growth; the kind of agriculture, its economic value (or poverty), the type of property, etc. are having a major influence on this phenomenon.

The huge increase in farming productivity and outputs in certain European countries led to a decline in the demand for land and a consequent drop in prices. Plots of land formerly used for farming became potentially available for other uses. Moreover, as in "older" cities, land rental prices have decreased from the centre to the periphery - the further from the centre, the cheaper the land.

At the same time, although agricultural productivity has also increased in other European countries, the demand for rural land in the wider urban fringes has frequently not relaxed and prices in many instances have not declined. The reason for this apparent contradiction is the fact that urban fringe land has often become more desirable and scarce because of the centrifugal trends in which urban functions and land use for such functions are moved to the outskirts of cities.

Also, in a number of countries, strict zoning by-laws, development regulations and, in the UK for example, green belt policies, have considerably restricted the potential of the real estate market and have turned urban fringe land into a coveted and expensive resource. Great contrasts can thus been seen in the urban fringes between newly developed urbanized clusters and ribbons of expensive land on the one hand and persisting agricultural lands and conservation districts which are exempt from subdivision, on the other hand.

To conclude this first chapter, it can be said that all these needs, dynamics and forces have fundamentally changed the organisation of human settlements. In a first category we can identify underlying forces such as geography, history, culture, demographic changes, which form the basis for the evolution of human settlements. In a second category, in order to manage urban change to the best possible extent, politicians and institutions promulgate laws, rules and recommendations and locate services and public works so as to influence urban growth. Nevertheless, they have to deal with a third category which lies in the profound evolution of the society with respect to its different needs, and in the general evolution of the economy at different levels. Each of these categories has repercussions by way of feedback on the other two categories.

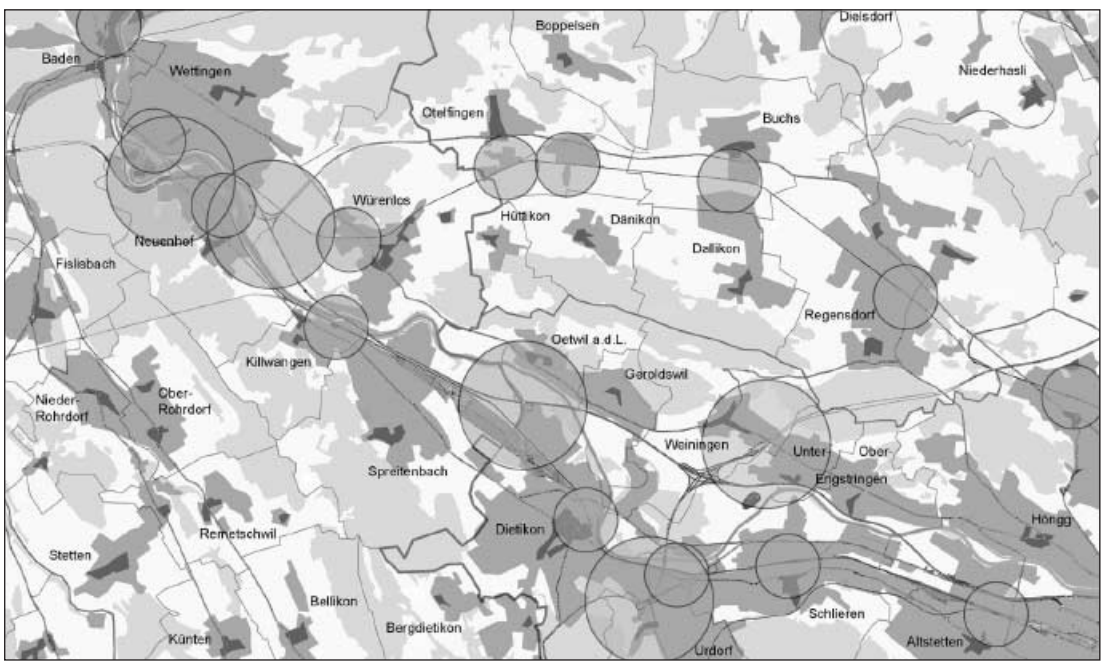
3 Centralities, polarities, dense places, intense places

All these needs and all these changes have profoundly changed the structure of the agglomerations. How are the agglomerations organized to satisfy all these needs? Furthermore, how do people use the territories to satisfy their needs? As we have seen before, taking their home as the "hinge" of their lives (Pinson, Thoman, 2000), people go everywhere not only inside the agglomeration but also sometimes to fairly distant places in search of enjoyment. This is the reason why it is no longer possible to describe urban activities without taking account of all the regions around the agglomeration: as mentioned before, the boundaries between towns and rural areas have become blurred and another word needs to be found to designate this area of urban life here referred to as "lived-in territories". With this term, there is no longer any distinction between old and new centres, urban and rural areas, dense and non-dense areas: "they are the territories defined by the people's ways of life and the economic forces".

3.1 A system of places and connections

Then, how can we describe these "lived-in territories"? As described earlier, people go from one place to many others, depending on time, needs, season, health and so one. This set of places, chosen by the people, is not chaotic. Many authors describe it as an archipelago (Viard, 1994): the term archipelago describes the "lived-in territories" as a set of different islands separated by "water". Each island has its proper life, its proper identity. Some are quite big, others are very small but, perhaps they host very particular activities or monuments or pieces of marvellous countryside. All these places are different and play different roles. The places are more or less connected to each other (by boat in the archipelago image). To contribute to the search for the right term to define the "lived-in territories", we could then propose the following: "a system of places and connections". It is a system because each place has a specific role and specific functions in relation with all the other places. And they are all interconnected and interrelated (Corboz, 1995).

The "Stadtland Schweiz" (Eisinger, Schneider, 2003) is structured exactly in this way: important towns (Zürich, Basel, Bern, Luzern, Lausanne, Geneva), middle-range towns (Neufchatel, Biel, Schaffhouse,…), villages, and a set of in-between places, all very well connected by motorways, roads and public transport.



Source : Koch & Schumacher

3.2 Main themes for a description of the places

How are we to describe these "main places" that people go to ? Starting with the "hinge", the family splits out in all the directions for work, leisure and cultural activities, social associations. To compensate for their individual way of life, people attend different types of crowded and/or empty places:

The town centre

People go there to find the cultural roots of the region they live in: old buildings, shops, nice streets and squares, theatre, cultural activities, restaurants and cafés. There, people go to stroll, meet friends and relax. They do not meet lots of people, but feel reassured to be part of an old civilization and express it. Many people, although they rarely visit the old centre, still consider its presence, its splendour as an indispensable testimony to their own territorial roots. Even if they rarely go to the old centre, people very often refer to it: the number of people who go there cannot alone be a measure of the success and importance of the town centre. The symbolic dimension is essential.

In almost all European countries the old town centres are declining and when they are not, it is due to the important public policies, which were put into effect to give them new functions and new qualities. Why are they in decline? The "crisis of the old centre" can be analysed in the light of certain main themes: the crisis may be the consequence of a loss of accessibility (because of small narrow streets and traffic restrictions designed to maintain urban quality of life) and competition from the sub-centres (shopping centres): the old centres are now only one of the attractions of the agglomeration. Moreover, activities such as shopping and strolling in the centres (both old or new) come into competition with all the other activities that people seek to engage in.

Urban villages

At a different level but one that bears some similarities, a major urban development is now taking place around what are called "urban villages". In order to live close to nature, people are increasingly trying to settle in rural areas, not too far away from old towns. They settle in old villages where they try to find the old customs of rural life while, at the same time, enjoying the trappings of a very modern way of life (in terms of mobility, access to shopping centres etc.). They travel a great deal. The similarity with the old centres lies in the fact that they try to revive the old customs and make contact with the ancient roots of European civilization. The scale is not the same, but the feeling is quite similar.

The Mayors of these "villages" have the major and novel task of organizing social and cultural life in their community. In the cultural field, they have to find the old "roots" of these human settlements, and they encourage people to express them through markets, events, festivals. The local social life has also to be invented: the question is how to stimulate local social life with very different people, longstanding residents and the newly arrived population with its "rural dreams". The new population often stays in residential districts consisting of houses while the ancient population lives in the renovated houses of the old centre: these are essentially old people and their children who want to continue to live in their village. This phenomenon is quite widespread in France.

Residential and industrial areas

These residential and industrial areas spring up in different places along roads, not too far away from public transport stations, in between urbanized areas and/or rural areas and forests. They vary in density, are made up of one-family houses, little blocks, small firms etc. They have sometimes shopping facilities and are generally due to initiative by private actors (investors, enterprises' managers, landowners, etc.). In the case of very low-density areas, they form "inhabited landscapes".

Shopping centres and areas, clusters

Other important places are the shopping centres and areas: people go there to shop (perhaps for one hour), to walk around and to window shop (for two or three hours). The shopping malls are places where it is possible to go simply as an observer. It is a place of social exchange, even if it does not involve speaking: people observe one another. It is a place to see, to measure, to discover, a place where people size each other up, a place to consider what is new in the shops and what is new in forms of social behaviour: It gives people the possibility of being "in", of being aware of what is happening in society. People who go to these places consider them to be "modern" and connected to the entire world (Dubois-Taine, Chalas, 1997).

These new places, outside the "town walls", are places of creativity and inventiveness. The old centres are essentially managed by the local authorities. The suburban shopping centres or areas are mostly managed by the private sector. To ensure their economic success; these private actors must be the first to understand the new ways of life, the new needs of the population and the new fashions and they must satisfy the new wishes of the population (both expressed or unexpressed) as soon as possible. They were the first to integrate restaurants, cafés, urban services and lastly leisure activities (in the form of swimming pools, multi-screen cinemas etc.) into the shopping areas.

Parks and leisure places

Other places that attract increasing numbers of people are the parks and leisure places. In winter but especially in summer, families spend all their Sundays in these places: there are main urban parks, with dozen hectares of woods and grasslands where people rest, and footpaths. There are big leisure places, even in the rural areas, with swimming facilities, often on a riverbank, with restaurants, cafés, picnic facilities, and so on. These places are very attractive, but are open at very specific times: at weekends or in the summer time, and for very specialized activities.

Places devoted to main festivals

To counterbalance their individualistic lifestyles, people try to share activities with others: they involve themselves more and more in local associations not only to socialize but also to meet other people in activities of fishing, hiking, cooking, reading, theatre, etc.

They also increasingly enjoy big events. This explains the success of concerts with 80,000 in attendance or all types of sporting events (football, rugby etc.). People like to live through strong sensations with others and to feel enthusiastic along with others. This need of the population is growing every day and it defines new important urban places, such as the "Grand Stade" in the north of Paris. Ones or twice a month, there is important match or a big concert and about 100 000 people go there. This is another example of an important urban place that comes alive for only a few hours every month. And yet, it is one of Paris's main places.

The empty places

Let us go further with the image of the archipelago: it is formed by islands surrounded by the sea. One of these islands is the old town centre. Others are the commercial centres and areas, the residential areas, the industrial zones and so on. Each of these islands has its own qualitative criteria. But, between the islands there is the sea. And the sea is not empty: the empty place (or we may call it the "void") is constituted by contemporary domains. The empty place can then be characterized by images such as: contrasts, ruptures, fragments, assemblies, collages, tensions, hazards, and unceasing transformations (Dubois-Taine, Chalas, 1997). Art, in all its forms, has known how to recognize an aesthetic value in such notions. Thus, the empty place makes the town at different levels: it determines the placing of buildings, infrastructures and utilities; it organizes the relationships between the islands; it is the background of the main symbolic places of the territories.

The empty place, at some points, is so important that it defines, alone, the identity and the organization of the urban structure. It is in this sense that the green heart of the Netherlands can be understood as an important rural area, a void, around which all the towns are scattered and organized. The Cergy Pontoise "Main Axis" is a very symbolic one: it starts on the top of

the hill, inside a round building and connects the new town to the river Oise, the recreation area and, at its end, to the Grand Axis of Paris. This Axis is an empty space that sets up relationships between the main places of this region and around which the most important symbolic urban shapes are organized.

3.3 Conclusion: centralities? Polarities? Dense or intense places?

How are we to characterize the main places in the "lived-in territories"? The places that we have described structure and organize the territories, but in different ways. They are the "main places" that everyone knows and goes to at some time. They are the "focal points" around which all the settlements are organized, in different senses.

When we try to define these places exactly, it is the word "centre" that first comes to mind. The word "centre" refers to an urban hierarchical organization with a centre in the middle, surroundings, as the case may be "sub-centres" (semantically this term is already unclear) and the rural area around. It is generally thought to be dense (in buildings), with many people, and with a high symbolic value.

Then, as soon as we talk about poly-nuclearity or sets of places, the notion of centre is no longer effective and has to be replaced by that of "polarity". A pole essentially attracts: it attracts people, activities, and makes an important contribution to the organization of the urban structure. This definition is essentially related to the capacity of the place to organize the agglomeration. It does not describe the place itself.

Another term, then emerges, that of a "dense place". The term "dense place" bears no relation to the notion of movement, but tries to describe the place in its own state. The place may be dense in many different respects: it may be dense with buildings and square meters, dense with people, dense with many diverse urban functions, dense with shops, etc. It can have only one urban function and nevertheless be dense: for instance it may be a big park with large numbers of visitors. The term "dense place" implies that something is measured. The perimeter of the "dense area" has to be defined as a counting of the elements that constitute the density. The count may relate to numbers of people, square meters in a building, numbers of shops, rate of heterogeneity, density of semiotic signs such as shopping signs etc.

But, if density were to be the way to measure quality it would mean that the quantity defines the quality and this is not always true. Yet, many important places in our territories are not full of people or buildings,… and yet are very important in the urban structure: the symbolic Axis as explained before, the void centre of the Randstatt in the Netherlands for instance. This is why we propose to use the term "intensity" to characterize the focal points of the "lived-in territories". This term opens up the possibility of taking every urban quality into account: people, buildings and human activities as well as the symbolic, architectural and landscape dimensions.

4 Conclusion

European agglomerations have undergone major changes in the past century. They have sprawled in the rural area, the densities have greatly decreased and the human settlements can be now described as systems of different places with different functions more or less related to each other. Apart from the economic reasons for this general split, this paper gives a short description of the way in which the main changes in the peoples' behaviour can explain the emergence of a system of new places.

The main changes in the behaviour of the people, along with the maintaining of strong family ties, are related to the need for a quiet home life close to nature, increasing mobility which enables people to go to other places, the growing importance of non-worked time and the de-synchronization of the urban time. Thus, people try to satisfy all their contrasted needs, and ask for different contrasted places in which to find full satisfaction: old centres to express their roots, shopping centres to get a feel of "what is new in the world", parks and leisure centres in which to walk about and rest, rural areas to admire the landscape and go hiking, places of ephemeral events in which they can feel integrated in our living society. All these places form a system of sites as well connected to one other as in an archipelago. Concepts such as centre, pole, dense places and intense places furnish the key words with which to describe them.

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RETAILING IN THE SWEDISH CITY: THE MOVE TOWARDS THE OUTSKIRTS

Mats Franzén

Institute for Housing and Urban Research, Uppsala University, Sweden; mats.franzen@ibf.uu.se

Abstract

This article traces the move towards the outskirts in Swedish retailing. Beginning with food and more bulky consumer goods at the turn of the 1970s, this development has by now come to include most kind of goods people need. This development seems to have been comparatively early, and thorough, in Sweden, much depending on a specific pattern of state interventions after the Second World War. Consumer practices had to respond to this, and they did. Now, this development implied the economic dominance of large chains, and larger and larger shops, especially in food retailing. Politically, this development, contributing to a fragmenting sprawl in the outskirts, while threatening existing retailing in city centres, but particularly local shopping facilities, has met critique. Nevertheless, leading political forces, foregrounding high consumer prices and weak competition as more urgent problems than sustainability or consumer accessibility, hesitate to try to contain this move towards the outskirts.

Keywords

Retailing, shopping centres, consumer practices, auto mobilisation, competition policies, economic concentration, planning, Sweden.

1 Introduction

For several decades now, the restructuring of the retail trade has been a decisive force in the reshaping of urban space. Consequently, the walking city has, step by step, been substituted by the auto city. Of course, change in the retail trade has not been the sole force behind this development; rather it has been one among several interacting causes, the pattern of which has given this development both direction and meaning. In short, the conditions for everyday life have been reshaped in fundamental ways in our cities – Sweden being no exception[1].

For several reasons, these conditions seem to have been restructured more radically in Sweden than in most other comparable European countries. My aim in this paper is to try to sketch this reshaping of urban space in Sweden, looking particularly at the causes of retail trade developments and their impact on urban space, particularly the outskirts. Thus, I will treat Sweden as one case of a more general dynamic reshaping urban space in European cities. However, I will at the same time try to be concrete enough to make what is specific about the Swedish case understandable.

2 Food retailing: spatial fragmentation and economic concentration

In a progress report on geographies of retailing and consumption in USA and UK, Louise Crewe notes "a profound concentration" all through the 1980s: "a handful of stores came to dominate the high street across a range of sectors, but particularly in food and clothing retailing". These concentration processes "coincided with a neo-conservative political project centred around deregulation and the freeing up of the market". For example, "just five retailers" are said to control sixty percent of the U.K. grocery market in 1990[2].

2.1 Early developments

Now, in Sweden, a profound concentration process, particularly in food retailing, is definitely noticeable at least since the beginning of the 1960s, if not earlier, and this process did not coincide with any neo-conservative, or neo-liberal, agenda of economic reform, but was triggered

by the interventions of the Swedish welfare state. The aim of these reforms were to intensify competition; but competition was seen not as an end in itself, but as an important means to rationalise the retail trade, which in its turn was regarded as necessary both to free labour for more productive economic objectives elsewhere and to cheapen consumer goods. Yet, the over all aim was the promotion of welfare. The reforms were introduced in the early 1950s and directed at a series of competition barriers: the practice of fixed prices (bruttoprissättning), the establishment controls organised by producers, whole sale dealers, and retailers, and, finally, the provisions regulations (livsmedelsstadgan), specifically hindering meat and vegetables, or groceries and other goods for everyday use from being sold in the same shop. More concretely, the reform aimed at supporting the development of a self-service system. Because of the reforms – particularly important being the 1953 law on inhibiting competition limitations and new provisions regulations – self service was introduced in the 1950s[3].

Two decades later, retailing was rationalised significantly. The new shops established became larger and larger, as did their turnover. As could be expected, productivity rose with larger shop size. The other side of this development implied a reduction in the number of retailing units, that is, a concentration of food retailing from about 36 000 units in 1939 to less than half, or 17 000, in 1972. However, concentration went on at a faster pace when it comes to ownership, as the small, independent retailers declined in number, while a few retail trade chains grew to dominance. In the beginning of this development, the cooperative movement, KF, was the leading force, yet, ICA, an association of private retailers, soon became the largest actor in the food retailing market. Thus, in 1972, KF and ICA together had two third of the total turnover – a figure that is to be compared with the much less pronounced concentration in the UK two decades later, according to Crewe's figures. Moreover, KF's and ICA's share of the new units established in 1970-72 was at 74 percent, even higher. On a general level, this development was fostered by the tax legislation, favouring enterprises in expansion, reinvesting their profits in the same business[4].

The spatial implications of this development are now to be dealt with. The early 1970s, however, were only to see the beginning of retailing playing a decisive role in the substitution of the walking city with the auto city. Yet, the latter was already materialised in important aspects at that time. Indeed, the economic developmental block that was the strongest contributor to the post-war economic boom in Sweden was the one centred around transport. This developmental block, built up of three automobile factories, the construction of new roads, filling stations, and a bunch of car related services, thus was to become the most powerful dynamic force in the creation of the auto city in Sweden. The creation of the auto city, however, was also due the effects emanating from two other pertinent developmental blocks in the Swedish post-World War II economy, one centred around the housing construction industry, the other around retailing. Moreover, in several respects these three developmental blocks for a long time gave force to each other. For example, the modernisation of the households through new apartments with modern equipments as refrigerators went hand in hand with the revolutionising of retailing

through new modes of packaging (deep-freezing etc). In deed, new storage capacities in the home were an important prerequisite for auto shopping. Or to summarise this most dynamic economic history in general terms: several developmental blocks were powerfully coupled together by complementarity[5].

Beginning in the 1950s, the auto city was built up in conjunction with the comprehensive housing policy, specifically, and modernist town-planning measures more generally. This was the *political side* of the new auto city being formed. These planning measures, supported by a range of other state interventions, co-ordinated and formed the dynamic forces that materialised the auto city. A city on a new scale was thus effectively constructed in a few decades, and with it everyday life was transformed fundamentally[6]. However, there were also a *demographic side* of this transformation in Sweden that helps to explain the dominance of the auto city being constructed in the decades following World War II. These were nothing but decades of strong urbanisation, completing the urbanisation of this for long under-urbanised society, where about half of the industrialisation process were located in the country side[7]. In short, the force of the urbanisation was politically turned into a planned suburbanisation.

Nevertheless, it was only around 1970 that big external shopping centres – an icon of the auto city – were established. Until then, retail trade concentration took place in two ways, through the department stores in the city centre, or through self-service retailing (supermarkets) with a broad selection of goods, in the inner city, or in the centres of the new suburbs. In the latter, the standard solution in most Swedish cities was one ICA and one KF retailing unit – a solution that did not favour either the two big retailing chains, but obviously did disadvantage other actors in the market. In fact, this town planning practice – so characteristic a part of the Swedish model and its corporatism – at the municipal level reinforced the dominance of the big two in Swedish food retailing. Yet, at this time, besides the big two, there were not only a lot of small businesses but also a few larger chains, though none as big as KF or ICA[8].

After 1970, however, things were to change in a spatially more fragmenting direction as supermarkets needed more and more customers to be profitable. Thus, in the 1980s, it became apparent that a threshold had been passed as it was getting harder for the municipalities to get any more complete food retailing located in new suburban housing areas. Even if not so many new such areas was constructed at the time, the effects of this new situation did not stop there, as many stores in older suburban areas had to be taken out of business. The consequence of this was to definitely set up the auto city in the domain of retailing too, which, in its turn, deepened the fragmentation of urban space, as it became more difficult to maintain daily services in housing areas. Thus, daily services were less and less kept at a walking distance. Well into the middle of the 1970s, was it possible, however, to contain the dynamic forces of the auto city within the formulas of modernist town-planning and to create a well-ordered urban space, spatially built in large mono-functional enclaves that were connected by a corresponding traffic system. Retailing was still found at a walking distance within these housing enclaves.

2.2 Recent trends

The last decades have seen a steady trend: retailing moving outwards, towards the city outskirts, particularly searching what is regarded as a favourable location, which means close to the large traffic nodes. This development implies a further fragmentation of the city fabric, at least as seen from the point of view of those without a car, as well as from the point of view of those who try to plan it. In this section, I will sketch this development, beginning with the economic conditions, turning then to the spatial side of the coin. I will do this looking particularly at the retailing of everyday goods, while coming the subject of the outward move of other forms of retailing later.

The economic conditions built up in the first two post world war two decades set the stage for the further development too, with KF and particularly ICA as leading retailing chains. Both actors are very intent on integrating their business, vertically as well as horizontally, through ownership or collaboration agreements. The concentration worked particularly in the wholesale trade to keep competitors from being able to enter the market. Thus, three wholesale traders – KF, ICA and DAGAB – kept 98 per cent of the market among traders with a complete assortment of goods in 1988. At this time, there were only four of them left; at the beginning of the decade, they were eight. Parallel to this development, the number of retailing units declined from 19300 in 1964 to 9000 in 1985. While KF and ICA in 1970 controlled almost two third of the turnover in the retailing of everyday commodities, their share had grown to a little less than three fourth in 1988. Although competition strategies changed during these two decades, the dominating retailing chains increasingly competed with the same means. Department stores were laid down, as well as smaller retail units, and new supermarkets established; they all tried to attract customers with a very similar mix of goods, competing particularly with temporary price reductions (*extrapriser*) on selected popular goods[9].

If this continued concentration process may seem quite expected, this cannot be said about the changes in the retail shopping. The restructuring of this very much depended upon the 1972 reform abolishing all restrictions in opening hours. In 1968 no shops kept open in the evenings or Sundays; two decades later the picture had changed dramatically: almost every second shop was now also open at these times. However, this helped to change the shop structure too. This is to be seen in the greater share of big units in the total turnover of everyday commodities sold[10]. Consequently, the share of the supermarkets increased from 50 percent in 1970 to almost 64 percent in 1988. In addition, the supermarkets[11] specifically direct their service to customers by car. This is even truer for the petrol stations selling everyday commodities: from a share of almost nothing in 1970 they expanded to a share of a little more than three percent in 1988. This development towards the outskirts was however counteracted in a sense by the establishment of so called *servicebutiker* (an example of which is the chain Seven Eleven) with a more narrow product mix, located both in the city centre and in the housing areas. They too expanded from almost nothing in 1970 to almost six percent of the turnover in 1988. In a sense, the establishment of this retailing type implied a higher service level in the inner cities and the suburbs. Yet, if

one does not look at the lengthening of the opening hours, but at prices and width of the product mix, the assessment becomes very different. The years between 1970 and 1988 consequently saw a significant decline of the more traditional retail shop from almost 47 percent of the turnover of everyday commodities to less than 27 percent. That is a decline precisely in those shops that are close to the customers and retail most of the goods that one has to buy regularly.

Thus, the auto dependent supermarkets were quite expansive in the 1970s and 1980s. Among them a segment that epitomises retailing in the auto city is identifiable; in Swedish they are called *stormarknader* (big markets). A *stormarknad* is a supermarket trading in everyday commodities, yet it also sells many other goods. Together with generous opening hours, this makes the stormarknad very convenient. It invites the customer, so to speak, to come by car and shop on a weekly basis. As already noticed, there was an expansion of this retailing type in the early 1970s – when several new shopping centres were established. Now, a second establishment wave is discernible, beginning in the middle of the 1980s. In 1989, most of the 75 biggest supermarkets in Sweden were located at the outskirts of the biggest cities. In the more sparsely populated northern parts of the country, they were still non existent at the time. Here it is also to be noticed that attempts were made, beginning around 1980, to establish so called low price shops in the outskirts, appealing to the car using customer with the help of low prices. However, most of these attempts failed. Despite a more narrow supply of goods, they did not succeed in pressing prices down by more than five percent, which obviously was not enough for a market break through[12].

In the 1990s, this was to change – a development with spatial implications as it further reinforced the outward move of retailing. Let it be noted, first, however, that this did not hamper the concentration process outlined above. This is easy to recognise if we look at the figures for the year 2000[13]. Consequently, the bigger shops got a bigger share of the total turnover of everyday commodities sales. New shops that are set up are larger than ever, while fewer and fewer of them are set up with each passing year. Average selling space in new retailing units being about 400 m2 in the early 1970s, in 2000 the average space was 2 500 m^2. Parallel to this, the number of new shops that were established continuously declined, from about 200 to circa 30 units. And the big three – KF, ICA and Axfood[14] – still dominates the whole business with a market share of a almost 89 per cent.

The change of the 1990s in everyday commodities retailing is signified by the successful establishing of large, low price shops, and their expansion has not yet slowed down. Perhaps surprising, however, is that one of the big three, KF, has made the decision not to favour this strategy to attract the consumers. Instead KF now is leaving this market segment, where ICA is deeply engaged and Axfood the leader. Almost every second new shop is a low price one. In a leading branch journal, the development in the 1990s is described as "almost explosive"[15]. Moreover, these shops are established precisely where easy auto access is guaranteed and land is cheap, that is on the city outskirts.

In business terms, the losers of the game are two. Smaller retailers, whether in the inner-cities, the suburbs or the countryside have declined significantly both in terms of turnover share and in terms of pure numbers. In other words, for many people access to a wide mix of everyday commodities at walking distance nowadays is nothing but a wish. These smaller retailers were squeezed from two sides, from the large, outskirts located shops, but also from the even smaller *servicebutiker*. Even though the latter's assortment of goods is narrower, their opening hours are much more generous, the consequence of which is to support complementary shopping of goods as cigarettes, milk, bread and coca cola. In sum, according to one reasonable assessment, based on data from 28 municipalities in Sweden about the everyday goods sales development from 1989 to 1997, CBD (central business district) sales fell by nine percent, and the sales from shops close to people's homes by twelve per cent, while outskirts located sales saw an increase of 116%[17]. The direction of change is evident.

2.3 Consumer practices

Consumption is a process; delivering the good, or service to consume, constitutes only the first moment of this sometimes immediate, sometimes extensive process. Of course, here it is precisely this first part of the process that is of interest, but with the qualification that the item brought (home?) is bought. To put the question bluntly: where do different categories of people buy their every day goods? And how do they get there? Consumer practices are important to recognise in any explanation of the development of retailing sketched above. However, the tricky thing that must be noted is that consumer practices in this respect are as much formed by, as they are forming, the development in retailing described above. Indeed, it is possible to argue that the important thing is not to determine what came first – new retailing formats or new consumer practices – but to acknowledge the interactive, cumulative process that explains their joint development.

However, looking at this cumulative process over time makes possible a more nuanced conclusion. In the beginning, in the 1950s, when policies favouring the rationalisation of retailing in general, and self-service shops in particular, were being implemented, complaints were heard about the customers' habits. They were accused of not being sensible to price differences, buying what they needed in the shops that were closest to their homes. Now, this consumer practice is precisely the opposite of the consumer practices of today. Today, consumers are looking for favourable prices, while not recognising the price they must pay, for themselves, and for the environment, by taking the car to reach the lowest price. This is very interesting since it makes it possible to argue that the cumulative process was opened through interventions by the state, favouring the retail development as outlined above. In the beginning, consumer practices rather blocked than triggered the process however. As the process got under way, new consumer practices seem to have been formed, practices that by the way have come to support it further.

In a sense, these new practices were the unintended outcome of raising car ownership, and the move of the population to the new suburbs in the decades after the war; old consumer habits were gradually substituted by new ones.

Keeping this in mind, let us take a look at some contemporary consumer practices – particularly dependency on the car. In a study of the effects of new supermarkets located at the city outskirts in six middle sized Swedish cities, 70 percent of all households said they were using the car to buy their everyday commodities. This rose to 90 percent for customers of the new supermarkets. Yet, it is interesting to note that even if they were using a shop near their home, almost half of them (47%) still used the car. Moreover, two third of the households recognised themselves as highly car dependent, and only a fourth of them said that they were going to the external supermarket for their everyday shopping if they had no car. Also worth noting is that shopping is normally conducted as a trip of its own; thus not more than 22 per cent of all customers do their shopping in conjunction with other daily tasks. As this study was conducted in a short time after a new external supermarket was established, it is possible to see where the new supermarket customers shopped before. Most of them did so close to their home. The opening of the new supermarket however made 38 per cent of them change their choice of where to shop – 29 per cent did change to the supermarket[18]. Yet, there is a certain shopping rhythm to be noticed here. Going to the supermarket still very much is a weekend practice, concentrated in the week between Friday and Sunday. Consequently, shops closer to the home have their chance the rest of the week.

It has to be noted in this circumstance that it is family households with children and a relatively solid economy – middle class people – which are particularly prone to use the car for shopping. Moreover, they are also over-represented among those living in detached and semidetached houses in the suburbs, circumstances favouring the car for shopping. These families, the bulk of the main-stream consumers, not only consume relatively large quantities of everyday commodities, which make the car a most convenient transport solution in getting the goods home. They also have relatively tight time budgets, which in its turn makes the large supermarket a reasonable shopping option. Yet, low price shops at the outskirts are not accessible for those who cannot afford to have a car – if they do not happen to live next door, which some people actually do. That is, those for whom low prices are most important are unable to shop where prices are most favourable[19]. Perhaps another example of the poor pay more syndrome. Yet, on a more general level, the question is if not the savings in the low price shop is evened out by the transport costs to get there and then return home.

Be that as it may, this retail development, fragmenting the urban structure, while increasing car transports fundamentally, runs counter to any reasonable conception of a sustainable development.

3 Food and the rest: shopping centre spreading out

I now want to broaden the perspective, looking not specifically at the retailing of everyday commodities, but on the retailing of consumer goods more generally. This will be done with a focus on the restructuring of urban space, particularly how this takes place in the city outskirts. I think a convenient way to comprehend this is in terms of a shopping centre spreading out. Yet, this must be understood in a double sense.

First, shopping centre spreading out is to be seen as the establishing of such centres not just beyond the CBD's, but beyond the inner-cities more generally and also beyond larger suburban housing units. In the Swedish context, particularly the latter point is decisive since here was established, beginning in Vällingby in north-western Stockholm in the early 1950s, a town-planning policy that saw the construction of large shopping centres in an ensemble of suburban units. Moreover, they were located together with civic services and the like, in one of the suburban units making up the ensemble. These centres, like Farsta and Skärholmen in southern Stockholm, or Frölunda torg in western Göteborg, were well integrated with the surrounding housing areas, while simultaneously being quite accessible to the car user. In fact, these centres were functional at both the walking and the driving scale level. Of course, the beyond I am hinting at here is not a beyond from the point of view of the car user, but points at the spatial fragmentation of the urban fabric. This means the consolidation of large, relatively homogenous, shopping spaces, well connected to the large traffic arteries, often located at important traffic nodes. However, seen from within, in the eyes of their users, they are worlds of their own.

Second, in this development, there may also be seen a kind of spreading out of the shopping centre as such. This perhaps clumsy conceptualisation aims to point at a more market led constitution of outskirt shopping areas. Also taking place in favourable locations from the traffic point of view, these shopping areas are never conceived – that is, planned – as such. Once constituted, however, they must be recognised as such. Thus, new shopping areas are being created, sometimes in non-planned open lands, sometimes in land laid out for industrial uses. In the latter case, shopping functions located there may either be the first economic activity at the site, which happened particularly to several large industrial areas planned in the 1960s and early 1970s, or they may be established through a re-conversion process of what once were industrial spaces[20]. Despite the way these shopping areas come into existence, primarily market forces induce them. Moreover, compared to the shopping centres conceived in advance, these shopping areas are not pure shopping spaces. They are mixed with some industrial uses (sometimes of a more traditional kind, sometimes of a high-tech kind), warehouses and similar spaces. In that specific sense, they may be seen as spread out shopping centres.

Needless to say, the retailing of everyday commodities is normally an important component in these shopping centres and shopping areas. However, the outward move also of other kinds of retailing

has been significant for several decades now, beginning around 1970. At that time shopping centres mainly supplied everyday commodities. Yet, several of them were designed as inverted department stores, that is, they were built around a huge food market, and also had items like clothes, household utensils and the like for sale. Moreover, some specific retailing branches also favoured an outskirts location on cheap land, attracting particularly customers by car. In Sweden, furniture is of significance here at particularly this time, with IKEA's low budget strategy built around customer-assembled items that customers can drive home. IKEA was just the beginning however.

In the non-food sector, the critical outward drive started in the 1980s and was further accelerated in the 1990s, when, as noted above, outlying shopping centres and shopping areas more than doubled their turnover. A study of three medium sized Swedish cities – Borlänge, Jönköping and Kalmar – between 1989 and 1997, lets us go into some detail here. In Borlänge, already having one shopping centre, a new, spectacular, one, Kupolen, was established in the early 1990s. Here, all branches of retailing are represented, which is part of the explanation for the 41 percent retailing decline in the city centre observed between 1991 and 1997; at the same time, outskirts retailing increased by 174 per cent. This is a dramatic change in a few years, but Borlänge is an extreme case compared to both Jönköping and Kalmar. Yet, in the beginning Jönköping had a similar development to Borlänge, when the old artillery barracks were converted into a huge, all branch shopping centre in 1987. In this city, however, the dealers in the city centre responded, not by closing down, or moving out, but by trying to make the city centre more attractive by different means. Though outskirts retailing are growing at a faster pace, some expansion measured in turnover is observable in Jönköping's city centre, though not in the areas in between, with a salient decline in non-food retailing. In Kalmar, the city centre retailers came out even better than in Jönköping, perhaps because of the prettyification of the city centre[21]. As these examples neatly illustrate, there are some pertinent differences in the outcome of these general trends locally. (Whether politics are of any importance to this is to be discussed in the next section.)

The general trend is that almost all branches now are seeking to acquire outskirt establishments. Of course, this is not valid for all retailer types within a specific branch, but rather for those organised in national or international chains, as IKEA, or Hennes & Mauritz. Indeed, the so-called top twenty retailing list comprises precisely those companies that are present in most shopping centres. In Sweden, companies of this kind represent the bulk of growth in retailing since the 1990s[22].

In the beginning, in the 1970s, this was not a general trend however. Indeed, stores – or to be more precisely: chains – selling items like cars, furniture, television sets and other types of home equipment set the trend. Thus, it was possible to offer these kind of goods at more favourable prices, though the customers had to bring them home by themselves, which most of them seem to have learned quickly to do. Nowadays, nobody any longer expects to have a television set delivered home. In short, the outskirts selling of relatively large goods, bought by customers at long time intervals, and brought home in their own cars, took off at almost the same time as everyday goods. It is important to note that the selling of clothes on a large scale is a later development,

becoming significant in the 1990s. Now, not only Hennes & Mauritz, but some chains that are somewhat more exclusive have established themselves in outlying shopping centres. The decade also witnessed the establishment of several so called outlet centres selling branded clothes at lower prices than in the city centre shops[23].

If the shops in the outskirts complemented the more regular supply in the city centres during the early 1970s, the question that today has to be raised is if we are not witnessing the birth of the multi-centred city in many places in Sweden. For many people, it has now become possible to get almost everything they need to buy without going into the city centre. Moreover, even the entertainment business, in the form of so called multi-plexes, is now moving outwards in cities like Stockholm and Malmö[24]. At the same time as this multi-centring almost by definition implies a concentration of activities in some parts of the city outskirts, one of its most visible results is the fragmentation of city space. This is no paradox, since the concentration process takes place at another scale level than the fragmentation process. In other words, while the city outskirts have more and more to offer the car-using customer, making almost a whole life possible there for him[25], from the pedestrian's point of view, the same city is being fragmented into pieces.

4 Politics: planning versus urban sprawl

In a sense, the beginning of the development outlined above was unleashed by a series of interventions by the Swedish welfare state. The development was then formed by its modernist town-planning ideals and corresponding instruments. This was a characteristic outcome of the Swedish model, that corporatist arrangement between labour and capital through the state that for decades was at the heart of Swedish welfare capitalism. This model for long – well into the 1970s – worked as a plus-sum game for its main supporters, but inevitable had its losers, one of which was the small entrepreneurs that before the war had the lion part of the retailing turnover. As the Swedish model ran into difficulties, so did planning and thus also town-planning. Yet, if the problems of the model were recognised only gradually, and not definitely until the severe crisis of the early 1990s – with unemployment figures approaching 1930's levels – planning as an instrument to steer future developments was outmoded more than a decade earlier. Of course, this did not end the town-planning duties of the municipalities. Yet, they did not see their future in technical blue prints any more. Rather they sought the future in the market by images and rhetorics trying to conjure up the attractiveness of the city[26].

Looking now at the politics of retailing I think two observations are of importance to understand the development. First, town-planning within the Swedish model worked well for several decades by working with the market forces. It did not act against them, but tried simultaneously to strengthen and to shape them, giving them a spatial form. In retailing, this is an easy observation to make. However, in the 1970s the population required for profitable retailing outgrow the size of the housing units. This was nothing but a significant event, the consequence of which implied the spatial separation of housing and retailing in the Swedish city, a rupture that eventually hit the entire urban fabric. The market forces in retailing quite simply did not fit the planning formulas any more. One significant consequence of this was the double spreading out of shopping centres. Most probably, the shopping centre spreading out had thus been possible also without any change in planning ideals. Indeed, the promotion of mobility, that is use of the car and its concomitant activities, was a fundamental ingredient already in the Swedish model – in tune not only with its prime developmental block and its planning schemes, but also with other important developmental blocks. So, another development than that that was emerging in the 1970s had necessitated another politics *and* new planning ideals rather than just a preservation – not to talk of the strengthening – of the old planning system.

My second observation brings us directly into the present political situation. The competition driven rationalisation of Swedish retailing, particularly when it comes to everyday commodities, has come so far that this business sector now is dominated completely by the big three in the wholesale trade. From a business point of view, integration now seems almost perfect, vertically and horizontally. Now, contrary to the political aspirations of the 1950s, the market led competition and rationalisation that was set free has not resulted in low food prices. On the contrary, food prices in Sweden are comparatively high. This has turned retailing into a political issue. More precisely, the planning monopoly of the municipalities – which makes it possible, for example, to say no to a new outskirt shopping centre or supermarket – have been seen as a competition barrier, hindering new low price businesses from entering the market. In one sense, this critique is an obvious exaggeration. All actors in the market have the same right to hire, or buy, any available space that according to the existing town plan regulations are allowed for food retailing. Consequently, no actor can be seen as mistreated compared to any other competitor. However, if the point is to stimulate the establishment of large, low price supermarkets in locations close to the large traffic nodes, the critique may seem reasonable. Particularly so when this presupposes the establishment of new town plans since then the big three not seldom seems to have a favoured position in many municipalities, being able to negotiate with the authorities and thus getting their will through. It is so at least compared to new actors of the similar scale.

Interestingly, this issue has turned the state against itself. Thus the Competition Authority (*Konkurrensverket*), founded in 1992, basing itself on the 1993 competition law[27], has criticised the municipalities' planning monopoly as a fetter to competition[28]. Indeed, this was recognised as a problem already in the state investigation that proposed the set up of the new Competition authority. This resulted in a change in the planning law in 1992 with the implication that some

regulation of retailing was necessary, yet that this had to be set against the need of competition, favouring the latter. Without going into technical details, a few years later, the planning and building commission in work was given new directives precisely on this point. And this for two reasons. First, the citizens' access to retailing was an important issue to recognise. Second, the environmental impact of the goods' transport was also to be recognised[29]. Authorities and agencies responsible for the implementation of Agenda 21 and sustainable development thus see things differently: for them it is of utmost importance to minimise car traffic and thus they do not favour outskirt shopping centres or supermarket. Also interesting to note is the presence of a politics for the city, *Stadtpolitik*, in this, pointing at the need for all citizens' good access to shopping facilities, even if they do not use a car.

Yet the story does not end there. In the Swedish elections in September 2002, politicians of all colours seemed troubled just about food prices, while other kinds of consumer interests were played down – or simply being forgotten – together with any notion of a sustainable society. This now seems to have opened the way for retailing chains operating on an international scale – particularly the German company Lidl – to find a suitable location in several municipalities. However, even if this will strengthen the competitive edge in the market for a while, it does not solve the problem in the long run, that is to disaggregate the oligopoly in food retailing – it will just restructure it. It definitely will strengthen the spatial restructuring, that is, the move towards the outskirts though. Surely, this will not bring the story to the end.

In practice, however, local politicians hindering the establishment of supermarkets or shopping centres in the outskirts are exceptional. In a study of the outskirts establishment of shopping centres in six medium sized cities, the accessibility of good retailing was not made into a public issue. Rather the politicians seemed to take auto transports for granted and regarded traffic development as a natural force. When they got a proposal from those interested in establishing an external shopping centre, they saw this as part of a purchasing power struggle, and also as a possibility to increase employment. Thus they were to favour the shopping centre establishment within their own borders. It must be noted in this circumstance that they had neither any plan of their own for such establishments, nor any ideas about how the city should be built. Even if they once were favouring shopping in the city centre, many of them now changed their preferences in favour of the external shopping centre. Moreover, once established, the new shopping centre sat the city centre businesses under pressure. Initiatives to make the city centre more attractive then had to come from the business interests located there, not from the politicians. In short, politicians tended to lose sight of the spatial distribution of retailing within the municipality – as well as the sustainability issue – not to lose much of a reasonable supply to the municipality neighbour[30].

However, it may well be that the planning monopoly of the municipalities is a relatively weak instrument to come to terms with this development in retailing. To counteract that the market actors turn different municipalities against each other, there is need of a political instance at

a higher scale level, invested with authority in location issues of this kind. Compared to other countries, like Holland and Denmark, planning at the regional level in Sweden must be recognised as being relatively weak, if not lacking[31]. Unsurprisingly, at the present, the establishment of such planning powers are out of question.

In short, there are no instruments to tackle the kind of development in retailing we have seen in the last decades. Moreover, even if sustainable development have been on the agenda for some years now in Sweden, it has been articulated more with ecological construction and waste recycling in mind than with limiting car dependence and the rising volume of automobile traffic. Indeed, automobile interests have been and still are very strong in Sweden. Though not longer making up the leading economic development bloc, there still are three Swedish based automobile companies in the country, and a strong automobile lobby[32].

5 Conclusion

Retailing is a most dynamic force in the reshaping of urban space, and specifically so in Sweden. Post world war II Sweden was very much formed by the developmental block centred around the car. Also, almost from the beginning, that is from the middle 1950s, a thorough going rationalisation of food retailing was opened by a series of state interventions in the market, the consequence of which was the establishment of an oligopolistic market structure already in the 1960s. The development of food retailing has since then been dominated by a few large chains, integrated vertically and horizontally. One implication of this is larger and larger shops, located at longer and longer distances from where people live. Of course, this developed hand in hand with an increase in car ownership and use, the other side of which is a growing societal car dependency. Spatially, food retailing has the last two decades over grown many suburban housing units too, bringing with it a characteristic fragmentation of urban space, at least for those not using the car.

Moreover, given that this move toward the outskirts did involve not only food retailing, but also, and increasingly, more and more kinds of goods, it has contributed to a thorough reorganisation of urban space in Sweden. Indeed, this outskirts move did increasingly involve not only retailing, but several kinds of services, high-tech industries and offices. Thus, the question must be raised whether we are not presently witnessing the emergence of the multi-centred city in several Swedish regions.

From the spatial point of view, two consequences need to be observed here. First, in some places, what I have chosen to call the shopping centre spreading out, inter foliating with the spreading out also of other economic activities, contribute to the development of long strips along the main traffic arteries. Yet, such developments seem less common in Sweden than in many other European countries, perhaps because of the planning monopoly of the municipalities, the ambition of which seems to be to order those activities of the outskirts into enclaves. In fact, only in the largest three cities is it possible to find strings of such enclaves along the motorways.

Second, and to put it bluntly, this development had its losers. In the beginning, it was the small, so called independent dealers, who never really succeeded in establishing themselves in the new suburban housing units that on a grand scale were being built in Post World War II Sweden. Simultaneously, their numbers were reduced also in the inner cities. Later, however, from the 1970s and onwards, this development also hit many shops belonging to the three large retailing chains. Therefore, many retailing units located in the suburban housing areas were closed down. In many Swedish cities, there has been an emptying out of regular food stores – just in those areas where most people live. In the 1990s, this service loss also came to include banks, post offices and the like. On the other hand, contrary to what some commentators feared, the move towards the outskirts, with a few exceptions, challenged, but did not threaten retailing in the CBD.

From a political, and planning, perspective, the problems of this development have been recognised, particularly in terms of the desirability of a sustainable development. As a consumer question, however, accessibility never really could match low prices. Presently, this means that the move towards the outskirts continues unchallenged. Moreover, it must be noted in this circumstance that when it comes to planning, this once was a strong feature of the Swedish welfare state. Yet, suburbian construction with a relatively good supply of private services was possible as long as the population within these areas created a sufficient demand. From the 1970s, this was less and less so. Thus, housing and retailing are ever more separated spatially.

As a case of a more general dynamic reshaping urban space in European cities, bringing retailing on a move towards the outskirts, the Swedish case obviously has its specificities. However, these specificities do not imply any difference when it comes to the direction of change in the Swedish case compared to the European development more generally. On the contrary, these specificities rather help to explain why this change – in general terms: the substitution of the walking city by the auto city and the concomitant move towards the outskirts – in the Swedish case not only started comparatively early but also reshaped urban space so fundamentally, as I have tried to show above. Thus, in a sense the Swedish case is a most illustrative one, making what this change is all about very visible.

At the core of the change is a double dynamic. The move of retailing towards the outskirts thus is brought about by the interaction of primarily two forces: the auto mobilisation of society and the rationalisation of retailing from the packing of the goods to bringing them to the customer

through large retailing chains. If the auto mobilisation of society very much has been a continuous, and cumulative, process with characteristic spatial repercussions, the rationalisation of retailing has been brought about by different temporalities in different branches. Thus the move towards the outskirts for retailing started with some bulky consumer goods like furniture and cars and with the selling of food. Later it was also to include clothes and the like. Consequently, this process by now have gone so far that people can find almost all what they need in the outskirts, including a range of services.

Notes

1 See for example Zukin 1995, ch.. 6, or Miller et. al 1998 on changes in, and on contemporary, shopping experiences.

2 Crewe 2000, 276.

3 Franzén & Sandstedt 1993, 240, 243f.

4 Franzén & Sandstedt 1993, 244ff. Also see Jörnmark 1998 for the development into the 1970s.

5 Schön 2000, 388-400, 413f. A developmental block – a concept coined by the Swedish economist Lennart Dahmén – is built up of more and more firms and products, triggering, and patterning, a long-term economic expansion. Such a development, however, after some time, is sutured, which means crisis, or stagnation, and the eventual establishment of another developmental block, based on other products and companies. Moreover, several different developmental blocks may work in tandem, strengthening one another, which was precisely what happened in Sweden in the decades up till the oil crisis.

6 Franzén & Sandstedt 1993, 190-203, 221-228, 257-265, 293-295; Schön 2000, 384-414.

7 Andersson 1987, 118f..

8 Franzén & Sandstedt (1993), 239-247 (on self-service retailing in the suburban centres).

9 Hultén 1990, 18f, 22ff, 32f, 85f

10 Figures below from Hultén 1990, table 6.4.

11 A supermarket is defined by a selling space larger than 400 m2.

12 Hultén 1990, 41-46; Jörnmark 1998, ch. 9..

13 *Supermarket* 2001, 24ff, 34ff, 44.

14 DAGAB mentioned above now is part of Axfood that was established through a merger in the late 1990s.

15 *Supermarket* 2002, 43ff, 47 (citate), 57ff.

16 *Supermarket* 2001, 48ff.

17 Bergström et. al. 1999, table 1. The examined municipalities were neither small, nor big, but in the middle.

18 Forsberg et. al. 1994, 48ff, 55.

19 *Morgondagens konsument* 1998, 9ff, 14ff.

20 Cf. Olshammar 2002, for a close analysis of one such space in Gothenburg.

21 Bergström et. al. 1999, 16-22.

22 Bergström et. al. 1999, 26f.

23 *Supermarket* (2001, 116ff; Baurne 1997, 226ff.

24 Recently, Heron city, an exemplar of the fantasy city (on this, see Hannigan 1998, Part III) was set up in Stockholm's oldest, and largest, spread out shopping centre, Kungens kurva. In Malmö, several new complexes are under way of being built (Billing 2000: 53ff).

25 Most daily users of cars in Sweden are still men.

26 Cf. Christoffersson & Öhman 1998; Zampoukos 2002, 61-80, on the change of planning intentions in Swedish municipalities since the 1980s. More generally on this change in *Stadtpolitik*, Häussermann & Siebel 1993.

27 This very much is part of the Swedish adaptation to EU rules and laws.

28 *Regulatory reform in Sweden* 1997, 27-31.

29 *SOU 1996:2.* 18f, 21ff.

30 Forsberg 1994, 59-69; Forsberg et. al. 1994, 96ff. A most often cited example, perhaps because of its successfulness, is the Jönköping case; on this, see Gustafsson & Sandahl 1994, 76-79. Cf. von Platen 1994, 80-83, demonstrating the strength of the business interest in the renewal of Swedish city centres.

31 Bourne 1997, 233. Yet, Holland now seems under ideological pressures for non-planning of a similar kind as in Sweden; on this, see Evers 2002, 107-113. See, Borsdorf & Mayer 2003, on Berlin and Copenhagen.

32 Here it can be noted that competition in food retailing are said to be better – that is, more favourable to the free establishment of large stores in one storey in the western part of the country. It is precisely here that SAAB and Volvo are located.

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ENVIRONMENTAL AND ECOLOGICAL ISSUES

Maddalena Gioia Gibelli[1], Fulvia Pinto[2]

1 Landscape Architect, Italian IALE Vice-President; gioiagibelli@libero.it
2 Architecture and Planning Dept., Politecnico di Milano, Italy

Abstract

In this chapter we want to describe the experiences and the results of a study carried out by a multidisciplinary team for the outskirts of Milan. This research began as part of the district general plan of Milan, and emphasizes the topics of ecology and landscape. We tried an ecosystem approach in order to integrate biological, physical and social factors and to embrace historical and geographical dimensions – the best way to cope with the complexity of cities and their land.

We need to understand how cities work as ecological systems so we can take control of the vital links between human actions and environmental quality and work for an ecologically and economically sustainable future. Than we need some useful mean to manage the processes of urban change. They are described by F. Pinto, in the second part of this psaper. The third part regards some items of the research on Milan outskirts, which includes:

1 a general introduction
2 theoretic principles and the methodological approach
3 an analysis of five study areas characterized by five different situations about: the proper location regarding the city of Milan, the type of urban development, economic opportunities and drivers, former environmental attributes and actual trends
4 suggestions for solving some local problems
5 general guidelines for planning and managing Milan's outskirts

Keywords

fragmentation, equilibrium, integrated planning, integrated programs, landscape vulnerability, spatial and temporal scale, systemic approach, urban ecosystem.

1 The outskirts from an ecological point of view

From an ecological point of view, outskirts can be considered ecotonal patterns of over-all structures which comprehend both urban and extraurban elements as a whole system in which human activities interact continuously, changing the former equilibrium.

So, outskirts are part of a larger complex system formed by the overlapping of town and country. In this system what happens in one part has many consequences in the other parts. So, we should concentrate not only on urban problems but also on the surrounding landscape. In fact, urban development tends to reduce environmental resources, not only in those areas which are directly influenced by the settlements but also in a larger part of the territory. But, even if urban functions are greatly conditioned by the globalized world, the health of the town depends a lot on the health of its land.

Moreover, a few recent studies show the importance of the characters of new settlements on resource consumption and biodiversity (Liu *et al.*, 2003). In fact, human population size and growth rate are often considered important causes of biodiversity loss, whereas household dynamics are usually neglected. Aggregate demographic statistics may mask substantial changes in the size and number of households and their effect on biodiversity: household dynamics influence per capita consumption and thus biodiversity through, for example, consumption of wood for fuel, habitat alteration for home building and associated activities, and the greenhouse gas emissions. On the contrary, the growth in household numbers globally, and particularly in countries with biodiversity hot spots (areas rich in endemic species threatened by human activities), was more rapid than aggregate population growth between 1985 and 2000. Even when population growth declined, the number of households increased substantially. Definitively, rapid increase in household numbers, often manifested as urban sprawl, and resultant per capita resource consumption in smaller households, poses serious challenges to biodiversity conservation.

Another issue is linked to the vulnerability of urban ecosystems. In order to think of a sustainable town we have to consider ecological issues from the broadest point of view, realizing that sustainability isn't just linked to conservation of non-renewable resources, as it is usually seen, but rather that it is a complex topic strictly linked to the vulnerability of the systems. And technological ecosystems are by far the most vulnerable.

Urban environment is much different in character from agricultural and natural environments, most of all because of the intensity and speed of the process. But they are similar in at least one basic aspect: each one depends on the same basic process. In cities, we tend to forget about this vital link because natural sources of energy, food and water have often become almost totally obscure, having been replaced by artificial single- purpose systems that transport these necessitites from afar. But the total dependance on distant places for the production of fundamental items, increases vulnerability; moreover, there are some basic human necessities which depend

on main biological components. These necessities have their roots in natural elements that few consider in the growth of town and outskirts. The increase in mental and cardiological diseases in cities could be a significant indicator of this aspect.

So we need a holistic approach which points out the critical situation and the opportunities induced by outskirt dynamics.

1.1 The systemic approach

Systems theorists tell us that there are two types of systemic behaviors. The first, often called equilibrium systems, regards dynamic equilibrium, slowly changing systems, such as late successional ecosystems, characterized by high levels of integration, interaction, positive feedback, self-perpetuation, and regeneration (Motloch, 2001). These systems are highly ordered from a probabilistic and integrative point of view. It is an order due to processes which give form to the elements, and optimizes the health and productivity of diverse systems. In this equilibrium decisions informed by past system behavior generally produce positive or reinforcing feedback. Positive feedback in diverse systems encourages these systems to co-evolve slowly through increasing interrelation of parts. Over time, their contrast tends to decrease, the interrelations between components and with the context improve, internal and external conflicts decrease.

The second system types are dissipative systems (highly spontaneous, rapidly changing and inherently unstable systems). This is the type that describes outskirts which promote emergence of new, more relevant interrelationships, because the old ones don't fit the new reality any more. A history of reductive thinking and insensitivity to context and dynamics has degraded local and global landscapes, promoting dissipation. The negative feedback and tendancy towards system breakdown could be avoided by decisions that integrate into system dynamics.

Structure and processes are strongly modified by town pressures. Agricultural landscapes are often fragmented and disturbed, so that they lose economic value and metastability, often becoming abandoned areas and so, potentially degraded. The town-territory system becomes less sustainable because of the usual high specialisation of the fragments of land. The fragmentation itself increases this process.

1.2 Time and changes

Yesterday's dynamics produced today's structure, but today's structure produces today's dynamics and today's dynamics will produce the structure of tomorrow (Forman, 1995).

There is a very strong relationship between structure and functions, and the link is much more important in those systems which change very fast, as outskirts do. Yesterday's structure was

almost always the rural or agricultural landscape. Then the cities brought about change and now the outskirt landscape is, most of all, a mixture of the remnant patches of the former structure and the new technological ones. The result of this process is a high degree of fragmentation, (Rapport, 1996), diversity and landscape contrast[1]. The system is usually vulnerable and doesn't provide the best performance regarding either the quality of life or the environment.

A very important topic is the relationship between time and structural changes in the fringe areas: the speed in which rural and agricultural lands are urbanized can be seen as a pressure on the whole system. It is an important factor linked to the structures of outskirts, their dynamics and to the capability of the overall system to respond to local changes. For example, we can recognise different spatial organization types, depending on the age of the outskirts and their evolution.

Moreover, the speed of transformation usually can minimize or cancel the "memory" of the system, and a system with no memory has a lot of problems. In this case problems are related both to the environmental balance and to the links between the place and the system memory, which means the loss of the elements and processes which allow traditions to continue over time, the loss of ancient human and natural features, the difficulty for natural elements to adapt to transformations, and so on, which has some consequences in social behaviour. In fact, social behaviour is linked to affection and to the sense of belonging to the space and place in which people live. Many acts of vandalism and maladjustment, seem to be related to the lack of affection.

Probably this kind of loss could be substituted with something which would stimulate social aggregation and the sense of belonging to a community. But generally this is rare in the outskirts.

And so, dynamics are linked to the quality of life.

1.3 Agricultural and rural landscape: the ecological role

In this context the role of autskirts on agriculture has to be discussed: in these areas, the productive role is losing importance, and the ecological role is becoming the main one in order to improve urban quality and ecosystem services to the town. So we need a new model of agriculture, characterized by a high degree of multifuntionality and strong buffer functions between town and rural landscapes.

Moreover actual intensive agriculture doesn't fulfill the needs of outskirts regarding urban quality. In our research we have found that when the outskirts have a good structure, then they can have an environmental quality higher than intensive agricultural areas: in some cases bird communities, for example, (birds are very significant indicators of ecological quality) are more abundant and thrive better in town than in intensive agricultural landscapes.

Another problem is the low price of agricultural lands, considered a non-renewable resource. This produces a great waste of land when new settlements or infrastructures are planned and constructed. The value of land as a "resource" is much higher than the market price. Our "ball park" estimate on the real value of agricultural land in the Padana plan places the value at least ten times higher than the market price – a deeper study would probably further increase the difference.

Household increase is also a problem for agricultural sustainability, not only for the loss of biodiversity.

2 Complex programming in the processes of urban change

2.1 Instruments of integrated planning in italy

From the study of the present day scenario of city planning and building in urban peripheries several unsolved problems can be pointed out, such as the crisis of local city identity and the culture of collective spaces, as well as the need for an architectonic requalification of the buildings. Besides the crisis in urban culture in recent decades, the 90s must deal with badly planned spaces which call for interventions of requalification to restore local culture. In the past urban planning has quantified and limited building by means of zoning and building indexes, but it has not managed to plan, at the same time, the quality of collective spaces; it seems that it has been able to plan only the "full" and not the "empty" spaces, that is public space and collective relationships.

Alternative fates which have marked the theme of recovery of run-down areas, especially industrial areas, are the most evident expression of the complexity of intervention and of the difficult balance which must be promoted or understood to be successful in the long-term management of the dynamics of urban and extra urban settlements. Not all of the proposed initiatives have been acted upon and not all of them have turned out as hoped; this should make us reflect on how many and on which elements the delicate balance, which must be verified between the different components for the success of the intervention, is based.

For these reasons, resorting to the "recovery plan" means, at least from a technical and urbanistic point of view, the necessity to get to the bottom of the study of an adequate model of the city to be planned, that is, capable of interpreting the urban environment in its articulations,

policentricity and hierarchies. In particular it should know how to indicate qualitive and quantitive characteristics, the best location and all that is necessary to introduce spaces and activities which are adequate for social gatherings in those metropolitan peripheries where residential building has proceeded without any element of reference or differenciation.

The instruments to actualize the politics of urban requalification, although presenting notable innovations in construction and management of the instruments of city government, still limit the strategies to satisfy the objectives of these politics for interventions of a prevalently physical nature, such as the realization of first and second class works of urbanization, interventions of non-residential building which contribute to improving the quality of life, interventions of residential building which engage processes of physical requalification in that area. This approach, even if it is innovative in regards to financial and managerial aspects, repropose some certainties consolidated in the urbanistic discipline, which have over time been shown to be inefficient, such as the conviction that to eliminate or reduce physical and environmental degradation and to build infrastructures for transportation and services is sufficient to determine processes of socio-economical requalification.

Another extremely dangerous conviction is that you can redesign the city by limiting the vision to one part of the city; or, that you can intervene in one zone without provoking effects in other areas, not considering the systematic relationships which exist between the various parts, between different functions, between different behaviors.

The politics of urban requalification, understood in the wider, more complex sense, should, above all, determine, amplify, mature and innovate the concept of requalification itself, its objectives and therefore individuate and systemize new strategies and new methologies of intervention. Besides, it is of particular importance to evaluate the effects of individual interventions on the city-system, so as to avoid those situations in which an intervention might not correspond to an adequate response to the system.

The city planner should propose a series of actions articulated in the entire urban region which aim to attract and involve the population towards a more intense and diversified use of public spaces, to be considered as an extension of houses and spaces for leisure time and not only as a place of passage or parking area.

In this way there have been successful experiences which have notably modified the behavior of the population in regards to their own city and, above all, have shown that reaching objectives of this type calls for minimum building and infrastructure interventions, but, contextually, a careful planning and organization of the interventions.

These interventions consist in a quantity of choices on a minimum level, which go from street illumination to the reorganization of the timetables of public transportation, from urban street design to concerts in the churches, from the prolonged, articulated opening hours of museums, shows and shops to the use of public spaces for theater, meetings, refreshments, games for children, from bike paths to "furnished" pedestrian areas. The satisfaction of the objective

determines a series of important effects such as an increased awareness of the environment and therefore environmental protection which comes from "below" and an impluse towards the beginning of small businesses run by young people and the survival of small companies (commerce, restaurants, cottage industries, various services, entertainment,…)

Still, we must keep in mind that this type of intervention may produce the desired effect of cultural change and behavior only if it reaches a sufficient critical mass in space and time, in other terms, is it is made up of a consistant quantity of elements related among each other and contemporary events, if they involve a relevant part of the city region, if they are not only episodes but continue in time.

A group of interventions with such characteristics can be considered a program of socio-cultural urban requalification which involves wide sections of the city and also includes socio-cultural, economic and behavioral aspects of the inhabitants.

These convictions, to have an effect in reality, must have an adequate legal support which lets urban operators intervene in city affairs in an organic, controlled way.

At the end of the 1970s the central problem of urban and regional renewal was no longer expansion but rather the recovery of the existing building patrimony. The advancement of the tertiary in the area of productive sectors and the relocation and restructuring of the secondary caused the phenomena of "rundown areas". In a period of profound social and economic transformation a graduale awareness of the problem of the quality of the existing building patrimony can be noted. With Law 457/78 the intention of disciplining the recovery of this complex instrument, that is the phenomena of a wide extension of the urban scale was introduced. The subdivision into categories of intervention governed by that law represents a judicial opportunity which aims to codify tecnical operations. Law 457/78 has the merit of acting on a territorial phenomena which characterizes the end of an epoch; an act absolutely insufficient in respect to the ever-growing phenomena of degradation in the urban reality. The entity of these great problems are not clearly seen in this law; or rather the centrality of the phenomena does not emerge, just as the need to institute a contractual relationship with the private sector does not exist.

As a consequence, regional and state law has stated many times the need for the processes of requalification of the city, and above all of those connected to the areas of economic, popular building, to be reached though the integration of functions and resources of different categories of workers, especially those of public workers, private entrepreneurs, homeowners and residents. The programs of urban renewal in Italy, unlike what happens in other European countries, come from the legal, regulatory and financial context of public residential building. These programs are motivated by reasons of economic and social nature, to which an urban planner must give an adequate disiplinary form. These are imposed by the need of economic competition between the cities, the need to establish a good environment for the inhabitants, the need to root out social disadvantage and not, certainly, from a disciplinary evolution of urban design.

Among the new instruments for urban renewal in Italy, the Programs of Urban Recovery and the Programs of Urban Requalification, both have their origins in the Integrated Programs of Participation, introduced by Law 179/1992. The principle characteristic of these instruments is the integration of interventions, from the point of view of the type of work and financing (public and private). Besides both types refer to a concept of recovery which from the building scale gradually expands to an urban scale. Yet, in spite of these common aspects, the contents, the formation and the procedures permitted by the financing are different. In fact, while the Programs of Urban Recovery are strictly dependent on 4-year programming of public residential building operated by the Regions, the Programs of Urban Requalification are, in reality, the object of a competition of Cer, which is based on criteria of a European level. From a point of view in which recovery has a central role in the redefinition of the city, such programs don't cover the positions of operative instruments of a permanent character. It is therefore necessary to make a distinction: while the Integrated Programs were definitely of a conjunctural nature, being tied to specific financing schemes, the Programs of Urban Recovery and the Programs of Urban Requalification are presented as a sort of "experimental model", which finds its reference in the program of public residential building. In fact we are dealing with operative instruments which are directly connected to public financing, coming from different channels, all of which are included within the sector of residential building.

2.2 The integrated programs of partecipation in Milan

On a regional and milanese scale the Integrated Programs of Participation were instituted by Regional Law 9/99 and were consequently approved, in June 2000, by the Document of Organization to "Rebuild Greater Milan".

The Regional Law assimilates the contents of national law, reminding the PII of the objective of recovering the urban, building and environmental fabric.

The PII should have at least two of the following elements:
a- plurality of destinations and functions
b- co-presence of tipologies and modality of intervention
c- regional relevance

These element can foresee the competition of more people and public resources and have effects on unconnected, unbuilt areas which are constrained by out-of-date restrictions, characterized in particular by their location in historic centers, peripheries and run-down productive areas.

An ulterior aspect of particular importance regards the approval procedures of PII,which vary from the general urban practice being followed.

The cities with a population above 10 000 inhabitants must discuss an Organization Document which defines the general objectives and directions of its own administrative action in the area of integrated planning of the intervention.

The Organization Document is the instrument with which the City Administration of Milan has defined as a reference for its choices in terms of urban - regional transformations, through cooperation with public and private groups.

Looking back after several years, these instruments of regulation and urban policy have produced a consistant and significant result in terms of transformative proposals and new practices between public and private groups.

Up until now 92 proposals from the Integrated Programs of Intervention initiated by private concerns have been presented.

The Organization Document of urban policies of the Communal Administration of Milan defines a group of evaluating rules of the PII, to govern the general programatic choices of the Administration. The objectives and criteria to which the Integrated Programs of Intervention must correspond are delineated in it.

Figure 1: The model of urban organization for Milan

The widening of the city market, the realization of a new model of spatial reorganization in the city (North axis towards Monza, grafted onto the transverse axis Malpensa – Linate, according to an "up-side-down" T plan) and the improvement of the environmental, urban quality make up the three bench marks contained in the Organization Document. These conditions also represent the three paradigms for the selection of Integrated Intervention Program which are developed specifically according to the following criteria:

- to favor residence in cities
- to favor urban development and the relocation of the activities of production of goods and services
- to actualize the model of urban organization
- to favor integration with rail transport
- to promote interventions to serve people
- to promote interventions to increase green spaces and parks
- to improve the quality of public spaces and and traffic
- to promote the architectonic quality of buildings and public spacs and to enhance areas and building of historic, monumental character

The criteria "to favor residential function in the city" comes under the macro-condition "widening of the urban market" and is explained in the incentative of urban interventions in which the real estate offer is diversified as much as possible and is in grade to answer to various segments of the market, in particular to the needs of young people and young couples with limited funds, until now induced by the dynamics of prices and difficult use of services to prefer to live outside the city.

In the larger residential interventions in public or rented housing the presence of conventionalized building is required.

The quota of operating within the health service therefore turns out to be a quantitive criteria of the choice of PII. For that purpose the Organization Department also has an incentive mechanism under the form of a volumetric prize, with an increment of 0,1 m^2/m^2, for at least a 50% presence of conventionalized building.

The most important interventions of urban transformation, in act and in the process of realization, have decisivly increased the role and the weight of the north-west axis (Bovisa-Certosa) and north axis (Bicocca, Ansaldo, Falck) of the city of Milan in respect to other urban axes.

The Administration policies are dedicated to more structures on the model of actual spatial organization, through the promotion of development of the stronger axis to the north of Milan (Bicocca – Sesto), articulating in a system of an "up-side-down T" supported by the strong Linate – Malpensa link, to be joined to the southeast by the new development of "Vittoria, Montecity, Rogoredo", and to the northwest by the new fair grounds. In this way a main urban backbone which is developing to the southeast and northwest will be determined, and onto which the present north axis of Bicocco-Sesto San Giovanni-Monza will be grafted.

The affermation of this model is sustained in the possibility of attracting and meeting around

the Malpensa-Linate backbone, inside and outside of Milan, the greatest number of public and private investments, in order to generate a demand for service consistent enough to justify a frequent, rapid transport service.

The selection is made according to an evaluation of proximity to the places to be transformed by the PII, in respect to the axes where the "up-side-down T" is articulated, on which a new model of urban organization will be based.

The flexibility of the Organization Document lets a priority weight be assigned to the criteria of "acting on the model of urban organization", in the case of PII located near the aforementioned axes. In such case the criteria must be satisfied. Otherwise (in locations in other areas not related to the "up-side-down T"), such criteria loses its importance.

The Integrated Programs of Intervention represent an innovative instrument for the requalification of important urban areas and regard different areas of the communal region of Milan with particular reference to historic zones, the peripheries, the run-down industrial areas, which need a rapid and efficient transformation.

The Integrated Programs of Intervention, understood as regulatory instruments and urban policy, have produced a notable result in terms of proposals of transformation and new practices between public and private concerns.

The strategy of action, which the Organization Document has defined by the setting up of rules, objectives and large areas of strategic interest, is happening by means of proposals of concrete interventions, coherent with the ends and objectives planned, innovative in the integration of hypothesized public and private functions, verified in terms of available resources.

The comparison between the proposals of the Integrated Programs of Intervention and the regulatory plan in force clearly points out which rules of the general instrument are not current or too rigid in respect to the processes of transformation in act. The majority of the proposals – both as an extension of surfaces involved as in number of areas – regard, in fact, industrial zones, in some cases already the object of previous zoning variations. Even if they are not quantitatively important, the number of homogeneous B2 zones involved show the particular difficulty to act upon previsions and programs which are often no longer up-to-date. The destinations of zones connected to mobility and technologic services are also grouped together in function of the same treatment reserved to them by the rules of the Organization Document (index of ut equal to 0,325 m^2/m^2). The data relative to standard zoning areas is relevant: the rules foreseen by the Organization Document favor acting and transformation, without however bringing about, in any of the proposed cases, the real diminuation of the standard foreseen by the Plan.

Finally it can be observed that, except for some cases acting on the Plan's provision and a few others for which the Program Agreements procedure is necessary, the procedure of approval for the Integrated Programs of Intervention proposed is that of c.d. "simplified variation" according to Regional Law 23/97.

Besides finding a total of decidedly superior standards to those needed, the use of the model of c.d. "quality standard" -, introduced by article 6 of Regional Law 9/99, is evident.

The structures defined as "quality standard" – in cases where they cease to be used or have been turned over to public use by means of convention – regard services such as nurseries and kindergartens, social assistance structures, sports equipment, exhibition spaces. The solution of monetization of the standard applies only in the case of very small proposals, in consolidated zones which already have an adequate service system.

The 92 proposals of the Integrated Programs of Intervention regard many different sized areas (from 1 000 to more than 1 000 000 m^2), with a PRG destination for the use of run-down industrial areas.

From the analysis of these proposals it can be seen how the Organization Document is able to graft transformation processes even in areas of small dimensions (13 proposals of PII, of an extension less than 5000 m^2 of slp). The difficulties encountered regard mainly the quality and efficiency of rebuilding interventions, very opressive by nature. In the area of integrated planning, such interventions are completed as a condition necessary to a successful transformation of the area.

Some ulterior difficulties have emerged in relation to the capacity of the proponents to adjust to the new procedures, as for the evaluators to evaluate proposals which at times are given according to very traditional criteria.

At the moment, the principle results of the new procedures regard the freedom of the proposals, the construction of rules along with the projects, and the reduction of procedural time. From the verification of the first PII approved by Milan's town hall, a significant celerity of procedures has taken place, with an average of one year and two months from the presentation of PII to the signing of the agreements.

The flexibility of the Integrated Programs of Intervention has permitted us to face many urban problems, of a different nature and scale: not only the requalification and transformation of large run-down industrial areas, but also the morphologic transformation of central fabrics, the actualization of services and green spaces already contained in the existing regulatory plan, the physical and functional redefinition of fringe areas, partial and uncoordinated connections and transformations, environmental recovery, the modification of out-of-date zoning laws, the research of the interrelationship with the mobility system.

From the analysis of the programs presented the objective of "widening the urban market" contained in the Organization Document is pointed out, in that even in the area of functional integration the residential functions – both free and conventioned - are predominate. With references to services of public interest linked to residence a strong demand for nurseries, assisted living residences, day centers for the elderly and generally meeting centers, widely accepted in the proposals presented, was obvious.

The passage from a system founded on mere conformative control to an approach based on the evaluation of different plan proposals has led the way to a new relationship between private operator and the public: the transformation becomes the result of a process of continuous co-

planning and a search for balance between legitimate interests of the first and the objectives of long-term general interest of the second.

The institution of a specific administrative structure, integrated in its competences and levels, motivated by persuing concrete results and dedicated in respect to foreseen procedural times, certainly results in a success factor in this initial phase.

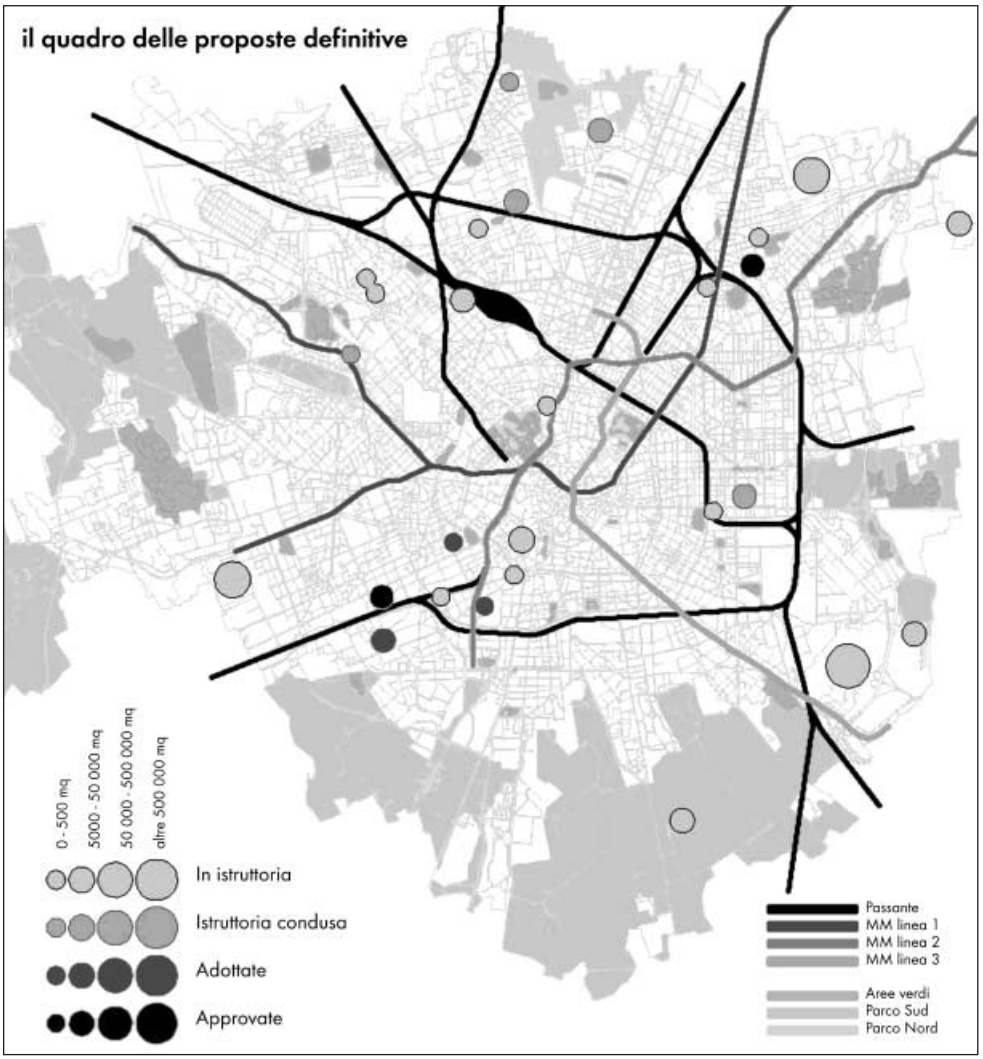

Figure 2: The proposals of the City of Milan

3 The Milan district outskirts

This part regards strictly the research carried on to study the Milan outskirts (Gibelli, 2003).

Geography can help us a lot in explaining the success of Milan throughout the centuries and the resources that helped towns to develop. If we give a look at a very simple map (**Figure** 3) we can recognise a very particular situation in the region, caused by the presence of a wide band of spring-fed lands in the middle of the map. The band is bordered by two white dotted lines and is formed by geological patterns and morfological characters: underground water from the Alps flows down to clay layers which hold the water a few meters below surface level. Where the clay is thick the water makes its way to the surface in hundreds of springs. This situation was used for centuries to increase grass and crop production. In those days the dimension of the city depended on the carrying capacity of its land. So the area of the springs was a very important resource which enriched Milan and permitted demographic growth.

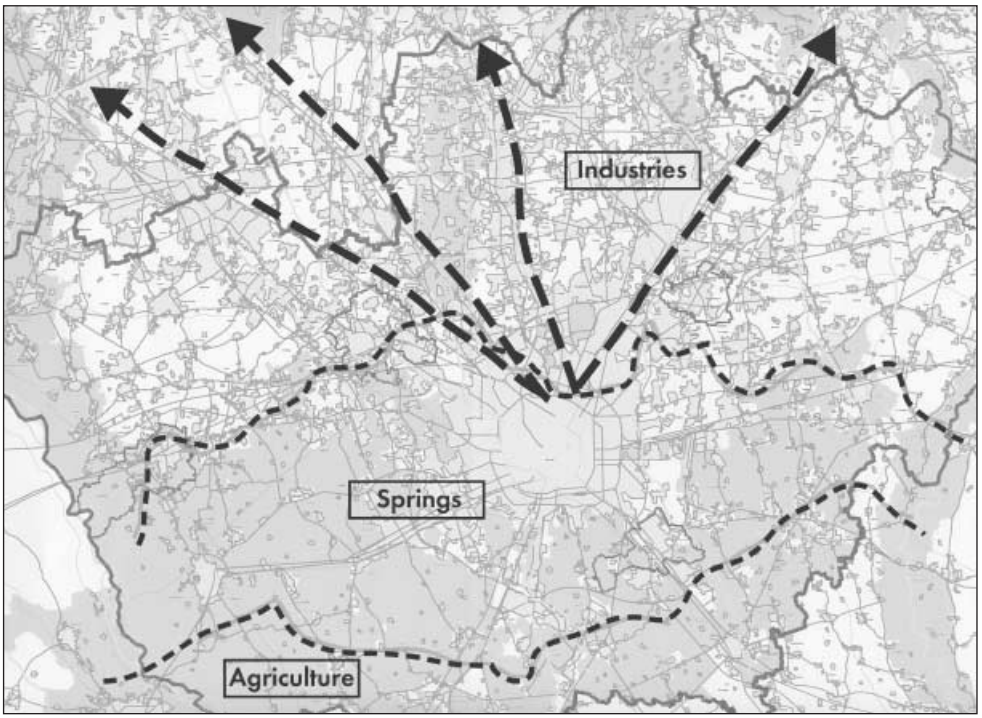

Figure 3: The Milan region

The northern part of the Milan territory is dry and permeable, unsuitable for productive agriculture, but it is crossed by a number of small rivers: it was the ideal situation for the production of energy and the development of industrial activities in the 19th Century. The southern part has some of the richest soil in Europe for agriculture and is irrigated by water coming from the upper regions.

So we can recognise three different land units which represent different important resources and Milan is located right in the middle of the three: it is the only town on the Po plain that could take advantage of this high degree of diversity in landscape, in resources and information which the town could exchange with other parts of Italy and, most of all, with Europe.

This can be seen from the infrastructural lines going to the north, surrounded by dense settlements.

Moreover, industries could develop without conflict with agriculture because the two kinds of activities had different places to grow thereby saving land as a resource.

3.1 A problem of spatial and temporal scale

Nowadays, town development is rather different because growth is no longer linked to local resources but depends on the international market, European infrastructural nodes and links and so on. So, we have two or more spatial and temporal scales in the outskirts: one is the human scale, built up with residential, living and agricultural spaces, the second is one of highways, malls and infrastructures that represent a network of a larger scale but has a greater impact on the local area (**Figure 4**).

The pictures show the sudden change of the landscape caused by urban functions and, most of all, by upper level infrastructures and forces.

The designed landscape evolves over time in response to a wide range of formative influences that impart order, influence form and give meaning to the landscape. Regenerative landscape design resolves these ecological, technological and cultural forces, become one with context and increase integration, health and productivity. Design that fails to address these forces degrades the health and productivity of the system. **Figure 5**, is the result of an unplanned development: neither strategies, nor design, just the immediate opportunity towards town growth, with no interest for the original structure and function (**Figure 6**).

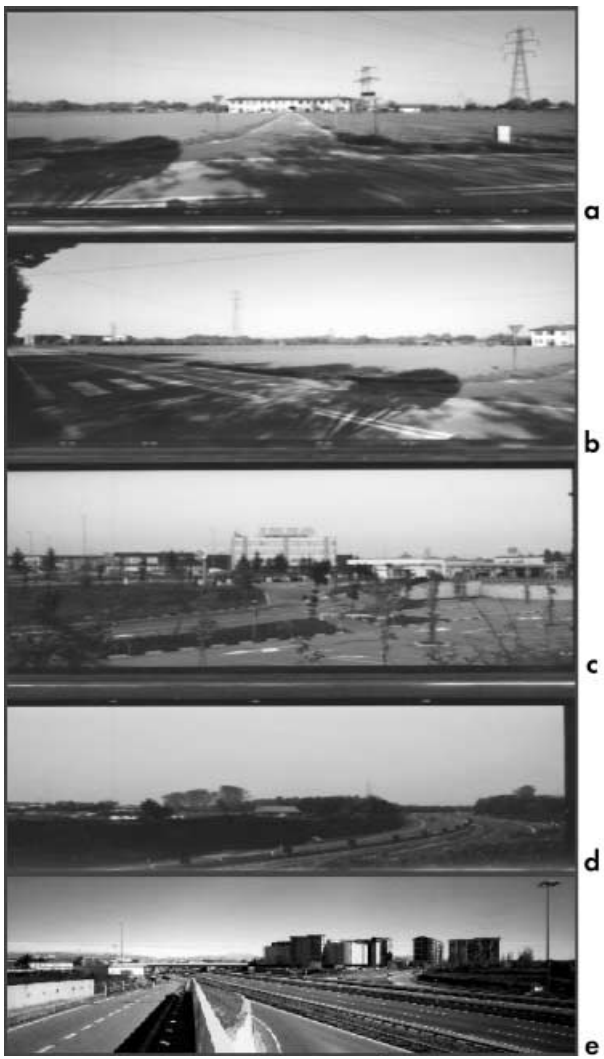

Figure 4 a–b: The human scale: the human scale – a remnant element of a landscape from the past

Figure 4 c-d-e: The upper scale: the elements on this scale respond to some needs of today's life but don't fit the human biological nature and the ecological functions of the land.

They do not interact well with landscape functions and, most of all, they fragment and destroy the territorial system with a lot of negative consequences.

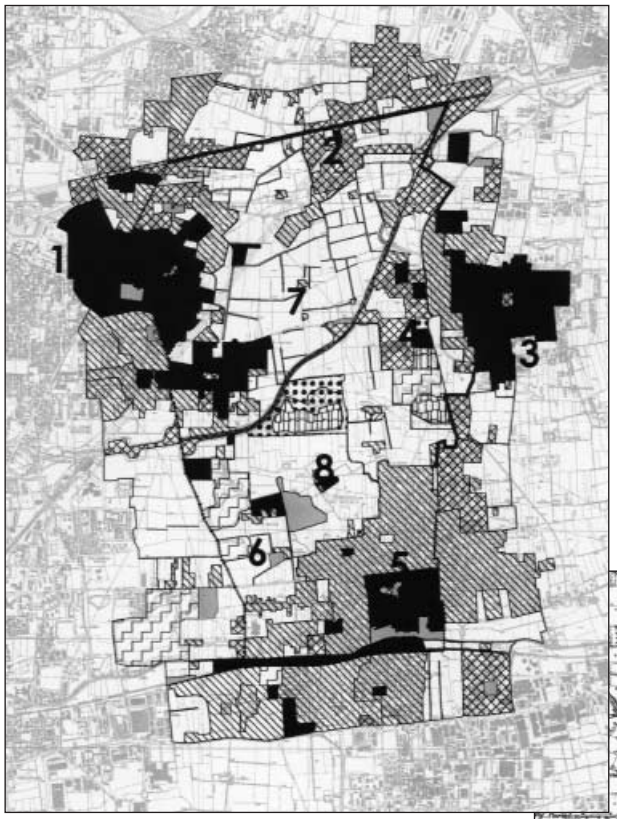

Figure 5: A sample area at the actual state

crops

scattered settlements

dense settlements

industrial

park - flowerbed

quarry

woods

crops with brushes and trees

water

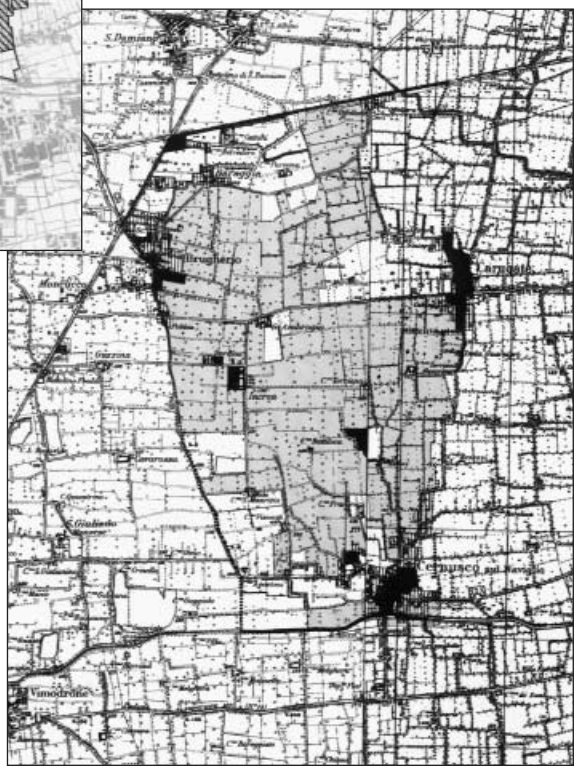

Figure 6: The previous sample area in 1940

Figure 7 represents the state of two synthetic indicators applied to the five study areas: *Standard Habitat per-capita* (HS), that is the average of square meters for each inhabitant of human Habitat, and *Biopotentiality* (Btc) which sythesizes the capacity for autoequilibrium in the present ecosystems, including the antropical ones… The circles enclose groups of similar values. It can be seen that already in the 1940s there was a tendency to form suburbs around Rho which still had a fairly high Btc value in respect to the regional average, therefore a discrete level of environmental quality. The other sample areas are based on a territorial organization of a rural type.

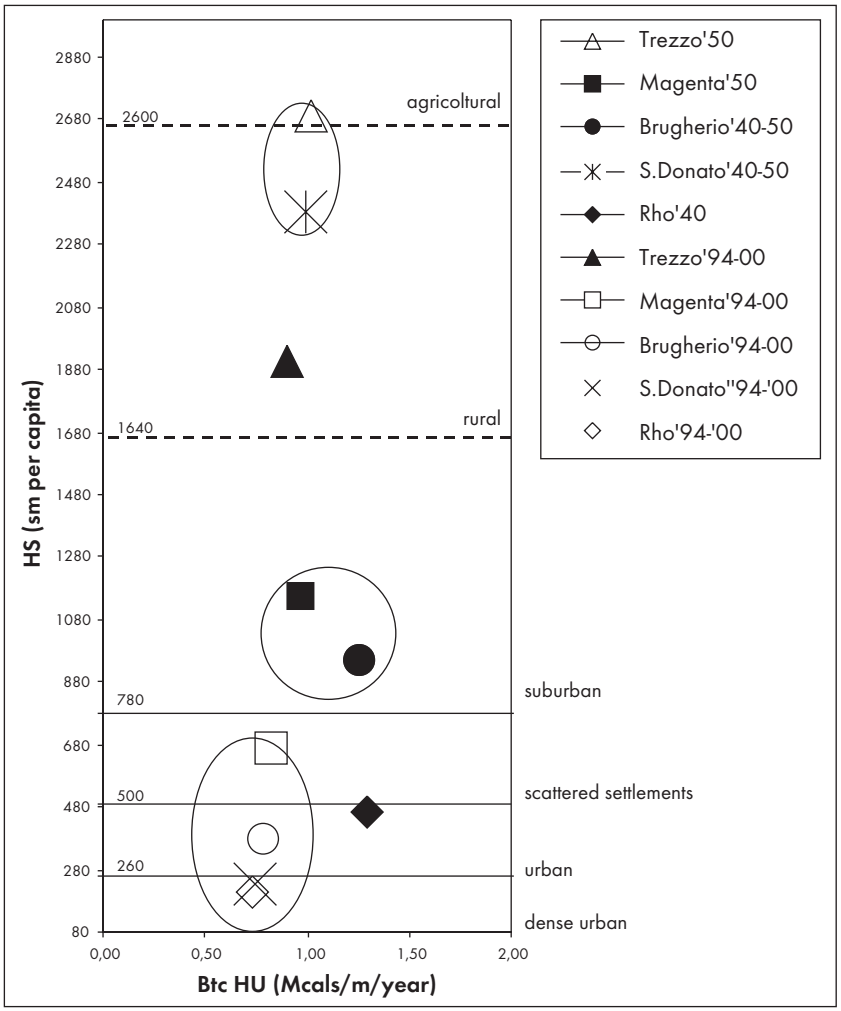

Figure 7: HS and Btc trends over the years in the five sample areas.

S. Donato and Trezzo even had a period of productive agriculture while Magenta and Brugherio had a suburban type of organization. In any case the index shows a definite diversification between the characteristics of the three groups in sample areas. The results of the actual state clearly show the process of urbanization in the past which is still continuing today resulting in a net decrease of pro-capita space for the life of each individual. The present state of affairs could also be interpreted as a significant index of the "homogenezation" to which the characteristics of these landscapes tends, caused by plans that don't care the characteristics of place. That is indicated by the density around one area in Rho and, above all in S.Donato, but also in Magenta and Brugherio. The only area that has maintained some of its own characteristics, even if they are empoverished, seems to be Trezzo. This tendency to homogenezation, the failure to differenciate the fringe areas landscape, is considered one of the biggest problems to face because denying the original character of a place, leads to ever more vulnerable situations from the point of view of the ecosystem (which means high management costs) and problems in the lives of citizens.

Table 1 shows the values of HS in various macroareas and in the corresponding smallest areas of study. Except for Trezzo, where agricultural activity is still a reality and the study area is different from the macroarea, we note that even here three macroareas denote fairly similar characters: Rho, Brugherio and S. Donato. These all have between 200 and 400 m^2/inhabitant. Considering that even Magenta maintains some rural characteristics, which raise the value of the index, and also considering the standard of the study area, we can hypothesize the standard of reference of HS of the fringe areas of Milan. This could be a value which runs between 200 and 500 m^2/inhabitant. It is also useful to note that Magenta and Trezzo are the only places in which HS of the macroarea is higher than that of the study area: this means a better quality of extraurban landscape than the urban one in these areas.

An ulterior thought on this data, in particular on the state of affairs, regards the role of agricultural activity towards maintaining the identity of the landscape: it is not accidental that Trezzo is the macroarea with the highest HS, but is also the place in all the studies which is the most pleasant.

	Rho	Brugherio	S. Donato	Magenta	Trezzo
Macroarea	205	383	230	670	1 907
Area Studio	388	463	263	506	675

Table 1: Habitat standard (m^2 for each inhabitant)

Regarding HS functions[2] it is pointed out:
- a general lack of protective functions even in the sample areas with the highest HS,
- a tendency to decrease the subsidary functions, little by little as the fringe area becomes denser tending to become an urban area in every way (it can be seen that Rho is the town which has the lowest HS subisdary and Trezzo has the highest),

- a clear tendency towards the increase of residential HS in the last 50 years because of:
  . the increase in population
  . the tendency to increase the standard of living, to live, therefore, in increasingly larger spaces
  . the increase of mononuclear families
  . building types of low inhabitant density: the most popular are 2 – 3 story multifamily buildings with a garden. The tendency seems to be inverted in cases where the fringe area is dense and tends to be transformed into an urban area (Rho).
- Obviously the productive functions is in net diminution everywhere.

3.2 Landscape structure and dynamics

In order to evaluate the landscape structure and dynamics, we used a core-set of indicators, which value is represented in **Figure** 8. The transcept clearly shows the structure of the study area, pointing out the different types of landscape indicated: urban, productive agrarian, agrarian with springs. The marginal areas between the different landscapes (ecotonal strips), discovered by placing tipical elements of the adjoining landscapes over the same cell, are evident.

Urban landscape

The *dominant elements* making up the landscape are: mono-family houses and local streets which are present in almost all of the cells; historical row houses, houses with courtyards and blocks of multistoried buildings appear in the first segments of the transcept. In segments 1, 2 and 9 there are farmhouses and rustic buildings.
Heterogeneous elements. The multiplicity of elements present in some cells indicates a high level of heterogeneous elements, which, however, are rarely accompanied by a diversity of function.
Presence of recurring combinations. Recurring configurations are not shown which leads us to think of a landscape organization based on some repetitive interagents: it can be said that landscape connotations are lacking in this environment.

Productive agrarian landscape

Begins in correspondence with cell 12.
Dominant element making up the landscape matrix is sown land.
Heterogeneous elements. Even heterogeneous landscapes are few and far between. The scarce quantity of diverse elements indicates "poverty" from the economic point of view.
Presence of recurring combinations. No recurring combinations were found.

Agrarian landscape with springs

Begins in correspondence with cell 23.
Dominant element making up the landscape matrix is the meadow. The transcept includes a large agricultural area irrigated by springs, trees and shrubs which enrich the natural forms of the agrarian landscape.
Heterogeneous elements. Given the presence of a good number of plants, even if they are immerged in a fairly homogeneous matrix, it can be affirmed that the heterogeneous elements of landscape is good in both quality and quantity.
Presence of recurring combinations. The presence of surface waters and vegetation can be seen as a recurring element.

Histogram of Btc values

The effect of vegetation on the situation of the index is evident since the index notes the presence of ecotones, in an intermediate value in respect to the precedent and successive averages. It can be noted that no cell reaches average regional values: this is a discouraging fact. Even the Btc indicates diversity between the three types of landscapes being studied and the "beneficent" role of the countryside is clear: it is indicated in the line which makes up the theoretic limit of the strip of influence of the Btc of agrarian landscape within city limits.

Indexes of faunistic importance

This transcept shows a portion of urban periphery which is relatively "young", characterized by small houses and row houses with gardens and some public parks. The indexes which have been used refer to bird communities, internationally considered to be excellent indicators of environmental quality. Birds, in fact, are sensitive to habitat modifications and their distribution is significant in classifying the environment. The revealing species in the cross section shows scarce diversification of natural form components and the absence of trees or shrubs able to attract and sustain the more demanding species.
It can be noted in line 6, an area entirely made up of cultivated lands, was deserted when it was being studied – something that never happened in urban areas, indicating the poverty of intensive agrarian systems in refererence to the potential comparisons with urban quality.

3.3 Conclusions

These types of analysis have led us to define some indications for the requalification of agrarian landscapes and the improvement of agriculture in the urban fringe areas, by defining the characteristics and diversity of function to their specific role in respect to the city.

Then we could point out that this kind of development brought about a lot of problems in each sample areas:

- The high fragmentation of the agricultural landscape, causing agricultural economic value decrease: it could have been the same loss of land with another configuration and the damage would have been much lower.
- We have to face up to the banalization of the ecosystems carried out by human activities.
- The transportation network is very complicated and it is very difficult to optimise because roads follow settlements without an overall design.
- It is impossible to provide an effiecient and economic Public Transportation Service because we don't have nodes and concentration of activities to serve – rather, people and goods scattered around the territory. In this way traffic is much heavier than what it could have been.
- The town lacks services and local attractors so the social issue is a problem to be solved.
- We need to improve multifunctionality and quality in the green spaces. In this context green spaces gain the role of improving the sustainability of a town with a variety of goals.
- We highlighted the relationship between the urban sprawl and the the lack of quality in extraurban landscape and the importance of nature conservation, also in order to maintain an high degree of urban quality.
- We found some guidelines in order to improve urban quality in the sense of environmental quality and the quality of life.

Notes

1 For "landscape contrast" we consider not only a visual aspect, but a functional one. So an high contrast is the result of the presence in the same site, of different elements that don't work together, and have a low suitability.

2 We recognised four principle functions in the Human Habitats:
Protective, formed by green areas, ecosystems service and elements which previous function is to improve the environmental quality of urban landscapes, characterized by the use of natural energy
Productive, formed by agricoltural elements which provide food for the inhabitants, characterized by the use of solar and artificial energy
Residential, formed by residential buildings and streets, cultural centres, schools and the elements that people use in the daily life, characterized by the massive use of artificial energy
Subsidary, formed by infrastructures, firms and retail areas, characterized by the use of a large amount of fuel and artificial energy

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CROSS-BOUNDARY LINKAGES AT THE URBAN OUTSKIRTS

The EuRegio Salzburg - Berchtesgadener Land - Traunstein Austria / Germany

Christoph Stadel

Department of Geography and Geoinformation, University of Salzburg, Austria; christoph.stadel@sbg.ac.at

Abstract

This paper documents the specific case of European cities being located at or near an international boundary. Within the context of European integration, international boundaries largely lost their former barrier effect, they became open spaces enhancing the cross-boundary mobility of goods and persons. To further facilitate a transboundary regional integration, EuRegios were established linking towns and regions on both sides of the border. The city of Salzburg, located at the Austrian-German boundary, always had strong functional linkages with the Bavarian town of Freilassing and the Berchtesgadener Land in particular. On the other hand, the western expansion of the outskirts of Salzburg was curtailed by the presence of the international boundary resulting in a north-south extension of the urban area. Three significant developments in the 1990s greatly strengthened the cross-boundary linkages: the membership of Austria in the European Union; the joining of the Schengen Agreement; and the establishment of the EuRegio Salzburg-Berchtesgadener Land-Traunstein. Thus, in terms of strong and multiple functional linkages, the outskirts of Salzburg effectively extends into Bavaria creating a complementary "hinterland" for the city.

"The creation of territories is part of the perpetual transformation occurring in the spatial system, in which regions emerge, exist for a certain time and may then disappear… The institutionalisation of a territory is a process through which some territorial unit of the spatial structure becomes an established entity which is then identified in political, economic, cultural and administrative practices and social consciousness and which is continually reproduced in these social practices."

Paasi 1998: 289

1 Introduction

Boundary landscapes and cross-boundary linkages are a major topic in the postmodern transdisciplinary scientific discourse. With the progressing European integration and the weakening barrier effect of international boundaries under the Schengen Agreement and the establishment of a number of cross-boundary "EuRegios", the linkages between neighbouring European states and their impact on boundary regions have become an important issue in cross-boundary politics and economics. "EuRegio" is the designation for transboundary cooperation agreements in Europe at the lowest administrative level, i.e. that of communities. The general objective of EuRegios is to pursue common interests across international boundaries, to intensify the exchange of experiences and expertise, to solve common communal problems, and to foster the regional economy (EuRegio Salzburg-Berchtesgadener Land – Traunstein 1999:4).

Cross-boundary activities of the population of border regions – with the exception of rigid boundaries – have always been routine practices. Based on these activities and movements, boundary regions in the literature have been referred to as "action and activity spaces" (e.g. Burdack, 2000; Schmitt-Egner, 1998). Another focus of boundary-related studies relates to boundary regions as arenas of transborder institutional harmonization and cooperation which may entail new transboundary spatial units.

Traditionally, boundary regions have often been characterized as peripheral areas with inherent economic and social disadvantages (Hansen 1981) and considerable conflict potential, with service centers suffering from truncated trade areas by the barrier effect of rigid boundaries (Lösch 1940). In contrast, open and "transparent" boundaries may give a boundary location a new dynamic economic potential (Burdack 1996; Herzog 1990). Boundary regions can fully exploit the

comparative advantages of the two adjacent countries (Ratti 1993) and the population on both sides of the international boundary may profit from the relative advantages of a bi-national labour market, price and quality differences of goods and services as well as cultural interactions. However, even in the case of "soft" open boundaries, interaction barriers persist because of perceived barriers and real differences of the economic, social, political and cultural systems and values of the two adjacent countries (Schmitt-Egner 1998).

With the membership of Austria in the European Union since January 1, 1995, and the signing of the "Schengen Agreement" on April 1, 1998, the already previously existing strong economic and cultural linkages of the Salzburg region across the international boundary into neighbouring Bavaria were markedly reinforced. The western outskirts of the City of Salzburg, formerly curtailed by a political and economic boundary, acquired new strong impulses for growth and regional integration. The development concept of the EuRegio Salzburg – Berchtesgadener Land – Traunstein, initiated in 1998, further stimulated the process of a cooperation of the Salzburg centered region across municipal, provincial and international boundaries (**Figure 1**). In this way, a new complete circle of perceptual and real functional interactions in the outskirts-region of Salzburg, substituted the former truncated half circle of the service area of the City.

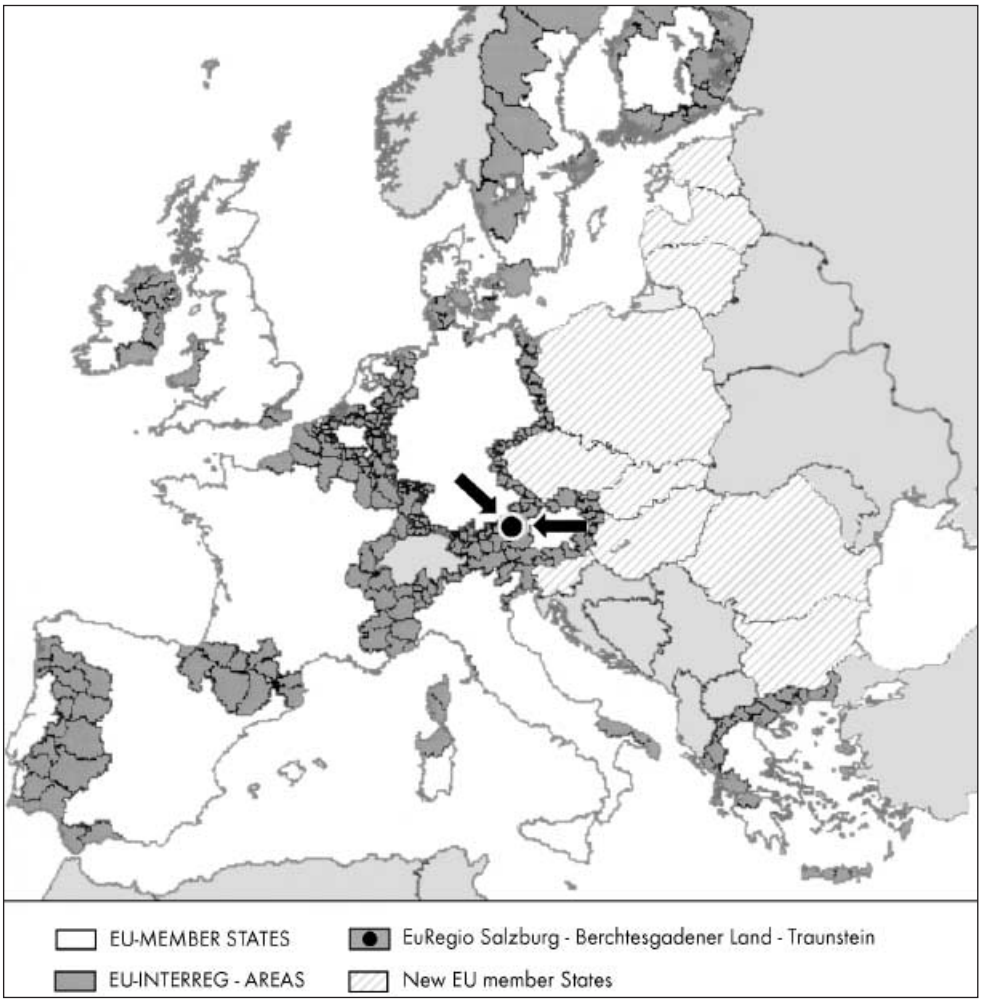
Figure 1: EuRegio Salzburg - Berchtesgadener Land-Traunstein (Austria/Bavaria)

2 Regional setting of Salzburg : Boundary and gateway location

Situated in the broad basin of the Salzach River, the City of Salzburg lies at the interface between the Prealps and the northern limestone Alps and the undulating terrain of morainic hills interwoven with lakes dating back to the Pleistocene era. This topographic border location and the linkage of the Alps with the Alpine foreland through the transverse valley of the Salzach River, since Roman times, favored the gateway location and the transportation function of Salzburg – a role the City has maintained to the present time.

Of more recent origin is the location of Salzburg within the territorial context. The boundary between Bavaria and Salzburg – the current international boundary between Germany and Austria in this area – dates back to 1816. With the existence of the international boundary at the western edge of the City along the Saalach River, a tributary of the Salzach River, and at the southwestern outskirts of Salzburg, strong economic and cultural linkages between Salzburg and neighbouring Bavaria have persisted through the years in spite of changing political fortunes. On the one hand, Salzburg has always been the obvious regional urban center for the Bavarian Berchtesgadener Land and the Chiemgau; on the other hand, the pull of Munich as a high-order central place with specialized infrastructures and services has been extending across the German-Austrian border ever since its establishment. Thus, the service area of Salzburg, according to the Christaller and Lösch principles, is "nesting" inside the wider Munich trade area. Based on these traditions, the recent establishment of the cross-border EuRegio Salzburg-Traunstein-Berchtesgadener Land can be considered as the logical last administrative step confirming the tradition of strong cross-boundary cultural and functional linkages (**Figure** 2).

In summary, based on the location of the city, Salzburg is a major multi-functional pre-Alpine service center, a boundary city with strong cross-border linkages and a railway and highway transportation hub for both the north-south trans-Alpine traffic as well as for the trans-European west-east transportation links between southern Germany and the countries of East-Central Europe and the Balkans.



Source: Entwicklungskonzept für die Euregio Salzburg - Berchtesgadener Land - Traunstein; Map 1.1, Salzburg, 1999

Figure 2: Location of the EuRegio Salzburg - Berchtesgadener Land - Traunstein within the European spatial context

3 Outskirts of Salzburg and transnational linkages

Administratively, the City of Salzburg (144 816 inhabitants) is the capital of the Province of Salzburg ("Bundesland Salzburg") with a total population of 518,580 residents (2001). The Province of Salzburg is further subdivided into five major regions (Flachgau, Tennengau, Pongau, Pinzgau and Lungau) of which the Flachgau to the north and east, and the Tennengau to the south are forming the outskirts of the City of Salzburg. Furthermore, within the Province of Salzburg, six political districts are identified with Salzburg-City, Salzburg-Outskirts ("Salzburg Umland") and Hallein forming the immediate surroundings of the City. The "Salzburg Central Region" ("Salzburger Zentralraum"), the core service area of the City – a north-south extending axis of dense population and intensive interactions stretches from the northern boundary of the Province of Salzburg through the lakes and hill region north of the City along the broad plain of the Salzach River south of the City to the limestone walls of the Alps. The outer zone of functional interactions between Salzburg and its surroundings extends beyond the provincial boundary into Upper Austria and across the international boundary into Bavaria. In the ten-level hierarchical scaling of central places of Austria, the City of Salzburg occupies the second highest rank as an "Oberzentrum" below the national capital of Vienna. With regard to the international extension of the service area of Salzburg, the Regional Plan for southeastern Bavaria recognizes Salzburg as the principal high-order service center ("Oberzentrum") for this region (**Figure** 3).

The major components of the cross-border functional linkages of the City of Salzburg are in the realm of cultural, recreational and shopping activities, and in the role of Salzburg as a major transportation node (international airport, railway centre). The cultural reach of Salzburg's music and theatre performances, in particular extends into the entire southeastern part of Bavaria and beyond it. Conversely, Salzburg residents are visiting recreational destinations in neighbouring Bavaria, for instance the Berchtesgaden National Park or the spa town of Bad Reichenhall. With regard to cross-boundary shopping activities, the flow of consumers across the border from Salzburg into adjacent Bavaria and from Bavaria to Salzburg has a long tradition. Before the Schengen Agreement and the subsequent introduction of the common Euro currency, The German border city of Freilassing (1999: app.15 000 inhabitants), offering a wide range of shopping facilities, was a popular alternative retailing service centre for Salzburg residents. With the open boundaries, the common currency and the emergence of large shopping complexes at the western edge of Salzburg (Europapark Mall and Airport Shopping Center), the flow of shoppers has somewhat reversed its direction, with Bavarian residents flocking in much greater numbers to Salzburg retail outlets.

While the described functional linkages across the international boundary exhibit a considerable dynamism, some other cross-border exchanges to date remain rather modest. The decision to establish the principal residence across the boundary for retirement or to commute between Bavaria and Salzburg, while increasing, is still not of significant importance. In 1998, about 2 500

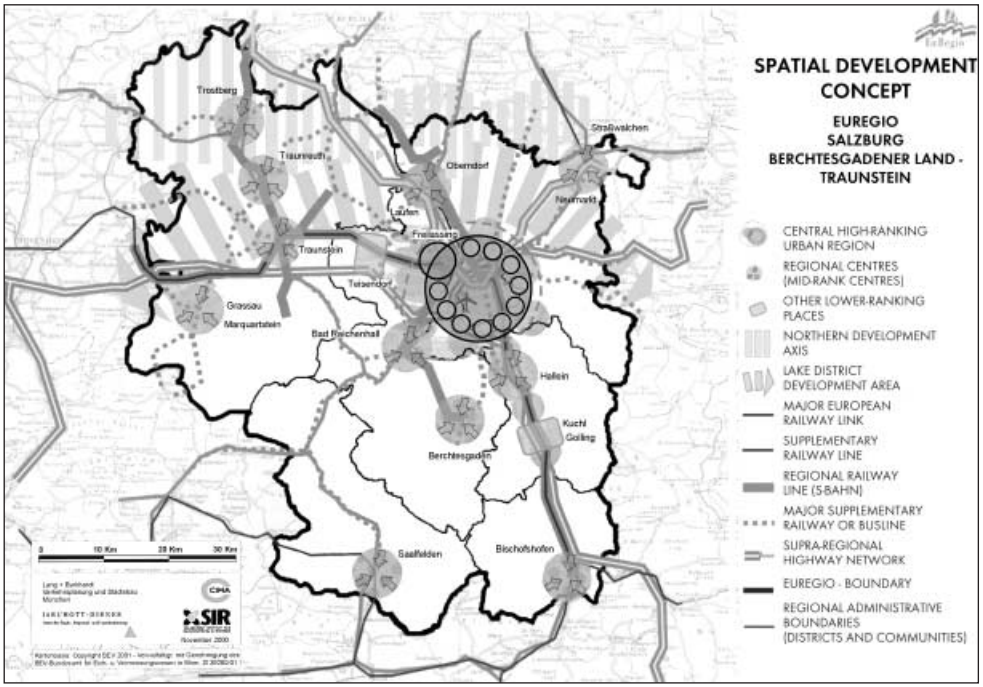
people commuted from Salzburg to the neighbouring Bavarian districts of Traunstein and Berchtesgadener Land (only 2.3 % of all gainfully employed persons in these districts). Even more modest are the numbers of commuters from the Bavarian districts to Salzburg: a total of 1.100 people or only 0.4 % of the gainfully employed people in the Province of Salzburg (EuRegio Salzburg – Berchtesgadener Land – Traunstein 2001:5). Because of different school and university systems and curricula, the cross-boundary mobility of students is not very significant but reveals a rising tendency. In 1998, 3.1 % of the students of the University of Salzburg came from Bavaria. Relatively weak are also the cross-border linkages in the health sector: in 1998, only 1 % of the patients in the hospitals and clinics of Salzburg were from Bavaria (ibid.).

Source: Entwicklungskonzept für die Euregio ; Map 1.3, Salzburg, 1999

Figure 3: Bavarian - Austrian EuRegio

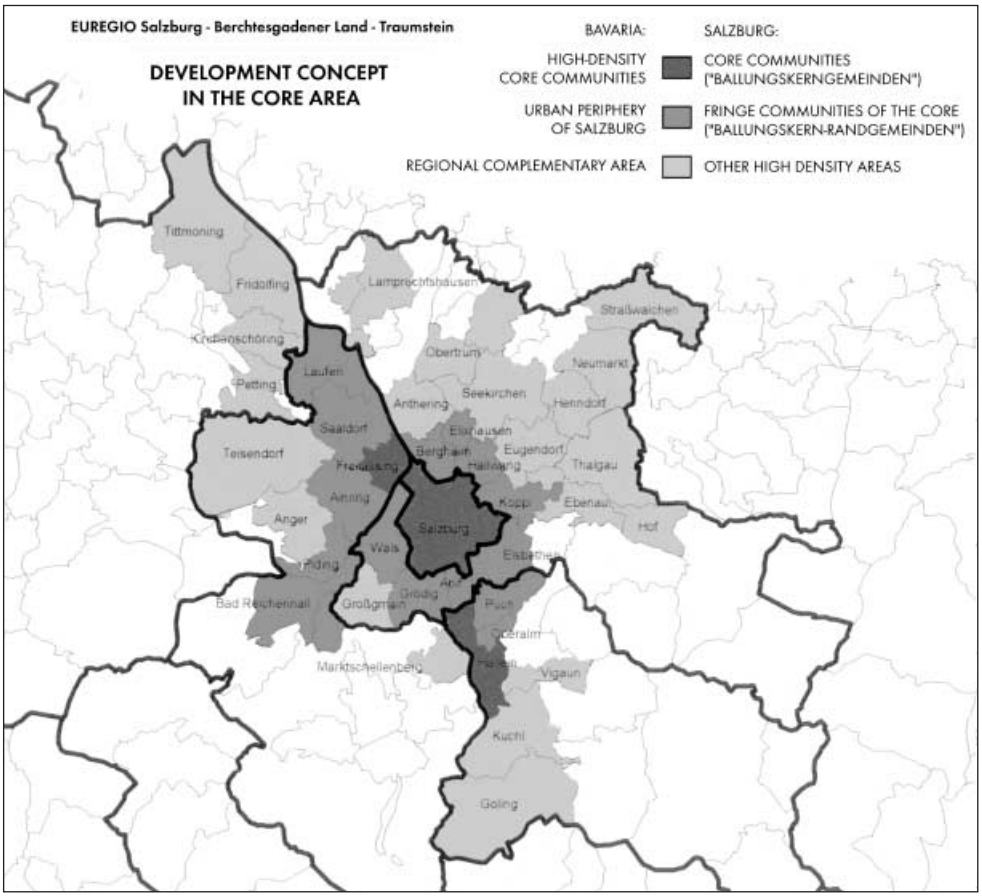
4 The EuRegio Salzburg – Berchtesgadener Land – Traunstein : a new cross-boundary regional development concept

With the growing integration of, and the closer cooperation between European countries, it has been recognized that boundary regions occupy a pivotal position in this process. Among political leaders, "economic players" and the people on both sides of boundaries there is widespread agreement that new forms of international coordination and cooperation offer enhanced political, economic, social, cultural potentials which can transform previously peripheral regions into emerging dynamic core areas and foster a new spirit of international understanding. Along the Bavarian (German) – Austrian border, six EuRegios have been established, among them the EuRegio Salzburg – Berchtesgadener Land – Traunstein (**Figures** 4 & 5).



Source: EUREGIO Salzburg - Berchtesgadener Land - Traunstein, Salzburg, 2001 (modified)

Figure 4: EuRegio Salzburg - Berchtesgadener Land - Traunstein: Spatial development concept



Source: Landesentwicklungsplan Salzburg, Regionalplan Planungsregion 18, Draft: A. DALZIO, 1999

Figure 5: EuRegio Salzburg - Berchtesgadener Land - Traunstein: Development concept in the core area

The EuRegio Salzburg – Berchtesgadener Land – Traunstein was created in 1995 and established in 1997, a development concept with the following objectives (EuRegio Salzburg – Berchtesgadener Land – Traunstein, 1999: Preface):

- Realization of European thinking on the regional level.
- Development of the EuRegio as a working and living space for the population.
- Development of the EuRegio within the competition of other economic regions.
- Development of environmental and living quality in the EuRegio.

The EuRegio extends in a north-south direction over a distance of some 100 km from the Alpine foreland to the inner-Alpine realm; in a west-east direction from the Chiemsee in southeastern Bararia to Wolfgangsee in the Province of Salzburg, Austria – a distance of some 80 km. The EuRegio includes 107 communities (50 communities in Bavaria with a population of 260 000 inhabitants and 57 communities in the Province of Salzburg with 340 000 inhabitants). The largest member towns are Salzburg (145 000); Traunreut, Bavaria (21 500); Hallein, Salzburg (18 000); Traunstein, Bavaria (18 000); Bad Reichenhall, Bavaria (16 500) and Freilassing, Bavaria (16 000).

Within Europe, the EuRegio Salzburg – Berchtesgadener Land – Traunstein occupies the pivotal location at the crossroad of important European north-south and west-east transportation and development axes. It is characterized by attractive tourist regions and is a European cultural focus; but it is also a dynamic economic region with a variety of industrial and commercial enterprises including high-tech and research centers, as well as with a highly qualified labour force. On the other hand, because of the international boundary, the Salzburg Central Region suffered from a truncated western area of incluence and conversely the Bavarian region adjacent to the boundary experienced a peripheral location with respect to the Munich core area. Thus the objective of the EuRegio Salzburg – Berchtesgadener Land – Traunstein is to foster a regional development on both sides of the international boundary which complements and mutually strengthens the diverse functions of the City of Salzburg and its service area on Austrian and German territories as an attractive and sustainable environment and living, working and recreational space to alleviate obstacles and barriers resulting from the boundary effect and to strengthen the administrative cooperation and human interactions across the boundary:

> *"The Salzburg central area forms with the adjacent areas in Bavaria and Upper Austria for quite some time a common functional region… (But) the transboundary common functions necessitate joint cross-boundary guiding and implementation instruments… When, for the first time, the EuRegio development concept formulates objectives, such as the logical complementarity of places and spaces, joint projects of an enhanced public transportation system, a joint protection of green spaces, harmonized commercial districts, or common promotions, are an important first step towards a functioning region. Such a region could reduce communal egoisms, could reward cooperation, could identify the optimal functional locations and could be profitable for all stakeholders"*
>
> Weichhart cited and translated in
> EuRegio Salzburg – Berchtesgadener Land – Traunstein 2001:9

5 Concluding remarks

The case study of the boundary city of Salzburg has demonstrated that within a merging Europe with "soft transparent" political borders, the potential for transboundary urban expansion, integrated functional realms of the service areas of cities and interlinkages and cooperation across international boundary exhibit new forms of dynamics and potentials. With the entry of Austria into the European Union, the implementation of the Schengen Agreement and the establishment of the EuRegio Salzburg – Berchtesgadener Land – Traunstein, all developments of the 1990s, the development of the western outskirts of the City of Salzburg exhibit a new potential for new forms of transboundary regional integration and for enhanced multi-functional linkages between the City and its adjacent Bavarian region (**Figure** 5). Political and economic "key players" and ordinary citizens are challenged to further remove real and perceptual barriers to fully implement the potentials for a new integrated and sustainable urban-rural region of Salzburg.

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OUTSKIRTS, ACCESSIBILITY AND CHAIN REACTIONS WITHIN THE URBAN FIELD

The Dynamics of the Released Mobility

Jean-Marie Halleux

Department of Economic Geography, University of Liège, Belgium; Jean-Marie.Halleux@ulg.ac.be

Abstract

The aim of this paper is to analyse the interactions between outskirts developments and the dynamics of the "released" mobility. By released mobility, we mean the fact that car mobility has become a common place. In order to follow the urban evolutions by this main theme of the mobility, the paper starts start with theoretical questions on the urban phenomenon. This first part is based on the idea that the city is a geometric arrangement that simultaneously maximises interactions and minimises mobility costs. Based on the previous theoretical developments, the second part of the article interprets the production of urban territories by the same theme of the released mobility. This reflection, essentially based on the Belgian context, notably try to explain the current peri-urbanisation of many activities that used to be systematically associated with central locations.

Keywords

Outskirts, daily mobility, car mobility, urbanisation, peri-urbanisation, desurbanisation, accessibility, urban field, urban system.

1 Introduction

It is the common use of individual cars that has allowed the first peri-urbanisation processes. Therefore, activation of outskirts developments within European towns is due to the release of mobility constraints. The aim of this paper – realized on the basis of J.-M. Halleux (2001) – is to analyse the interactions between outskirts developments and those dynamics of the released mobility. By released mobility, we mean the fact that car mobility has become a common place.

In order to follow the urban evolutions by this main theme of the mobility, one will start with theoretical questions on the urban phenomenon. This first part will be based on the idea that the city is a geometric arrangement that simultaneously maximises interactions and minimises mobility costs. Based on the previous theoretical developments, the second part of the article will interpret the production of urban territories by the same theme of the released mobility. This part, mostly based on the Belgian context, will notably try to explain the current peri-urbanisation of many activities that used to be systematically associated with central locations.

2 The urban space: maximise interactions and simultaneously minimise distances

The mobility evolutions have a direct influence on the urban evolutions as the concept of city is consubstantial to the concept of mobility (M. Wiel, 1998, p. 3). Indeed, the reason why populations have agreed to agglomerate is the need to produce a geometric arrangement that simultaneously maximise interactions and minimise distances. Such is "the city logic" (P. Claval & F. Claval, 1981). In order to understand the urban phenomenon, it is therefore necessary to apprehend the city such as an interaction potential. This interaction potential can first be defined by the space-time structure of the daily level (D. Pumain, 1997, pp. 128-129), which leads to assimilate the city limits with the interior of the territory where inhabitants can do what they have to do during an average single day: to find accommodation, to work, to enjoy oneself,... (Y. Chalas, 1997, p. 252). As a consequence, in order to analyse the interactions between the current release of the mobility constraints and the urban evolutions, it is necessary to specify how the mobility between the various places of the daily life organises the city and the urban system.

2.1 The structuring role of the functional units

Within the urban system, individuals are the basis of the urban interactions. Between the urban system and the individual level, there is a structuring intermediary level of organisation: the "functional units" level. Functional units are the entities where the daily physical co-presence is necessary in order to achieve the functioning of the urban system. In terms of residential function, the functional unit is the household. In terms of educational and production activities, the functional units are respectively schools and firms.

Some functional units are made of a single individual person, for instance the one-person household or the firm where the (poor) boss does all the work. However, most of the functional units need, even on a daily basis, the physical co-presence of several members. Moreover, individuals have generally to visit several functional units on a daily basis, for instance, the household, the firm and the school where it is necessary to accompany the children. This fact is the essence of the urban phenomenon as an individual who has to be present in several functional units creates daily relationships between those units. As a consequence, one can consider that such relationships are the basis of the daily urban system.

2.2 The theory of the urban field

The theory of the "urban field" has been developed by P. Claval & F. Claval (1981). This concept is complementary to the unified vision on the urban phenomenon where the city is considered as a geometric arrangement that simultaneously maximises interactions and minimises distances. In some way, an urban field can be considered as similar to a magnetic field. A global urban field will measure the interaction possibilities within the urban system and, following P. Claval & F. Claval, it has more less a cone radio-concentric shape, with the location of the city centre being characterised by the highest values. As the various urban functions (retail, legal activities, residence, heavy industry...) have different needs in terms of accessibility, the values of the global urban field – via the land prices mechanisms – are able to explain the traditional concentric location of activities within cities. The activities that are related to exchange and inter-personal communications have to be located in the centre, which will lead to accept high land prices. On the opposite, concerning the activities that do not rely on accessibility potential (for example, the residential activity), it is less detrimental and, at the same time, cheaper, to move away from the high values of the urban field (of the land prices).

The idea of the urban field can also be applied at the scale of the functional units. This leads to the definition of the "single" urban field, an urban field (also characterised by a more or less cone radio-concentric shape) that measures the location advantages in relation to a single unit. As they depend on the movement difficulty, single urban fields are specific to each individual and also depend on the available mobility means.

As the global urban field measures the location advantages in relation to the whole of the urban system, its measurement have to take the whole of the functional units into account. In this sense, the global urban field can be considered as the sum of the whole of the single urban fields integrated within the urban system.

At the individual scale, one can define the potential territory of the daily urban life. This maximal territory where the daily activities can be located is dependent on the various single urban fields related to the concerned individual. As the various functional units that have to be visited on this daily basis must be relatively close to each other, one notes the intersection of the various single fields, which result in the concentration (agglomeration) of the individuals on a limited space: the city.

2.3 The Law on transport-time-budget constancy and the potential territories of the daily urban life

Y. Zahavi (1976) has formulated a simple paradigm in order to apprehend the evolutions of the mobility behaviours: *the law of transport-time-budget constancy*. This paradigm is clearly commented by V. Fouchier: it "postulates that each individual is trying to take the maximum advantage of the spatial opportunities (i.e. maximise daily distances) under two constraints: not travelling too long (between one hour and one and a half hour), not spending too much money (between 15 % and 20 % of the income). The first saturated constraint (monetary or temporal, depending on contexts and concerned populations) determines the mobility level" (V. Fouchier, 1997, p. 162; personal translation)[1].

Although very simple, this paradigm seems globally verified and accepted; for instance by: G. Dupuy, 1995, p. 131; P.W.G. Newman & J.R. Kenworthy, 1996, p. 1; J.-P. Orfeuil, 1996, p. 55; D. Pumain, 1997, p. 128; F. Ascher, 1998, p. 401; M. Wiel, 1999, p. 67.

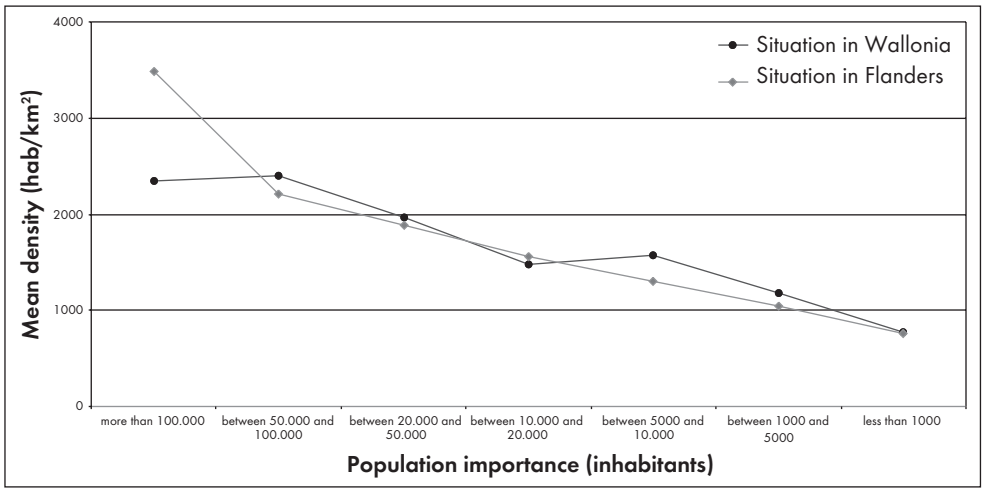
The law on transport-time-budget constancy means that the delimitation of the potential territories of the daily urban life has to be realised in time-distances rather than in spatial-distances. Once an individual integrated within an urban system will enjoy a release of the mobility constraints (for instance, simply, by the purchase of a car), the first consequence will be the evolution of the single urban fields he depends on. As they dilate, the same time-budget will lead to the extension of the potential territory of the daily urban life. If many people enjoy the same release of the mobility constraints, location decisions are going to be changed drastically, which will lead to increase distances (not time-distances but spatial-distances) between the functional units likely to be visited on a daily basis.

History of urban shapes shows that the degree of concentration within cities has been influenced by two releases of the mobility constraints (P.W.G. Newman & J.R. Kenworthy, 1996). In relation to the XIXth century industrial revolution, the creation of motorised public transports

has determined a first speed increase, which has lead to a first reduction of the urban density (compared with the traditional pedestrian cities). Since the Second World war, Western Europe is marked by a new release of the mobility constraints: the common use of car. With this new speed increase, there is a huge widening of the potential territories of the daily urban life. Indeed, while the car permits to travel ten times quickly, it also multiplies location choices by a hundred (P. Lusson, 1997, p. 52).

2.4 The double dimension of the urban phenomenon

The conception of the city geometry being produced in order to minimise the spatial constraints related to exchanges between individuals is related to a functional approach of the urban phenomenon. This idea has to be completed by taking into account the second dimension of the urban phenomenon: the morphological dimension. This second dimension is related to the frequent necessity to localise the functional units, which leads to a settlement and, therefore, to the artificialisation of the territory. This logic means that the functional dimension induces the morphological dimension; the content induces the container; the functional unit induces the building unit.



Source: J.-M. Halleux et al., 1998

Graphic 1: Mean density of the Belgian agglomerations according to their population importance

When man is strongly limited by the available mobility means, the functional urbanisation and the morphological urbanisation are spatially correlated. As strong competition for space leads to densification, then the urban fabric materialises the urban system. Based on the data of the 1991 census, the graphic 1 shows that, in Belgium, there is a direct relation between the density and the population size of agglomerations: the more an agglomeration is populated, the more dense the agglomeration is (J.-M. Halleux *et al.*, 1998 a, p. 40). This classical tendency (P.-H. Derycke, 1979, pp. 241-244) shows that densification has not been the result of a choice, but instead, a necessity in order to limit the spatial extension of cities. During those historical periods, the arrival of new habitants (willing to take advantages of the urban interactions possibilities) has forced the density to increase. Therefore, when mobility was highly constrained (pedestrian mobility, bicycle mobility or even slow public transport mobility), a functional urbanisation meant a densification and, therefore, a morphological urbanisation.

Nowadays, mobility constraints are released. As a consequence, the relation between functional urbanisation and morphological urbanisation is not so significant anymore. In an urban system characterised by the car mobility, potential territories of the daily urban life are so wide that the functional (or building) units can be very much spread out, which can make the city "invisible" (F. Beaucire, 1995). In the current context of the released mobility constraints, a territory can be simultaneously weakly artificialised (weak morphological urbanisation) and strongly integrated within an urban system (strong functional urbanisation). In parallel, such context also means that the ancient vision made of a uni-dimentional urban phenomenon has to change. Our intellects have to get used with the two dimensions of the urban phenomenon by clearly differentiating the functional axe and the morphological axe (J.-M. Halleux *et al.*, 1998b; J.-M. Halleux, 2001).

The current complicated urban phenomenon is also characterised by the fluctuation of the urban systems' limits. Because of the spatial extension of the potential territories of the daily urban life, urban fabrics made of the building units can no longer be directly associated with the urban systems made of the functional units. For instance, a household will often be composed of individuals who, on a daily basis, frequent urban systems that used to function apart. There is, therefore, integration between the intra-urban and the "small" inter-urban scales. In other words, "functional conurbations" are created. For instance, one can notice that, on a daily basis, the Brussels' agglomeration attracts commuters from every (589) districts of Belgium (G. Juchtmans *et al.*, 1999). In that sense, Belgium can be considered as a unique urban system. On such a small national territory characterised by a dense urban network, one must take note of the existence of a single functional system formed by a vast number of interlacing functional conurbations.

3 The release of the mobility constraints and the production of urban territories

3.1 Peri-urbanisation: the territories of the released mobility

A direct consequence of the release of the mobility constraints is the widening of the land supply that can be integrated within the daily urban systems. This new supply was first colonised by various activities that have weak interests for central locations. This category includes firstly the activities that do not depend on high accessibility potential, such as the (dedensified) residential function (under the form of detached single-family houses). This category also includes activities that are badly adapted to the traditional urban fabrics, i. e. heavy industries and heavy services characterised by both, a maladjustment to high densities (because of the local pollution generated and because of the extensive use of space) and a mobility profile influenced by mass transportation. The commercial function was also quickly concerned with the peri-urban logic. However, the initial stage of the retail out-of-town developments, with hypermarkets and bulky goods specialised shops, has first been relatively complementary with the traditional hierarchy of shopping centres.

Since the eighties, peri-urban developments also concern activities relatively well adapted to central locations. This ongoing process (B. Mérenne-Schoumaker, 2001) has started with the commercial activity and the available choice on out-of-town site has rapidly grew with planned shopping centres and specialised medium-size shops (notably within clothing and leisure sectors). In terms of people services, there is today a huge increase of out-of-town commercial leisure investments (bowling, fitness, cinema,...). The same centrifugal tendency also concerns light production activities (where the ratio surface / job is small), as well as office-based activities, in command services (A. Colard & C. Vandermotten, 1996) and producers services (computer, juridical activities,...).

In order to apprehend this current evolution of the location choices, it is necessary to examine the evolution of the accessibility within the urban system. As activities that are very sensitive to communication costs choose to move away from the urban heart, the location factor of the city centre proximity has to be questioned. By taking the urban field concept into account, one can first notice the increase of the population that have a direct access to car mobility. This can be explained by both, the increasing household multi-motorization and the generalisation of the car in relation to generation replacement (J.-L. Madre, 1999). Following our lecture of the urban phenomenon, when somebody acquires a car, that leads automatically to a dilatation of the single urban fields he is concerned with. As the global urban field can be considered as the sum of the whole of the single urban fields integrated within the urban system, its dilatation will be the direct consequence of the growth of the population that have a direct access to car mobility. In other words, the growth of the motorization rate leads automatically to increase the influence of the functional units with a car accessibility profile.

Picture: Jean-Marc Lambotte

Since the eighties, peri-urban developments also concern activities relatively well adapted to central loctions. New out-of-town commercial leisure investments in the Liège area

During the last decades, global urban fields have not only been characterised by a dilatation, but also by a flattening. Indeed, each time a functional unit moves away from the city-centre (ex-urbanisation), there is a decrease of the global accessibility for the functional units that are still located close to this focal point. Formally, an ex-urbanisation means that the global urban field is marked by a flattening of its gradient according to the city centre distance. This type of evolution has to be related with the fact that many services currently settles out-of-town, in order to adjust to the new geography of their customer – both populations and firms.

3.2 Desurbanisation within urban fabrics inherited from the limited mobility

Desurbanisation (empty retail units, offices and apartments to let,...) is important in many traditional urban fabrics produced when populations were limited to pedestrian, bike or slow public transport mobilities. At the scale of an urban system, this evolution is related to outskirt deve-

lopments as such developments produce desurbanisation if they are more important than the global growth (communicating vessels). Therefore, if the released mobility has a direct influence on peri-urban territories, it also can have major impacts on territories inherited from limited mobility periods.

For many traditional urban fabrics, a first problem, related to the scale of the building unit, lies in the maladjustment to the contemporary interior space requirements. For instance, studies on residential fluxes have showed that housing maladjustment is the first ex-urbanisation source, first of all because of the smallness (J.-M. Halleux, 1999). In the field of economic activities, studies on empty retail units within cities have showed that many empty shops have a very small surface (J.-B. Jehin, 1999). As consumers are now used to vast commercial units, those small surfaces are no longer competitive.

For the traditional urban fabrics, a second problem lies in the evolution of the accessibility. In terms of global urban field, the evolutions of dilatation and flattening have already been commented. An another evolution has now to be taken into account: the creation of an accessibility crater. Because of both, congestion and parking problems, it is likely that, in many towns, motorway rings have now a better global accessibility than the central built-up area. In Belgium, this idea of accessibility crater can directly be related to the decentralisation of many jobs towards the first peri-urban belt (A. Colard & C. Vandermotten, 1996).

In Liège, recent researches have showed that office firms choose the periphery because of accessibility reasons. As many jobs need frequent car movements, a city centre location is avoided because of both, congestion and parking problems (J.-M. Lambotte *et al.*, 2001). It is also because of the frequent car movements of their workers that many firms have decided to settle in the Brussels' agglomeration "tertiary belt" (G. Devilet *et al.*, 2000). Clearly, this kind of situation is the complete opposite of the one described by P. Claval & F. Claval, who, in the early eighties, still considered that "for the activities related to exchanges and communications, not to be in the centre would be a penalty"(P. Claval & F. Claval, 1981, p. 85; personal translation)[2]. Nowadays, to be in the (old) centre can be a penalty if frequent car movements are needed. From this viewpoint, central urban fabrics can now be considered as the "periphery" of the outskirts.

4 Conclusion: the long-term impact of the mobility constraints release

The idea of city is consubstantial to the ideas of mobility and accessibility. If mobilities change, the city as an accessibility potential has also to change. This fact is showed by the history of urban shapes as well as by the recent location changes within the daily urban system.

In order to apprehend properly the relationships between urban organisations and daily mobilities, it is necessary to adopt a long-term vision (M. Wiel, 1999). This long-term vision is first needed because of the chain reactions created by the release of the mobility constraints. Indeed, location changes are both, consequences and causes of the car mobility developments. The fact that car mobility has become commonplace has first leaded to a dilatation of the global urban fields. As this dilatation has activated the first peri-urbanisation processes, it has also generated a flattening of the global urban fields which, in return, has influenced new location choices and created new outskirts developments. This logic explains why, currently, four decades after the beginning of the process, most of the urban activities are likely to be developed on a peripheral site.

Taking into account the double dimension of the urban phenomenon also shows the long-term impact of the mobility release. More precisely, in comparison with the functional dimension, the morphological dimension of the building structures even creates a stronger inertia. Nowadays, there are major problems to achieve the urban regeneration. While cities were re-built "on themselves" for ages, many traditional urban fabrics are now deeply weaken because of the greenfield competition. They cannot find appropriate investors (J. Comby, 2001) and are worming away by time. However, four decades after the peri-urbanisation beginning, it is still too early to apprehend how the urban fabrics inherited from the limited mobility will finally adapt to the current speed capacity. There is no doubt that this is also a major urban issue of the next decades.

Notes

1 Il "postule que chacun cherche à tirer parti maximum des opportunités spatiales (c'est-à-dire maximiser les distances parcourues dans la journée) sous deux contraintes: ne pas dépasser un certain budget-temps (une heure à une heure et demie), ne pas y consacrer plus de 15 à 20 % de notre revenu. La contrainte saturée en premier (monétaire ou temporelle, selon les contextes et les populations concernées) détermine le niveau de mobilité" (V. Fouchier, 1997, p. 162).

2 "pour les activités liées à l'échange et à la communication, ne pas être au centre constitue une pénalité" (P. Claval, 1981, p. 85)

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THE MOBILITY SYSTEM IN URBAN PERIPHERIES WITH PARTICULAR REFERENCE TO THE ITALIAN SITUATION

Gianluigi Sartorio[1], Luca Studer[2]

1 DIAP (Dipartimento di Architettura e Pianificazione), Politecnico di Milano, Milan, Italy; gianluigi.sartorio@polimi.it, author of chapter 2
2 IN.D.A.CO., Politecnico di Milano, Milan, Italy; luca.studer@polimi.it, author of chapter 1

Abstract

In chapter 1 the progress of motorization in Italy is analyzed with particular attention given to the interaction between the possession of vehicles and the territory in urban peripheries. The studies point out how the phenomena of motorization in Italy has undergone a notable growth in the last ten years but an uneven growth between the north and the south and between small towns and cities. In comparison with the European situation it has emerged how high the ownership of automobiles is in Italy. The correlation of the indexes of motorization with the region and residential settlements enables to understand the phenomena of motorization in urban peripheries and in small towns. In a particular way in Lombardy the index of motorization (that is the number of cars owed by each inhabitant) for almost all of the towns differs little from the regional average, thus characterizing Lombardy as a region with high level, diffused motorization.

In chapter 2 the most significant relationships between infrastructures and the use of the region in areas outside urban settlements will be emphasized. In these areas of transition between city and countryside the transportation network and, in particular viability, can be developed with roads fulfilling the needs of the sector but which often do not respect the characteristics of the region they cross.

Keywords

motorization, indexes of motorization, density, cars/inhabitants, outskirts.

1 Changing dynamics of mobility

1.1 Motorization in Italy

The present chapter intends to give a brief description of the phenomena of motorization in Italy, that is to say the ownership of vehicles for private and commercial use with particular attention to urban peripheries and to small towns. The following part will compare the indexes of motorization in Italy, especially those which clearly show the relationship between the number of cars and the number of residents, with those of other European nations thereby clearly indicating the elevated level of Italian motorization on a European level. The high number of vehicles per inhabitant is even more evident if data between the main cities in Italy and other European cities are compared. Finally the correlations between motorization and the territory of the Region of Lombardy with the intention of understanding the peripheries from the point of view of motorization are pointed out. This last approach is connected to what V. Fouchier studied in "L'étalement de la motorisation en Île-de-France" published in "Etudes Foncières" – n. 96, March-April 2002 in "respect to the situation in the Region of Paris, the Île-de-France". The comparison between the situation in Lombardy and in France presents differences of relief and are therefore interesting to point out. For all the towns in Lombardy, and therefore also including the urban peripheries, the relationships which occur between the indexes of motorization and the total or residential density or the distance from principal metropolitan centers, considered to attract trips from one place to another, have been analyzed.

The changes in the number of motor vehicles over time on a national, regional and communal level

A brief analysis of the number of motor vehicles on a national level and then on regional and communal levels lets us examine the phenomena of motorization and to hypothesize its possible evolution. The subdivision of the number of cars by category underlines the role of the absolute importance of automobiles with 33,7 million units in 2002 in respect to other types (see **Table 1** and **Figure 1**). The number of motorcycles and commercial trucks is also significant. Referring to the growth which motorization has undergone in Italy since 1987 till today it can be noted, besides the notable growth which is limited in absolute terms, the increase of 38,6% of motor vehicles (almost 9,4 million more cars in circulation) and a 83,6% increase of commercial trucks (corresponding to about 1,5 million more units) and of a 69,4% increase in the number of motorcycles (about 1,65% million more motorcycles). Complexively the number of vehicles in Italy has increased, in 15 years, by 44,1% with the addition of 13,1 million vehicles on the road. This figure indicates where the cause of this notable increase in the level of congestion can be found which involves both the urban and the extraurban street network with noted negative effects, besides the effect on travel time and air quality.

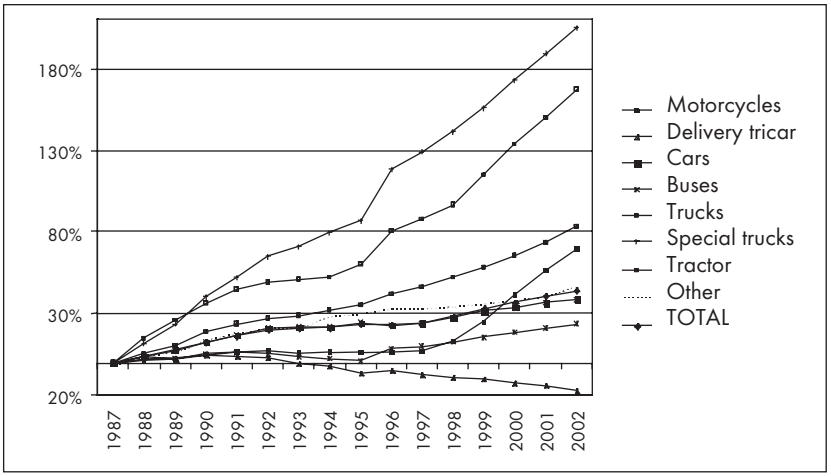


Figure 1: percent variation of the number of vehicles in Italy (1987 – 2002)

Year	Motorcycles	Delivery tricar	Cars	Buses	Trucks	Special trucks	Tractor	Other	TOTAL
1987	2 383 692	443 483	24 320 167	74 114	1 795 863	149 129	49 669	584 757	29 800 874
2002	4 037 480	368 387	33 706 153	91 716	3 297 260	454 439	132 622	862 268	42 950 325
Variation	1 653 788	-75 096	9 385 986	17 602	1 501 397	305 310	82 953	277 511	13 149 451

Table 1: Changes in absolute value

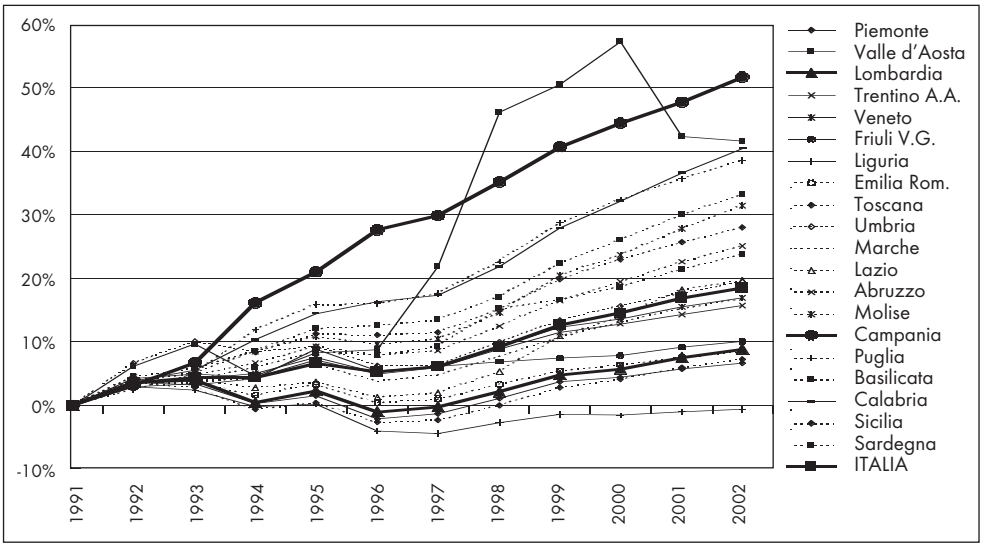


Figure 2: Variation of number of cars by region (1991-2002)

RÉGIONS	1991	1997	1998	1999	2000	2001	2002	Population variation 1991-2002
Piemonte	-	-1,4%	1,0%	3,6%	4,3%	5,7%	6,6%	**-2,0%**
Valle D'Aosta	-	21,8%	46,2%	50,6%	57,3%	42,3%	41,7%	**3,1%**
Lombardia	-	-0,3%	2,1%	4,7%	5,6%	7,5%	8,8%	**2,0%**
Liguria	-	-4,6%	-2,8%	-1,6%	-1,6%	-1,2%	-0,7%	**-6,2%**
Campania	-	29,9%	35,2%	40,7%	44,5%	47,8%	51,8%	**1,3%**
Puglia	-	17,6%	22,6%	28,7%	32,4%	35,7%	38,7%	**-0,3%**
Calabria	-	17,3%	21,9%	27,9%	32,2%	36,7%	40,5%	**-2,8%**
ITALY	-	6,0%	9,2%	12,7%	14,6%	16,9%	18,5%	**0,4%**

Table 2: Types of regional car parks (1991 – 2002)

Going from the analysis of number of cars by region only it can be noted (see **Table 2** and **Figure 2**) that more than 60% of the total number of cars is present in only 6 regions – Lombardy, Lazio, Campania, Sicilia, Piemonte and Veneto. The Region with the greatest number of cars circulating is Lombardy with more than 5,4 million units followed by Lazio with 3,5 million units in 2002.

The analysis of the variation in the number of cars from 1991 to 2002 in different Italian regions points out some interesting elements. Compared with a complessive growth in the last 11 years of 18,5% more cars it can be noted that the major part of the central-north regions have seen, if not a stabilization of the number of cars, at least a contained growth. Instead, the regions of south-central Italy have seen a definite increase, between 20% and 50%, in the number of cars.

This uneven development is pointed out in **Figure 2** by the representative changes in Lombardy and Campania. It must be noted though that beginning in 1997 the incentative for the scrapping of old cars was initiated, a factor which certainly has influenced the general trend. The unusual growth registered in the Valle d'Aosta from 1997 to 2000 can be credited to the special prices for gasoline for which the residents in that area are entitled.

The different evolution which motorization in the center-north has registered in respect to the center-south brings us to the conclusion that in the next few years we can expect another increase of the number of cars in Italy principally caused by the progressive saturation in the center-south regions. This hypothesis is confirmed, as can be seen by what follows, by the fact that the number of cars per inhabitant in the center-south has not yet reached the elevated values present in the center-north.

The ulterior aspect which stands out in this analysis is given by the comparison between the demographic growth and the number of cars. As can be seen in **Table 2** the notable increase in the number of motor vehicles has occurred although the population has remained constant or has decreased. This shows how the increase in the number of vehicles which are circulating is not tied to the evolution of the population but principally to the decisive growth of the number of vehicles per family.

The indexes of motorization which compare the population with the number of cars are the following:

- Vehicles/1000 inhab.: relationship between the entire number of vehicles circulating and the resident population
- Cars/1000 inhab.: relationship between only the number of cars circulating and the resident population
- Population/Cars: is the number of inhabitants per automobile

In the Italian situation the parameters indicate an "auto market" near saturation. In particular the order of **Table** 3 on the basis of the index "Cars/1000 inhabitants" and **Figure** 3 show how, in spite of the minor growth of the number of cars in the regions of the central-north, the latter have higher values of the index of motorization in respect to the more southern regions. These indicators also present extremely high values for the Valle d'Aosta Region in consideration of the before-mentioned incentives for the purchase of gasoline.

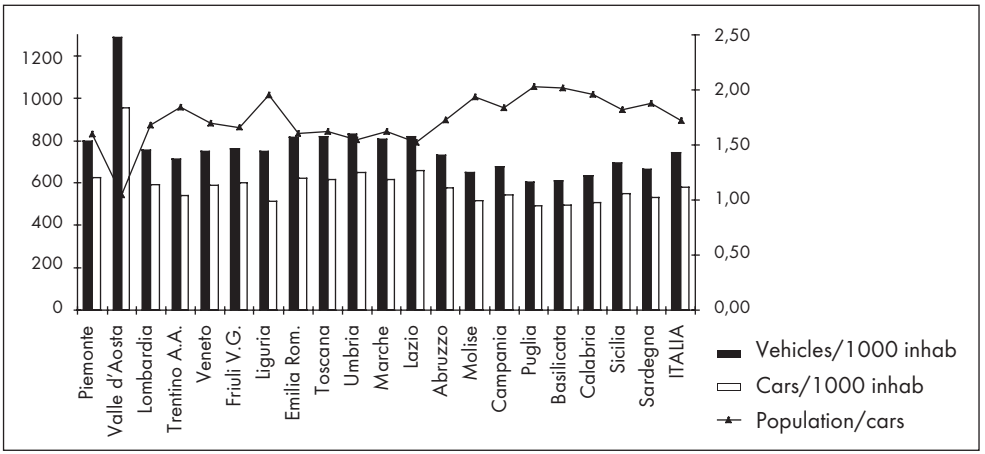


Figure 3: Indexes of motorization by Region (2002)

RÉGIONS	Vehicles/1 000 inhab.	Cars/1 000 inhab.	Population/cars
Valle D'Aosta	1287,9	954,8	1,05
Piemonte	798,6	627,5	1,59
Lombardia	754,9	595,5	1,68
Campania	676,8	544,4	1,84
Liguria	751,9	512,0	1,95
Calabria	634,9	509,3	1,96
Puglia	607,5	493,4	2,03
ITALY	741,9	582,2	1,72

Table 3: Indexes of motorization by Region (2002)

From the analysis of motorization in Italy related to principal Italian cities it can be noted that the city with the most consistent number of automobiles is Rome (see **Table 4** and **Figure 4**). It must be mentioned, however, that all the vehicles owned by companies or public services which have their legal headquarters in the capital are included.

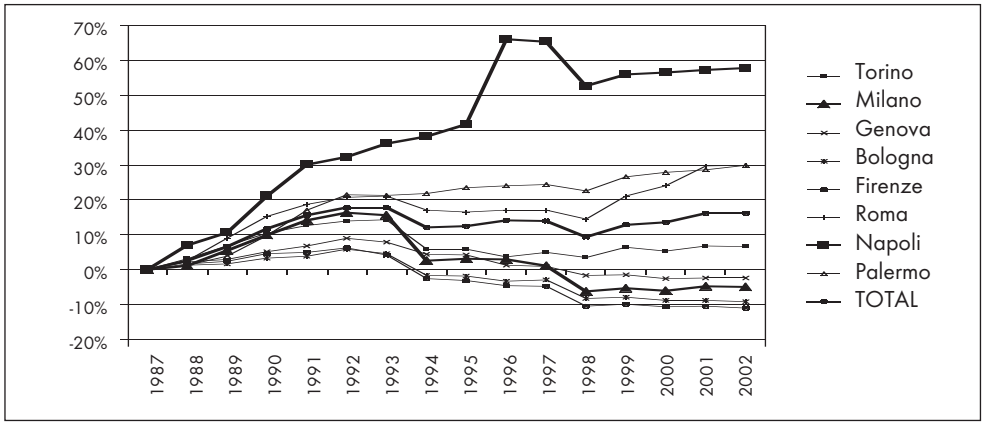


Figure 4: Variation of the number of cars in the main Italian cities (1987-2002)

YEAR	Torino	Milano	Genova	Bologna	Firenze	Roma	Napoli	Palermo	TOTAL
1987	552 523	838 484	308 160	235 440	237 845	1 493 175	388 079	305 411	4.361.104
2002	588 744	797 483	300 728	213 776	211 606	1 942 131	612 528	397 060	5.066.058
Variation	36 221	- 41 001	-7 432	- 21 664	- 26 239	448 956	224 449	91 649	704.954

Table 4: Variation of absolute value (1987-2002)

Regarding the variation of the number of autos it can be seen, like what was previously noted on a regional level, how the cities of the center-south have registered a consistent growth (in Rome the number of cars has increased by almost 449 thousand units, equal to 30% more, while in Naples they have increased by almost 58% in 15 years) compared with the cities in the center-north which, except for Turin, have registered a reduction in the number of cars. From what has been said we can hypothesize a further margin of growth of the number of cars in the coming years.

Table 5 and Figure 5 show the value of the indicators inhabitants/vehicles defined in 2002. No notable difference between the central-north and the central-south can be seen: the large cities have a homogeneous level of saturation in Italy. This brings us to the hypothesis that the smaller cities or the peripheries of the main cities are those which still have margins of intensification of motorization. For example, while Campania has an index of 544,4 Cars/1000 inhabitants the city of Naples reaches a superior level (equal to 612 Cars/1000 inhabitants), near that of Milan.

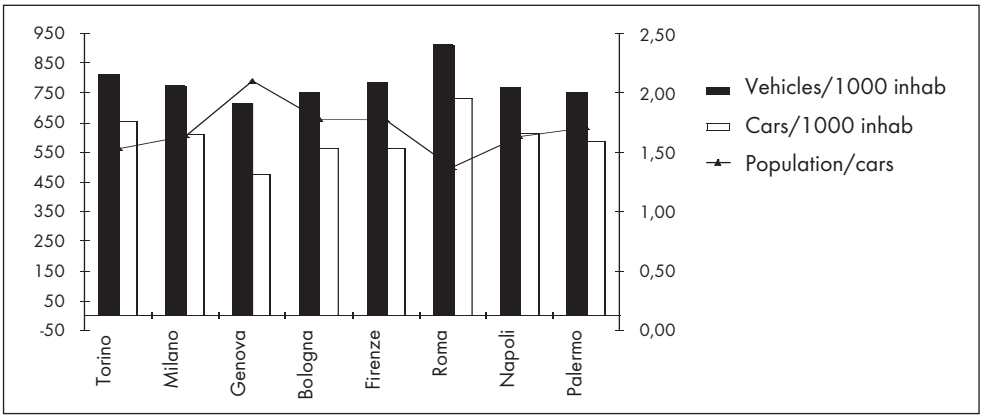


Figure 5: Indexes of motorization by city (2002)

City	Vehicles/1 000 inhab.	Cars/1 000 inhab.	Population/cars
Roma	912,6	730,4	1,37
Torino	812,2	652,7	1,53
Napoli	770,1	612,0	1,63
Milano	774,3	611,1	1,64
Palermo	750,5	586,0	1,71
Firenze	784,8	564,9	1,77
Bologna	750,6	562,9	1,78
Genova	712,1	476,6	2,10

Table 5: Indexes of motorization by city (2002)

European comparisons

To see how Italy is placed in the European context regarding motorization the same analyses and the same indicators were used for the 15 countries of the European Community.

From **Table 6** and **Figure 6** it clearly emerges how Italy is the second country for the number of cars or vehicles in general. Yet while 15% of the population of the European Community lives in Italy, the quota of cars and vehicles is 18,9% and 18,3% respectively. Furthermore Italy is the country with the second highest index of motorization (Cars/1000 inhabitants) in the European Community. In fact, it is surpassed only by the small state of Luxemburg, while it surpasses by a large margin countries like Germany, France and Great Britain.

NATIONS	Cars	Vehicles	Vehicles /1 000 inhab.	Cars /1 000 inhab.	Population /cars
Luxemburg	263 475	305 068	697,5	602,4	1,66
Italy	32 583 815	39 931 181	688,5	561,8	1,78
Germany	42 323 672	51 349 937	620,2	511,2	1,96
Austria	4 097 145	5 509 508	680,0	505,7	1,98
France	28 060 000	36 351 000	618,2	477,2	2,10
Belgium	4 628 949	5 474 171	534,6	452,1	2,21
Sweden	3 999 268	4 664 392	525,1	450,2	2,22
Finland	2 082 580	2 568 962	496,8	402,7	2,48
Spain	16 100 000	23 241 921	581,1	402,5	2,48
The Netherlands	6 051 000	7 485 000	474,9	383,9	2,60
Great Britain	22 785 000	26 135 200	439,2	382,9	2,61
Denmark	1 907 879	2 299 652	432,8	359,0	2,79
Ireland	1 322 887	1 567 347	413,5	349,0	2,86
Portugal	3 200 000	5 062 000	502,9	317,9	3,15
Greece	3 195 065	6 718 454	633,7	301,4	3,32
TOTAL	172 600 735	218 663 793	579,3	457,3	2,19

Table 6: Indexes of motorization for the 15 countries of the European Community (2002)

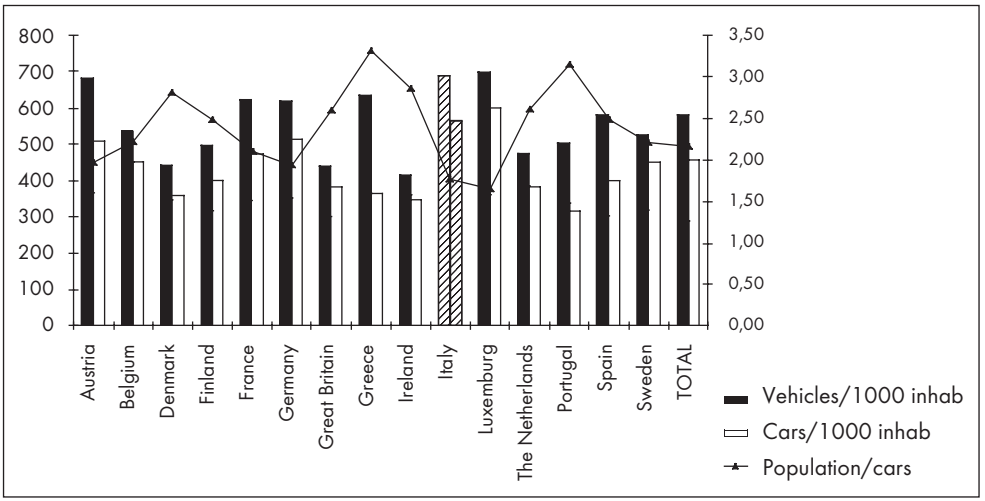


Figure 6: Indexes of motorization for the 15 countries of the European Community (2002)

The high rate of motorization in Italy is particularly perceived on the urban level. In fact from Table 7, it is evident how the European cities have been able to contain the index of motorization within those areas where the alternatives to the use of the automobile are decidedly competitive; this includes public transport, bike paths and pedestrian paths. It is also evident how the Italian cities are practically "out of scale". Such a situation has notable effects of congestion and pollution in Italian cities.

City	Inhabitants	Surface (km^2)	Index of motorization (car/inhabitant)
Milano	1 306 000	182	0,7
Roma	2 800 000	1,507	0,7
Barcellona	1 700 000	98	0,4
Amburgo	1 700 000	753	0,4
Bruxelles	1 100 000	162	0,4
Monaco	1 200 000	310	0,5
Stoccolma	704 000	7759	0,4
Vienna	1 500 000	415	0,4

Table 7 : Indexes of motorization for some European cities
(General Urban Traffic Plan- City of Milan 2002)

1.2 Motorization and the peripheries

In this paragraph the relationship between urban peripheries and motorization is analyzed. Unfortunately there are no statistics available referring to Italy which can be directly compared with those of Île-de-France. Fouchier correlates among their indexes of motorization, distance from the center of Paris and total density (inhabitants and employed) of all the communes of the Île-de-France to show how there is an increase of the number of cars per inhabitant with the distance from the center of Paris and how the possession of a car is inversely proportional to the total density per square kilometer. In the study of the first correlation it is evident how in the center of Paris there are extremely low indexes of motorization and that, the further from the center of Paris you are, the more dependence on privately owned cars increases. With the second correlation, which is even more precise than the first, it is shown how, where total density is low, there is a major request for cars and therefore a greater number of cars per inhabitant.

These two correlations are illustrated in Figure 7, Figure 8, Figure 9 and Figure 10.

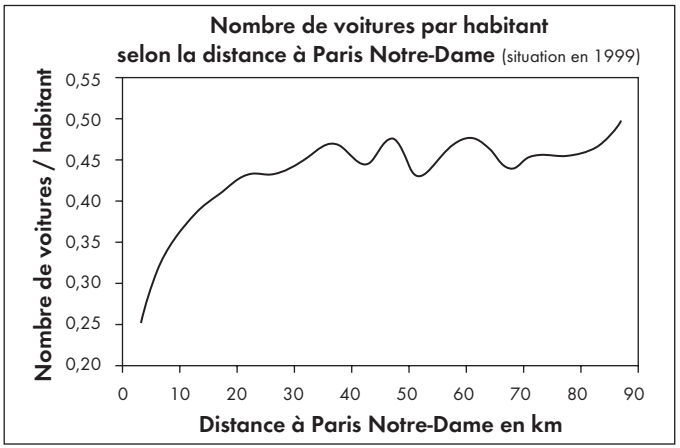
Motorisation en Île-de-France en 1999 par secteur

Nombre de voitures	**par ménage**	**par habitant**
Paris	0,50	0,27
1e couronne de l'agglomération	0,87	0,36
2e couronne de l'agglomération*	1,13	0,43
Villes nouvelles*	1,15	0,40
Urbain hors agglomération Parisienne*	1,19	0,45
Rural*	1,44	0,52
Région	**0,90**	**0,38**

*Nomenclature de 1990

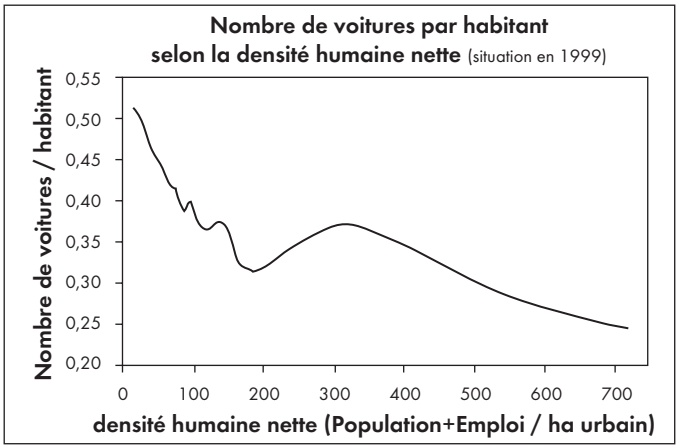
Source: RGP Insee

Figure 7: Indexes of motorization in the Ile-de-France



Source: RGP Insee

Figure 8: Calculation of the number of cars/inhabitants further away from Paris



Source: RGP Insee

Figure 9: Calculation of the number of cars/inhab. with the increase of density

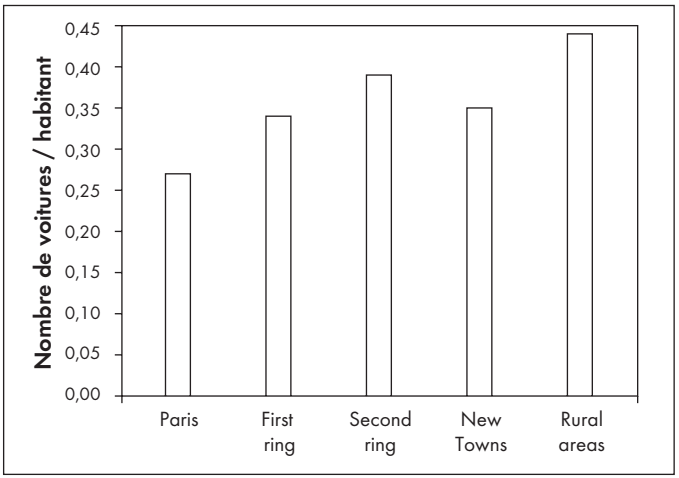


Figure 10: Number of cars/inhabitants in the Ile-de-France

In order to characterize the Italian urban peripheries in respect to the phenomena of motorization and to point out the differences between nations and regions in Europe, an analysis referring to all 1564 towns in Lombardy has been done.

Two types of analyses were done:
- The correlation between the number of cars per inhabitant and the distance from Milan or from the capital of the province;
- The correlation between the total density in respect to the number of autos or vehicles per inhabitant.

The data used for the 1564 Lombard communities were taken from the Population Census of 2001 and from ACI for the number of cars for the same year.

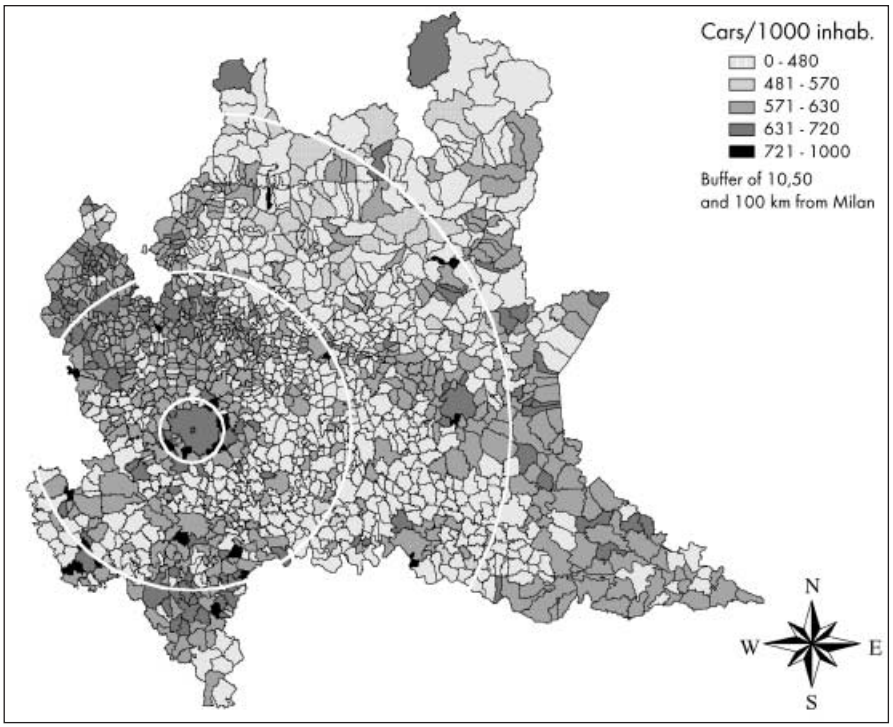


Figure 11: Number of autos per 1000 inhabitants of Lombardy (2002)

The correlation between the distance from the main provincial capitals and the values of motorization appear in **Figure 11**: there is not a strong correlation between the distance from Milan or from the capital of the province and the number of cars per inhabitant. In fact it can be noted how only in the first hinterland of Milan is there an index of motorization superior to the City of Milan. Away from the center there are inferior indexes. Even the regional distribution is not homogeneous; in fact higher indexes of motorization were found to the north-west of Milan, while values lower than the regional average were found to the south-west. The main differences that can be pointed out in respect to the situation illustrated for the Île-de-France are:

- the number or cars per inhabitant in the city of Milan is much higher than that of Paris and besides, that value is not inferior to that of the urban peripheries of Milan, unlike what happens in the French capital;
- while in Paris the density of motorization gradually decreases closer to the center, in Milan the phenomena seems almost the opposite (see **Figure 12**)

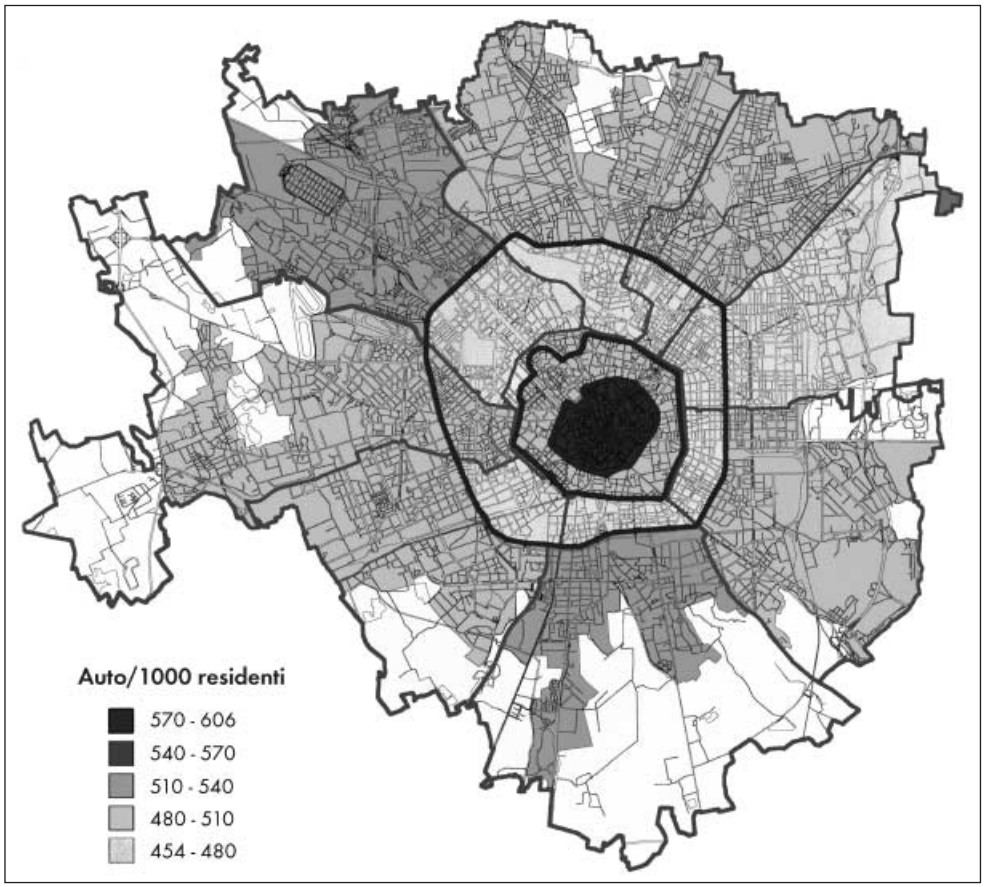


Figure 12: Cars/1000 inhabitants in Milan (2001; Milanese Agency for Mobility and Environment)

The correlation between total density (see **Figure 13**) and the number of autos per inhabitant can be seen in **Figure 14** and **Figure 15** where all the towns have been inserted according to their combination of density and the number of cars per inhabitant. It is clear that no correlation between the level of motorization which increases with the lowering of total density exists as happens instead in Ile-de-France. In Paris it is presumed that whoever lives in low density areas has a greater need to use a car in the absence of alternative means of transportation. In Lombardy this phenomena is partly true; in fact 95% of the towns have a number of cars per inhabitant which is only 20% different from the regional average (in 2002 595 autos/1000 inhabitants). This leads us to conclude that motorization in Lombardy is homogeneously distributed in the region and that, adopting the regional average, the margin of error for almost all the communities is negligible.

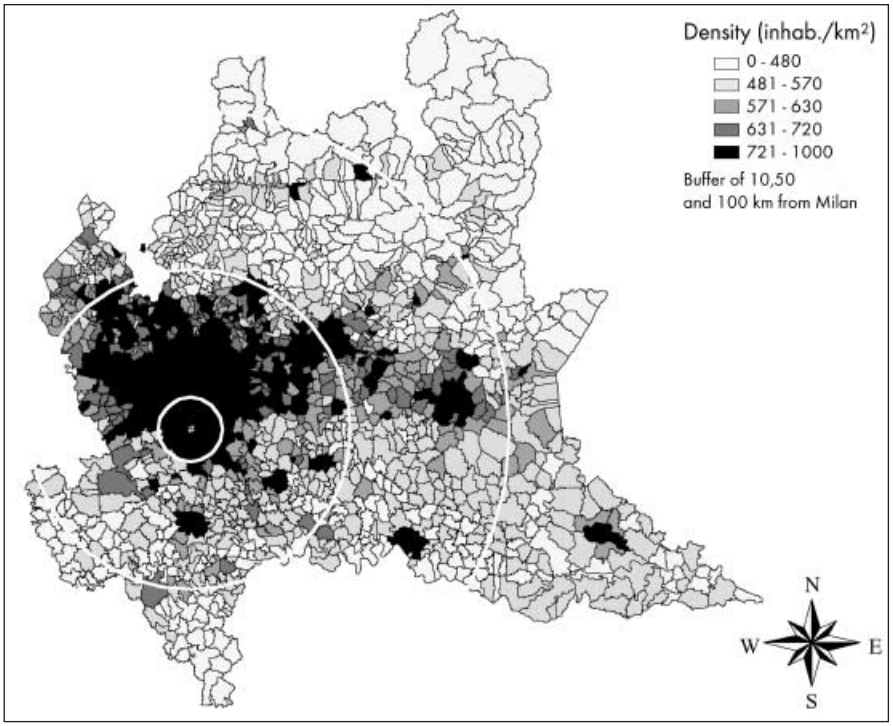


Figure 13: Residential density in Lombardy (year 2001)

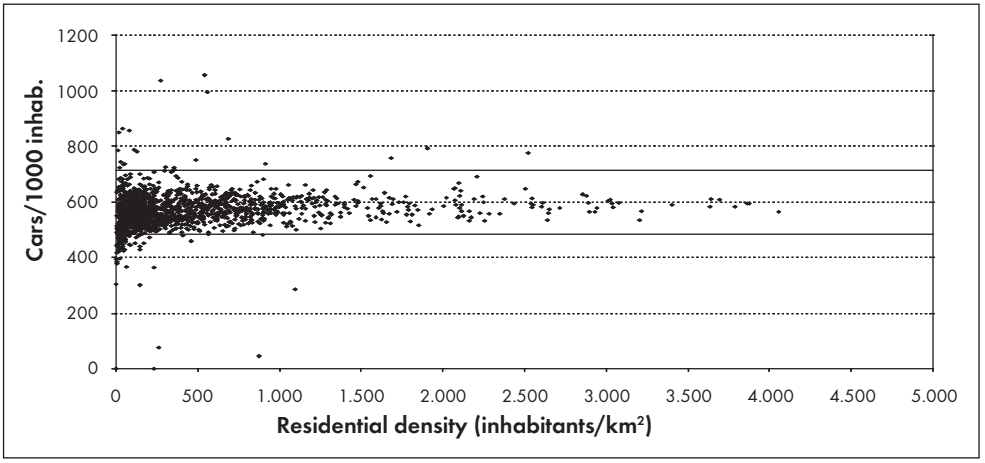


Figure 14: Relationship between residential density and cars/1000 inhab. in Lombardy (2001)

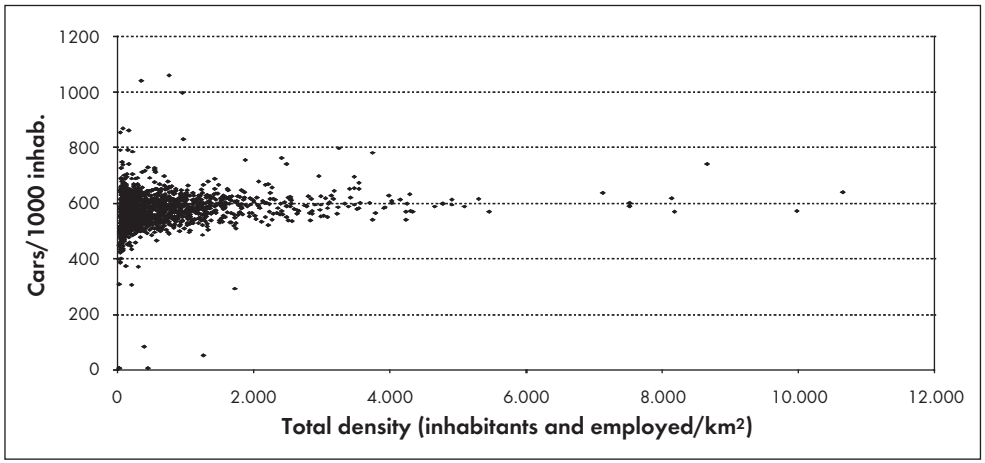


Figure 15: Relationship between the density and cars/1000 inhab. in Lombardy (2001)

1.3 Final considerations on dynamics of mobility.

The studies which were done show how motorization in Italy presents a notable increase in the past ten years. In the regions of the central-north it has "almost" arrived at the value of saturation while a possible future growth of the number of cars is possible in the center-south of Italy or in the peripheries or minor communities in the center-north. In fact, even in the center-north, the larger towns have registered a stagnation compared with regional values which are growing. Compared with the European situation it has emerged how high the ownership of cars in Italy is and, in a particular way, how the large cities in Europe present indexes of motorization decisively inferior to those in Italy. This leads us to believe that in Italy there is not a minor number of vehicles in zones which are served by alternative transport systems (cities where public transport presents a valid alternative come to mind)unlike in European cities where this result has been reached.

As far as the relationship between the indexes of motorization and the region is concerned, a notable difference between the French Region Île-de-France and the Lombardy Region has been pointed out. In fact while in the French case there is a dependence on cars for inhabitants who live far from the city center of Paris (and therefore fewer services of public transportation are offered) whereas in Lombardy the values are already much higher in Milan and the increase of the index is limited to only the outer belt of the peripheries/towns around the capital. The differences are even more obvious in the case of correlations between population density and the number of cars per inhabitant which can scarcely be noted in Lombardy whereas in Paris it is evident. The main difference between the two situations must be looked for in the results of

the index of motorization in the region: while in the Île-de-France there is a notable variation within the Region, in Lombardy it results that almost all the towns present a number of cars per inhabitant very near the regional average. These diversities are mainly due to different settlement and economic regional structures in the two regions. While in France there is a notable concentration of functions and the population in Paris, in Lombardy, which although having a notable concentration of activities in Milan, there is a structure with many different centers diffused throughout the region. The differences which have emerged between the situation in two different countries are very useful for the study of motorization in different areas.

2 Evolutive dynamics of infrastructures

2.1 Infrastructures and land use in the outskirts

The network and infrastructure plants are the second aspect of the theme of mobility. In this chapter we will deal with the most significant relationships between infrastructures and the use of land in the outskirts of cities, that is in those areas outside of the urban fabric. In these transition areas between town and country, just outside of highly urbanized areas, the transportation network and, in particular, traffic circulation can be developed according to the needs of the sector but often without respecting the characteristics of the region it crosses. At the same time, the request for mobility still remains high, being influenced by the near city. This request is, in its own development dynamics, located in more external areas (where the following aspects prevail: the availabilty of undeveloped areas and right of passage for the new roads of the infrastructure), in strict symbiosis with the formation of new urban poles such as commercial centers, sport centers, recreation areas, industrial plants, management and administrative centers and residential zones.

The metropolitan periphery is a mix of industrial and tertiary functions and activities, no longer just decentralized residential areas but also services and functions of a higher level, which would have an advantage from (or would promote) new infrastructures in the region. Infrastructures which are located on the outskirts generally regard:

- both locations for movement and rest areas for people and merchandise, with related parking areas, holding and maintainance areas for means of transportation,
- different plants and technologic networks of the energy and water-sanitary sectors, including those for the collection of domestic and urban waste.

The pre-existing organization of the region was strictly connected to agricultural use, with building types and infrastructures typical of the rural landscape of the place. This organization was rapidly destroyed and new settlements rarely respect pre-existing minor urban nuclei. More frequently, contemporary organization of these new settlements follows the new urban polarities and confirms the attracting force of the main metropolitan nucleus. It is difficult to interpret the ways in which the mechanisms of settlement development operate outside of the urban or metropolitan nucleus. In the absence of a strong regulatory plan, indicated by the urban plan and agreed upon on a local level or, more frequently, in the presence of weak signs which are suggested only by the natural configuration of the region and from the few buildings present, the peripheries express, above all, a situation where the each developer's "margins to manouver" turn out to be wide and indefinite. In such situations of diffused instability, it is difficult to exclude the presence of speculative actions to build with very little respect for the general landscape context which is generally lacking in character; in the same way, grows the risk of serious interested external pressure to import "land uses" very little appreciated in more urbanized, frequented areas. In such fringe areas, the plants and infrastructure networks join forces to take advantage of the best conditions for their realization which is less restricted and easier.

These dynamics are well-known but are accepted as unavoidable; viceversa they can be managed and should be managed in a way as to avoid environmental damage which has consequences over time. This means that we must, above all, stop concentrating infrastructures in limited spaces and planning them without forseeing their progressive inclusion within city limits. In addition such works should not form insuperable artificial barriers which divide today's green spaces into little pieces of tomorrow's city.

Analogously, on the opposite front, new settlements must not determine an alteration of the capacity level of infrastructures, accelerating their obsolecence and determining the need for new integrated infrastructures. In such a way we enter into the well-known perverse cycle in which the demand for infrastructures and the availability of areas encrease each other with serious effects on the quality of the region: the new infrastructure calls for new settlement in the sites rendered more accessible, useful and visible. They are implicite evolutions in the development process of the region! It follows that in the current application of the principle of ecosostenibility, we must be wary in order to prevent such situations over time, by preparing the organisation of the region in the phase of regional planning and operating in the planning phase, according to adequate criteria for the prevention and lessening of impacts which are by now known by experts who work in the various sectors.

Regional environments which are particularly destined to undergo such negative actions are above all in zones of urban periphery where natural factors (rivers or mountains) drastically limit spaces available to build infrastructures. In these cases the infrastructures become denser and compete among each other to acquire the best area for their own characteristics.

We can include such situations in the following cathegories:
- areas defined as "hinterland" or "inland";
- "connecting corridors" between urban centers of notable size and relatively close to one another (15 –30 kilometers);
- "corridors" where it is not easy to find alternative routes, outside the strip of available land.

In relation to all these cathegories, the space is "interpreted" as less valuable space, naturally predisposed to receive "uses of the land" (and "not places") which need elevated accessibility, valueless locations outside the city and far from residences. In the course of visits which took place in the COST 10 program similar situations were seen in almost all the cities visited, but in particular in the cases of BAB, between the Atlantic coast and the Pyrennes, at Innsbruck with roads and train tracks present in the valley and in Zurich in the hinterland in respect to the lake front area, especially along the Limmantall.

2.2 The road network as an evolving system

The road system is certainly one of the principal factors guiding the expansion process. It is enough to analyse the historic evolution of the diffusion of settlements on maps of different epochs to see this process. The main roads which radiated from the central metropolitan nucleus were factors of the greatest development of urban expansion in the region.

The introduction of the highway system transferred the main traffic flow from the ordinary historic roads to new autonomous roads which were adequate for new cars and trucks, making way for an evolution of localization parameters. Besides being an attraction for new productive settlements, the new network of wide roads and highways alters the role of local roads. The hierarchic structure of the road system thus acquires an internal differenciation of the structural components which favors a better integration of the road system with the region it serves and, at the same time, better characterizes the role taken by each individual component in the system. This process has great importance in our theme since, if on one hand we find highways and wide roads in the large traffic system, on the level of minor traffic we are seeing the diffusion of pedestrian paths in urban centers of ancient origen, with the formation of pedestrian blocks and, more recently, the formation of green-ways. In other words, spaces destined for movement are more and more often being designed with efficiency, comfort and safety. This offers opportune occasions for the renewal of the urban periphery in relation to the theme of mobility with positive effects on the environment, ecology and use.

With specific reference to automobile traffic, accentuating the principle of hierarchy of the road system results in a specialization of the section and the design of the single -trunk road system. This assumes different structural characteristics according to the different type of traffic it carries: for main extra-urban roads, access roads and level crossings located on different levels at a

distance from one another, wider and safer road sections, straight roads which favor maximum traffic flow are being built; in the minor road network, minor road sections, more flat intersections, simpler types of roads and sections, with direct access to adjacent areas are being maintained.

The capacity of the road network must not be diminished too rapidly in time. For this reason it is necessary to safeguard the characteristics of traffic, especially the main traffic, from expanding urbanization in the new areas it serves. In order to avoid the rapid degradation of traffic capacity on a single stretch of road adequate measures must be taken from the beginning (that is in the urban planning phase or in the project) to contain direct access from properties to local traffic, to contain access of local traffic onto main roads and to safeguard the roads from settlement pressure on the roadsides. This can be done by building away from the road and by forming green strips along main roads where no building is allowed. Otherwise, roads could easily be suffocated with new buildings making it necessary to build more roads in other places. It will be necessary to plan ulterior roadways in new places, with alternative roads to those already existing. This sets up an unwanted process of space consumption, environmental degradation and fragmentation/destruction of the region. This danger is even greater when there is a shortage of land for new roads and when there is a lot of transit traffic, as in the case of mountain valleys and widespread regions with extensive urbanization.

Analogously, recently constructed roads at the city limit can provide a temporary barrier to further expansion. Still, with time, urban expansion will cross over the new road. In such situations it is necessary to plan a road which will be as "permeable" as possible in a transversal direction to permit a convenient relationship between the original urban nucleus, with its many services, and the new urban expansion divided by the new road.

Certainly, the study of viability must be faced on an adequate scale and large scale viability, in particular, must be planned in very large regional areas since, as time goes on, traffic generated by an "exogenous question" of relationships will prevail. By its very nature this cannot be evaluated on a local level because it originates externally and is destined for places where more favorable and satisfying conditions for transfer are verified.

Therefore it is necessary to face the problem on a scale superior to a local scale. Only in this way is it possible to reach a more adequate, convenient solution, since, being a unit, it answers different priorities present in the region. This area corresponds in size to a link in the road network at a level above that being studied.

2.3 Evolution of the concept of accessibility

In this context of rapid evolution many criteria of location have changed; among these in particular, the concept of accessibility has changed, once nearness and the facility of access to the place was important – in particular the factor of accessibility to the nearest urban center.

As has been mentioned, this expectation has changed: the principle pole of attraction is no longer the nearest urban center, but the central nucleus of the metropolitan area, which is always further away and always less accessible. Therefore, the overall speed to travel from one place to another and the entire amount of time needed to complete the trip assume ever greater importance; the availability of parking and the state of traffic congestion become important factors which can no longer be overlooked.

In this way the concept of accessibility makes other sites, on the outskirts but characterized by greater accessibility, more attractive, even if they are far from metropolitan centers (for example, areas near highway intersections).

In other terms, a decentralization from those activities is activated, characterized by an area sufficiently autonomous in respect to the area of influence of the urban center.

This evolution brings about the passage from an essentially mono-centric model focalized on the central historic nucleus, to a poli-centric model, characterized by a diffusion of sites with conditions of accessibility equal to and in alternative to those of the central metropolitan nucleus. Each one of these new centers aims to consolidate and increase its own force of attraction both by offering activities of a higher caliber as well as by offering greater accessibility - greater capacity of the road system, more parking areas at a lower cost and the environmental quality of the site.

The diffusion of the use of individual automobiles has favored, and at the same time, has certainly been favored by the development of similar poli-centric models, especially in comparison with the systems of collective transportation which is less flexible and of slower development. It follows that even in regional functions of particular importance, such as universities and hospitals, may be placed in locations not yet sufficiently served by public transportation, with notable disadvantages for the less advantaged category of public users who need these services.

2.4 The public transport system

The public transport system is always a strategic factor in facing the growing demand for mobility in modern society, having such characteristics (a great capacity for transport with a minor use of space and energy, accompanied by less pollution) as to render it particularly responsive to the more modern principles of environmental support, especially in comparison with private automobiles.

This is valid, above all, since different means of transport (trains, underground, trams, busses) are managed with criteria of reciprocal coordination. In this case we are speaking of "integrated systems of public transport", where each type of transportation is used in situations which fit its characteristics, in an overall picture of reciprocal integration. This evolution was affirmed with the advent of the underground network, which along with the railroads, permits the transportation of people within the most densely built and most highly populated areas.

In this way the railway stations, especially if equipped with points of modular exchange, have become poles of urban relevance since they are characterized by great regional accessibility and by high frequency of use. Thus many railroad stations have become centers of urban gathering with the function of revitalizing areas on the outskirts and requalifying run-down urban areas.

Analogously examples of metropolitan stops designed with particular attention to the architectonic, environmental point of view are more and more frequent, in order to be factors of requalification in marginal areas of the metropolis. The underground stations corresponding to poles on the urban periphery are particularly significant. Because of this service they receive a higher contribution in terms of accessibility, or near "corresponding parking lots", destined to favor the exchange of automobiles for trains in external traffic going to the urban center, stopping on the edge of the city and containing traffic congestion in the urban area. Among the many forms of integration between different means of public transport the connection of the railroad between the city and the airport should be particularly mentioned.

It can certainly be confirmed that public transport has reacted energetically to the challenge of the evolution of urban reality in recent decades. Yet the quota of mass transport remains below the level, in a macroscopic way, which would make the advantage of a metropolitan environment with a particularly efficient public transport system evident.

It is certain that the system of public transport makes a difference in the distribution of the population, especially in outlying areas. In Lombardy, in the period 1951/71 annual tax increases of the building patrimony in towns with railway stations were significantly greater than in the towns without a station. In the 1970s the tendency was inverted and remained that way until the 1990s[1]. That wouldn't necessarily mean that trains would be abandoned because it was possible to reach the next station by car, if accessibility to the trains and the quality of service offered were really competitive and alternative to the same trip taken in one's own car.

At any rate public transport has lost a good share of the market in favor of private transportation. This tendency can only be partly blamed on the policies of the sector since, as seen above, the new ways of settlement lead more and more to situations which no longer respond to the characteristics of the integrated public transport system, especially in outlying areas.

Certainly the two phenomena of urban development indicate a need for a more direct relationship between the public transport system and the settlement structure:
- the diffusion of the population and the activities in the region following the diffusion of building density less than that which took place in the 1960s and which placed new settlements far from stations on a par with other conditions,
- the dispersion of interventions in the region, generated by the expansive model of few, uncoordinated episodes, with ample empty obstructed spaces, situations which favor the use of private cars even for short, banal trips.

Outside of central metropolitan areas the minimal conditions needed for an efficient transport system were generally lacking. Viceversa, often the programs to improve traffic - above all on

the outskirts - were themselves responsible for offering easy answers to the demand for mobility by taking away the motivation for the development of public transport in the area thereby increasing the use of private cars.

2.5 Final considerations on dynamics of infrastructures.

If it is true that development can and must improve the positive aspects and minimize the negative ones in a region and its evolution, this assumption also applies to the periphery of large cities. In fact, these areas generally are found to be extremely weak when faced with strong exogenous pressures of unstoppable evolution, above all minor communities which lack the necessary means to defend their own interests and to improve their own region. Besides, these areas, because they are marginal, have lost their own identity and find it difficult to resist the tendency to become degraded or are able to act only over a long period of time. In the meantime new interventions continue with little attention to the region involved. Often it means operating to reduce the negative aspects of these interventions as much as possible. Too often they are not evaluated as being dangerous because they refer to instances inserted in marginal areas on the outskirts of the town.

This is especially true in the case of planning the regional infrastructures which are built in the in-between areas - undeveloped areas on the margines of urban areas. In this way, the impact of the infrastructure system (which perhaps doesn't even serve but only crosses the region eg.: highways) determines numerous elements of environmental, landscape, and functional degradation, thereby destroying the last elements of natural areas which have survived pervasive urban expansion[2].

We are referring in particular to safeguarding the quality of the region and to its functional continuity. This means, in the first place, containing as far as possible the barrier effect which such infrastructures can determine by dividing the region into sections which lack communication with each other, with serious consequences to local accessibility, the certain end to agricultural activities, and the consequent degradation of the use of the area and even the gradual suffocation of the natural patrimony, which is nourished by the continuity of relationships with green spaces in outlying areas.

The loss of environmental quality will be a negative influence in the future even on future destinations of area use, accentuating even more the "periphery" effect in the process of expansion of urbanization. This effect can already be seen in the presence of traffic which travels on the highways, generating a visual, phonetic and atmospheric impact.

Secondly, this means setting up a better relationship between transport infrastructures and the surrounding region, so that the latter is effectively served and not just crossed and disturbed by traffic. This could be done by introducing those measures which permit the infrastructure to

keep its own traffic capacity, facing over a period of time the increase of traffic brought about by the development of activities in the areas it serves. To this end it is essential that local traffic produced or brought about because of activities growing up around the new infrastructure does not interfere with the traffic flow along the principal artery.

It is important to reflect upon the fact that, in the measure that elements disturbing to the main traffic flow are introduced, premises to lower the level of accessibility to the single activity served by the infrastructure are presented. As a consequence, a minor quality of the site and a minor income from one's own activity are brought about by this negative retroactive process which is destined to end with the accentuation of the phenomena of congestion, ecologic pollution, environmental degradation and a recession of the activities being carried on. Only with a correct plan of preventive actions, assumed over a long-term period, can it be possible to avoid such unwanted and degenerative phenomena which happen gradually, barely discernable in the beginning, which are difficult to oppose and to absorbe in advanced fase of the process.

Notes

1 Region of Lombardy, D.G. Urban Planning, General placement lines in the Region of Lombardy, vol. 1, February 2000, page 69

2 For an example you are referred to the report written by the author on "BAB case study", 2nd Management Committee Meeting, Biarritz (F) in June 2000, as part of the COST Action C10 program: Outskirts of European Cities.

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A SYSTEM-THEORETICAL APPROACH TO URBAN PLANNING

Eckard Wolf

Studio for architecture and environmental planning, Potsdam, Germany; eck-wolf@t-online.de

Abstract

The conventional descriptions and strategies of recent urban developments are no longer effective. So the following is a proposal for simulation, on a system-theoretical background, as another instrument for professional acting, and an urban professional service for all that are involved in that process.

Keywords

Simulation, self-organisation, self-similarity, sustainability, system-theory, synergetic, complexity, autopoiesis, feed-back.

1 Introduction

The evolution of the urban fabric has a lot of causes. Modern urban agglomerations evolve characteristics from their specific history. In sight of modern urban planning problems, one cannot say that the structural results mainly depend upon planning. Specifically economic, technical, and demographic change, and its high speed, make conventional planning unnecessary faster than it could get implemented. Strategies of conventional planning now is defeated by complexity and the processes going on.

Given this issue, urban planning should not be so much about predicting the urban world to come, as about previewing and producing it. Many projects could be near completion, even when they are speculatively planned and designed, when they are based on current ideas and existing technologies. Complexity is the central element, which is to be overcome. To run the system is the fastest, shortest, and the only reliable method, to make out emergent structures. But this is in the real city. Therefore, a procedure is sought, which represents the real structure, produces the needs out of this, shows the possibilities of change, and integrates it. Thus, ways of building models of urban agglomerations are sought, open and flexible as a real city, which are able to use the recent changes circularly to reproduce the system.

2 Simulation instead of planning?

2.1 Aspects of theory and urban planning technique

Not only because complexity was discovered as a new scientific paradigm planning tasks will get more complex. The systematic approach to growing complexity[1] will be a basic part of our future methods (Sieverts 1999, p182). Not only since the urban design principles of the car-related city of the 1950s and 1960s failed, the linear – cause and effect – strategies fell into disrepute.

The dynamic of the general, and specifically the urban, development will be boosted by the technical and economic input getting faster and faster. The scale and speed of building realisation will let the time horizon of planning look hopeless out of date. If one does not want just to watch and analyse what happened in retrospect, one has to find new instruments of managing the dynamic development, able to match its complexity and speed. For example, a German zoning ordinance could set up a description of a process instead of a description of a conclusion.

In this, the cognitive dissonance of the observer – professional or not – plays a role. This means that the difference between the lethargy of the existing structures and a model of the future will not be perceived.

Aspects of relevance for diminishing this lack could be:
- Changing the point of view and valuation: It becomes more and more clear that modern urban structures should be observed in another way as it is done conventionally. This, however, does not mean giving up the autonomy of aesthetic approaches.
- Studying and describing dynamics, which means to lean analytic and synthetic measures on real processes.
- Developing new models of participation of everybody involved. This is finally a question of how urban competence may support the urban development in general, and in singular projects.

Coupled to this, the discussion about the sustainability of urban development makes new strategies necessary too. It suggests the importance of connecting self-organisation and self-similarity of urban structures.

2.2 Questions to the COST C 10 Case studies

The COST-action sampled a very different assemblage of metropolitan examples. Learning from other cities is a question of analysing similarities and differences. Comparing cases from a professional point of view seems to be questionable on a certain level of abstraction. A city is a city – this idea is not new. But why are urban strategies based upon experience and comparison less successful than we imagine? Are the real differences stronger than the abstract similarities? Are the specific demands of site and participants not fulfilled? The distances between Belfast and Berlin, Cergy and Nicosia, between similarities and differences are not only cultural. Nevertheless, in all cases the failure to overcome the complexity of the situation seems to be decisive.

Borders

Cities were made of material, by technique, and of ideas. These three elements give the mixture for each specific situation. The iron curtain in Berlin, which divided two kinds of urban conglomerations, has been removed. A new unity seemed to arise. But did the border between the two cities really disappear? Did the urban structure of one city influence the other? Before the wall was pulled down? Today?

In Belfast, borders seem to be permeable. While in Berlin two administrations ran the business of urban planning before unification, in Belfast this activity is in one hand. Is the city, then, integrated, or does this permeable division produce cities inside the city depending on cultural, or religious, views?

Is suburbanisation of Nicosia following urban growth? Or is this a result of the division of Nicosia, which otherwise never had have grown at this speed? The urban structure of Nicosia seems to be a result of a volcanic explosion. From the dense inner city, elements of every-day-life were ejected out into the outskirts. There are often singular, wall-protected private "castles" in areas with no infrastructure. Is this grounded in cultural ideas, or is it the result of a political trauma?

Centres

The centre of Cergy-Pontoise surrounds a Metro-Station. Regularly the tunnel spits out and sucks in huge amounts of people. In a small area, there is a lively business world. The border where this liveliness turns into the lethargy of a sleeping city is very close. Therefore, it is hardly to believe that this activity corresponds to the central function of a new city.

Hellersdorf in Berlin has everything of what is needed on an every day basis – even a central place. Among the East-German satellite communities and prefabricated estates, Hellersdorf seems to be a successful one. The shrinking population rates are less then elsewhere. But the optimistic development process after reunification came abruptly to standstill. The architecture of the center is unfinished. The district authority fights for stock-holdings and new settlements. So what is missing?

Outside Copenhagen, in Høije-Taastrup, in one of the fingers, a new centre was built to strengthen the development of the finger-plan. Urban planners and developers started to build a picturesque ensemble of romantic facades in the vicinity of the station. But there are empty places, hardly occupied restaurants, small shops, which are still unused, surrounding a lot of space, waiting for inhabitants. Again, the Metro station is the liveliest urban element.

Development

The most expensive housing in Nicosia is found in a district at the buffer-zone. There, modern and expensive villas were built directly at the border. Is this speculation or for real needs?

Nicosia could fill the total area which is foreseen for urban development – with about ten times as many inhabitants as today.

In the last ten years, in Berlin they reduced a lot of golf course projects, shopping centres, and planned wellness institutions in the outskirts, the so called Speckgürtel. The official prognosis of the general development was optimistic. The individual prognosis should have been utopian.

Teltow-Fläming is a district south of Berlin and with the greatest economic growth in Germany. On the other hand Teltow, which is a direct neighbour to Berlin, has a lot of empty business space, unused commercial building plots and infrastructure, and un-built housing areas. About 30 km east, Ludwigsfelde booms. It is an ugly municipality, divided by the autobahn-ring around Berlin, but nevertheless a developing industrial location.

In Copenhagen the rural settlements along the north-western fringes of Sealand, seems to be totally independent from the metropolitan development. Decentral economic dynamics do not fit into the idea of the finger-plan.

Instruments and strategies of urban planning should integrate a number of aspects, as could be seen from these examples:

The aspect of production refers to the results of measures and events. How do they get visible, and how do we answer them (for example an economic dynamic, not existing in the area of planning, but influencing it) ?

The aspect of regulation and control, orientated to the urban image. How do we integrate changes in this (for example if growth breaks down in Hellersdorf)?

The aspect of speed shows the limits of time or produces power to action (action possibilities of developers versus lethargy of public decision making processes).

Conditions of frames change in a controlled and in a chaotic way. Both are reality for urban planning.

The aspect of participation shows the real participation by the way of understanding the whole, or a situation, by interest or power of action, and by practices of realisation.

Finally. the aspect of relation, derived from participation, which defines areas of action and of interest. And it defines the network of these aspects, too.

This is an analytic, or a strategy, a bounding, or protecting, network of questions, relationships, and decisions, for urban planning. It depends on the point of view. The dynamic of mutual interdependence, and of shared consequences, make planning a never-ending process. Fitting to this are planning instruments, as a dynamic planning basis, and strategies as an open decision basis.

2.3 Development aspects of regional science?

Sustainability gets broad attention in regional science research in Germany today. The idea of a sustainable city overlays other ideas; it turns out as the general idea for rating city development as such. Since the 1990s, a number of authors are working on a synthesis of ecology end economy and on a corresponding strategic idea of sustainability[2]. As presuppositions, theoretical ideas, coming from the so called complexity sciences, play a role. Self-organisation and self-similarity are basic ideas here. But the theoretical approaches diverge on action-theoretical, system-theoretical, and synergetic concepts.

With the synergetic idea of operators, one believes. for example, to have a clear idea of the relationship of individual action, on a micro level, to the structural implications and results of action on a macro level. Another system-theoretical approach starts from the existing structures on

the macro level and explains how structures function on the micro level, basing this on specific demands such as housing, work, leisure, and mobility.

Obviously, the theoretical presuppositions are not yet subtly differentiated. On one side there are operational ideas, to initiate economic, ecological or social processes based on sustainable and correct costs. Another idea is to use technical innovation, transportation, production, information, communication, raw materials strategically to influence spatial structures.

On the other hand, facing ideas of urban structure, there seems to be no consequences. This is to be seen in the way of deriving the principle of self-organisation as an ideal image of the decentralised concentration on the level of regional development. This image should realise the principles of self-organisation and guarantee a sustainable development because it guarantees a use mixture on all levels of the spatial development, as it does with the concept of the compact City (Arlt 2001, p 25) This means qualitatively the similar spreading of functions in the area on all levels. Through the back-door, then, comes up an old urban design idea via self-similarity. Self-similarity is seen as an ideal expression of the sustainability of urban structure, and it is proposed as an instrument of order (Arlt 1999, pp 121-123). This implies questions to adapt system-theoretical approaches.

2.4 System-theoretical aspects

In the introduction, we said, planning is not necessarily a cause of the emerging urban structure. But planning participates in the evolving process. This means that when making statements on a city, how it is, or shall become, you get part of it. Therefor it is interesting to focus system-theoretically on our way of observation and valuation. For Maturana there is a problem of observing reality (Maturana 1998). Reality is constructed as a consensual action space by our human interactions. Language is such a consensual action space. Terms are constructions out of the consensual linguistic interaction.

You can imagine, how the point of view influence the result of reality construction. In the cities of this COST-action, this is to be seen as cultural differences. The construction of meaning, and the making sense, of a foreign urban fabric may not have been successful at all. Something similar, however, also exists inside a coherent cultural space. The problem of constructing meaning and sense is crucial in the development of urban strategies. So we have to understand every day action as a participation in the construction of the urban environment. This is not a statistic matter, but a feed-back-element of the urban autopoiesis as a consensual effect of interactions (Arlt 2001), as an interaction on different levels of participation in systems, or partial systems. An example is the often predicted collapse of transportation, which did not happen. This was the result of a self-regulation-process rather than prevented by transport planning efforts (Brüggemann 1999, pp 169-170).

Between professional strategies and the every day participation there sometimes exists a big lack. This is not only a question of analysing needs clearly and completely, and to realise the strategies successfully. Because the urban reality is an every day construction, this is first of all a communication problem. A central thesis of Watzlawick (1969) is that it is not possible not to communicate. In planning this means, first, that there is no planning action which do not have any results on those who are concerned. This we normally aim with all planning. But, second, this situation, which once was the starting position, changes even if this is not meant to be the case by the action. This can lead to the aim being lost, if the feed-back-results of such changes have not been calculated.

Sociology and urban planning has something in common. We now will look on this since one of the most developed system-theories is to be found in the sociology of Luhmann. The basic concepts and principles of Luhmann's theory of self-referring systems are (Luhmann, 1984, pp. 34-70)[3]:

- Difference of system and environment – systems are structurally orientated to environments and cannot exist without them.
- From this the differentiation of the system as a difference between unit and parts is compulsorily derived. System differentiation repeats the creation of system inside a system.
- This creates deep consequences for our understanding of causality. The borderline between environment and system cuts causal connections and the question is under which point of view.
- Difference of element and relation – both differences (system-environment-difference too) are a unit and works as a difference.
- Conditioning: a system is not simply the relations between elements. The relationship has to be ruled some way. Such conditioning may be constraints.
- Complexity is linked to the element-relation-difference: A connected number of elements is called complex, if it is not possible to connect each element each time to each other from immanent constraints of link capacity of the elements themselves.
- Systems have limits. These limits divides elements, not necessarily relations; they divide events, but let cause effects pass.
- The term system has to be distinguishable from the term complexity. Therefore, we would avoid a tautological system-environment-relation. Thus, there is complexity which is not a system.
- Self-reference means the unity, which an element, a process, a system, is for itself – this means there are systems, the descriptions of which through other systems will lead to undecidable logical contradictions.
- Multiple constitution, or double contingency – this is a necessity for at least two complexes with divergent perspectives to condition what works as unity in the system.
- On the operative level, processes happen only between elements of adequate similarity.
- Given a self-referential system relationship, there is possibly a huge spreading of limits of structural adaptation ability and of adequate range of inner system communication.

Finally, we can say, the city is a system evolving with self-reference. This means that the city constitutes its elements and its elementary operations referring to itself, out of its existing elements and running elementary operations. To do this, systems must be able to set up and use descriptions of itself. They must be able to use the system-environment-difference inside the system as orientation and as principles for the creation of information. In other words, the system must have a consciousness of itself, which assimilates influences from the environment as causes of its action and realises the feed-back-consequences of its action. Conventional urban planning has a function of self-perception, such as need, or development analysis. Normally data are concentrated on what is in sight of the planning questions. This is a problem of self-consciousness, of being an incomplete representation. Related to this and the lethargy of public planning processes, another problem is to integrate the feed-back of its strategies. If there exists only one data base, relying on what was to be seen from the position of planning, it is clear that in principle the unforeseen results of the action cannot arise. But they could, in practice; we do know that they exist, and there are also possibilities to integrate necessary knowledge.

2.5 What has this to do with outskirts? The city as an urban system?

What kind of system is a city? Does the material structure represent city or is this the city? Is a city a social system? What means the material structure for the social system of the city?

To follow this question we have first to observe the system-environment-difference. The specific problems of environment first asks for a visible system: which internal structure is functional to what purpose and what are the chances of stabilisation and of change (Willke 1993, p56)? This could possibly mean, first, to investigate the material elements and all other biological and social partial systems. A cluster of buildings, streets, and so on cannot be aware of itself and cannot reproduce itself. It is doubtful, if the material elements define what means by an urban system. A city therefore would be a society which reproduces structures as their consensual and material action space with interaction (Luhmann 1984, p. 558). But how to integrate the material structures? Are they only material elements to secure basic demands? Or do they make easier efforts out of the interaction constraints of society? (Luhmann 1984, p. 581)

How do we understand, when a wall surrounded city with 5 000 or 10 000 inhabitants is known as a city and not an urban settlement, as it is in the American outskirts with more than 100.000 inhabitants? Is there in a case something that sets up social system interaction and not in another? Is this an explanation of the necessity of urban elements, which the inhabitants could identify with (La Grande Axe in Cergy-Pontoise), even if it has no every day relevance? When is a city a city independent of its size? If there would be nothing more than dwellings there?

This is why the usual terms of urban and rural becomes obsolete. Points of view, and ways of observation, not matters could make the city.

Outskirts?

There is a broad judgement on outskirts structures, which declares these in the metropolitan relation as inferior. On the other hand, since years, there are different initial attempts to detect new qualities in this[4]. There is at least a new criterion of development (sustainability), which leads to new assessments of new urban structures. How the two competing models of compact city against urban carpet will be seen in the long run we may not be able to determine in advance.

Based on this discussion we could try to explain:

First attempt: In relation to the development of systems in time, and their structures, Luhmann talks about the inner entropy as a differentiation feature. This is connected to complexity – it counts how many elements and relations that are possible, and how new elements and relations fit in without constraints. Therefore, the entropic measure of time will be defined, which is needed to come to a decision about what kind of element or relation is to count. The alternatives between the two city models features a characteristic of the outskirts, making it attractive for new settlements. There are relatively more possibilities seen for different ideas in the outskirts than in the compact city.

Second attempt: This is perhaps a question of observation. Outskirts structures are different in its complexity relative to other urban structures. But clear is only the amount of structural environmental conditions to be integrated with planning. The amount of these conditions seem to grow together with the density of urban structures. If this is parallel with an increase of complexity is not easy to determine. It seems to depend on how the situation is to be seen. So competent authors try to improve the complexity of outskirts structures, which we should meet with planning sensibility. But from the point of view of daily use the complexity seems to shrink, while the decision possibilities increase in the relevant range of the user.

It could be an interesting effect of a simulation instrument, to try this comparison, when the same task is investigated under the possibilities, implications and constraints of the outskirts and the compact city.

The term city, whatever it means, implies something that could be identified in a relationship of system and environment. But the question, if structures as the outskirts are systems or partial systems could be unnecessary. An urban carpet with a special size and several absences in special order, we could understand as a cluster, which altogether would create a totally different structure than what we call the city[5].

3 Simulation – an instrument of planning and observation?

With the following discussion we leave the theoretical level for more practical speculations. We ask, with Dörner (1989), what is a system? A system is at its simplest, for example, a net of variables, connected each to each. In relation to our strategies we follow some of his implementations.

Our initial position related to the theoretical discussion may give our initial hypothesis:
- There is no superposition of a planner's observation. The concepts found out of our supposed position are always a contribution to the production of city. When the planner intervenes, he becomes a part of the autopoietic dynamic of the urban system.
- Expressed philosophically: there are no more solid structures, but only adjustments (Welsch, 1993, p. 59).
- What has to be said about the observer position, is also to be said about an observing instrument. The specific character of the instrument will be part of the construction process. Today, this is to be seen in the way statistic instruments are used to cut out pieces of reality.

The following tries to set up rules, or steps, or filters, of a program, imagined by the author as an instrument of observation for dynamic events, following a task, which intervene in, or complete, an urban structure. At the same time the instrument should be a planning instrument, because the simulation effect describes a situation, which is agreed upon by a lot of participants (interactive planning). The result is probably the best proposal possible, and implementable, under the given situation.

To set up context

Contextual dependency means that there are existing, less general, condition-free action rules (Dörner 1989, p. 140). Planners are used to that. We talk about setting up a relation-based model of context. A suggestion, thus Maturana (1998, p. 260), would make necessary the following features:
- An initial structure, in which the non-living systems, their implications and constraints are modelled;
- a structural disposition to recurring interaction; this implies relational demands, as well as implications and constraints;
- structural plasticity; the definition of possibilities of adaptation in the context model as an effect following of interaction.

For the task, this is first of all the environment, in which the new system should be implemented. During the simulation, the borderline may move. This should be a request to the simulation system.

To define the scale

To define the scale, the relational aspects are relevant. This means, neither data, nor information, or structure, defines the scale on which we observe. The choice and characteristic of data, and the performance of the structure, will be defined by relational aspects. For example, to plan a single-family-house, it is not necessary to understand planning at the district level, if there is no change visible. A building employer may be interesting in this planning level, when the area get influenced for example by an airport development. Then, to find out the adequate use of land, it will not be enough to look at the site on the micro-level.

To define the observer

Observation (=planning) has a cause, a starting point, a target, an extension, and first of all effects for the surrounding area, which are defined in relation to the observer. How basically the observer may be a part of the process, is to be seen at the elaborations of the 1950s and the 1960'a, when German cities were in the hands of the transportation planners. The one-dimensional optimisation were suffering in themselves. More interesting are the following questions coming out of the over formed individual actions, of which transportation is a basic need. Their fulfilling depends on what could be reached with acceleration and equalising of transportation.

Another practical question of the effects of the observer function discussed is related to a survey. To lay out this lively we set up a prejudice: Living in Märkisches Viertel is not attractive[6]. If I want to understand the contentment of the inhabitants by questioning, and I want to use the result as statistic data in my model, so I consider that the questioned inhabitants do not have an alternative to their living situation. So you get probably only relevant answers in details of the surrounding living field. You hardly may find out if this settlement is attractive to live in, or not.

According to Dörner, you should avoid a centralistic and reductive creation of hypothesis, be aware of tendencies of development during which a process is running, and observe yourself for control purpose of the initial conditions, the action, and the target orientation.

You can describe research experiences as observer problems. There the questions of science borderlines, the institutionally grounded borders of social organisation of science and the lack of self-reflectivity, are known.(Bergmann 1999, pp. 273-274)

Method

Until now, a simulation system could be a given area, existing as data and parts of programs, which will get permanently actualised, as a general model of a city, or a district (something like an electronic and three-dimensional German Zoning Plan). As discussed above, the question of scale should be related flexibly to the task. Relations to effective elements and systems, which are not visible in the simulation, should be manageable.

Among dynamic matters, there are first of all relations and relations of relations (networks). Even questions of this would be decidable in short time, so their characteristics would change permanently, following each change of the urban state. Decidable these questions are, then, when we find their feed-back-mechanisms, which is the real dynamic.

Lastly, a discussion which relies on the cognitive authority of the systems dynamic. That there will be a semantic level, a cognitive authority, is to be assumed. In other words, a landscape, a natural and cultural space, first get their meaning and function out of human interest. They become to humans what they should be through cognitive observation. And this means, the construction of observation first makes elements, and relations to them, what they are. Beneath the relevance of the observer, also the role of the planner as a dynamic element of urban development is enlightened. In this case, not as a filter of an observation, but as a dynamic element of construction.

Therefore some questions in this respect: what do we do, when we are planning?
- The method of muddling through, we exclude from this discussion.
- Is this representation, while public planning institutions, as well as the private planning engineers, represent the structural and dynamic unit, in some sense as a brain and a nerve-net do represent the biological and psychological changes in the human body towards organic growth? This could be an explanation for the disregard of outskirts structures. The representation argues to maintain a specific state, and looks for adaptation to it.
- Is it a construction in the sense of constructivism? A declaration of intent, how the city has to be? The dynamic will follow an idealistic idea.
- Is it a prediction? An hypothesis state, which will be reached sometime, based on an observation? The COST-action may be like this, trying to improve the hypothesis. With this we move closer to the idea to connect what we want to do to a reality we have to observe.
- At least, the model remains. I do my final plea for a dynamic simulation instrument, in which we are able to follow developments and produce developments in time.

Prognosis – target

These two fix the schedule, the prediction, the wishes, the intention, and so on. What is realised at least depends on how good we program, what we know about the task, the needs, and the intentions and their representations in the process of circular feedback. At least this is the task.

Process

The process is what is to be observed by simulation: the changes of given structures; the effects of the design attempts of relations and elements, which influence the area, and themselves.

It could make sense, to take the process into small controllable steps, in this way:
- Neutral A: to leave the situation as it is to analyse – observation situation.
- First gear: to find points of small corrections.
- Second gear: to stabilise and to bring out grounds.
- Third gear: to integrate a concept, which is characterised with relationship to the neutral position.
- Neutral B: to summarise – observation position again.

Then go back to the 1st gear. In the following course at the 3rd gear, there will be integrated a modified model of the concept, which differs in specific and fixed points, so that you may go back to earlier gears from some later situations. The neutral and the gear steps are conditions as they are in a car. Neutral means the machine is running, but not the car. With a gear the machine runs the car.

In its totality, I see such a process as a multilateral interaction with the participation of all who are interested including a comprehensible representation of all positions and movements.

Feed-back-loop

There is already a feed-back-loop in our process, which deals with the feedback of the task. Such a loop has to exist on the level on which the framework and installation of the program will be changed. The context model has to be able to change, because the relation demands change its structure. The scale may change, because the level of observation should be changed in sight of the relevant relation. The observer changes himself for winning more information; method and prognosis will get modified, the whole process gets modified. And all starts from the beginning ad infinitum.

4 Conclusion

Never was urban evolution as fast as today. The influence of evolving systems such as telecommunication or internet are not predictable yet. They will bring us changes in urban technologies and urban life. Until today we don't use available technical skills to manage these problems – skills, which are made to manage huge amounts of data, simulate complex situations, and visualise invisible dynamic in reality. A lot of aspects could be covered by a fast, dynamic, and open instrument of electronic planning.

Notes

1 In connection with this, the shrinking processes in East-German cities may be judged as a growing complexity.

2 Such authors are collected in Stadtökologie 4 and 6 as well as in Selbstorganisation, year-book 9

3 This is a summary of chapter 1: system and function

4 In Germany Zwischenstadt (Sieverts), in Swiss Glattalstadt

5 See e.g. Ruhrgebiet and activities of IBA Emscher Park

6 The Märkische Viertel is a big housing estate of the 70th in the former outskirts of Western-Berlin

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What is COST

Founded in 1971, COST is an intergovernmental framework for European Co-operation in the field of Scientific and Technical Research, allowing the co-ordination of *nationally funded* research on a European level. COST Actions cover basic and pre-competitive research as well as activities of public utility.

The goal of COST is to ensure that Europe holds a strong position in the field of scientific and technical research for peaceful purposes, by increasing European co-operation and interaction in this field.

COST has clearly shown its strength in non-competitive research, in pre-normative co-operation and in solving environmental and cross-border problems and problems of public utility. It has been successfully used to maximise European synergy and added value in research co-operation and it is a useful tool to further European integration, in particular concerning Central and Eastern European countries.

Ease of access for institutions from non-member countries also makes COST a very interesting and successful tool for tackling topics of a *truly global nature.*

To emphasise that the initiative came from the scientists and technical experts themselves and from those with a direct interest in furthering international collaboration, the founding fathers of COST opted for a *flexible* and *pragmatic* approach. COST activities have in the past paved the way for Community activities and its flexibility allows COST Actions to be used as a testing and exploratory field for emerging topics.

The member countries participate on an "à la carte" principle and activities are launched on a "bottom-up" approach. One of its main features is its built-in flexibility. This concept clearly meets a *growing demand* and in addition, it *complements* the Community programmes.

COST has a geographical scope beyond the EU and most of the Central and Eastern European countries are members. COST also welcomes the participation of interested institutions from non-COST member states without any geographical restriction.

COST has developed into one of the largest frameworks for research co-operation in Europe and is a valuable mechanism co-ordinating national research activities in Europe. Today it has almost 200 Actions and involves nearly 30,000 scientists from 35 member countries* and almost 50 participating institutions from 11 non-member countries and Non Governmental Organisations.

* 34 European member states:

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, FYR of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Norway, Poland, Portugal, Romania, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom.

\+ 1 Co-operating State: *Israel*

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