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**Background Report**

**A strategy for the improvement of the Urban  
Environment:  
problems and methodological perspectives**

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# A strategy for the improvement of the Urban Environment: problems and methodological perspectives

## 1. Degradation of the Urban Environment

It is without a doubt that environmental degradation, and in particular that of the urban environment - of cities and towns, has become one of the most serious problems of European urban citizens (the «urbanites») who represent- one can say with the help of certain statistics at hand - 80% of the European population.

It is difficult to state with certainty whether the seriousness of such a problem derives more from the *absolute increase in the level of degradation* of the urban environment with respect to other periods of recent urban history, or from the *relative decrease in the level of "other" problems* (for example, of income, of consumption, of welfare and well-being in general) which have found a certain relief, allowing, therefore, the environmental problem to emerge. It is a fact, however, that the degradation of the urban environment has become a dominant factor in the social, and therefore also political, malaise of our times (as is, moreover, largely evidenced by numerous opinion polls, amongst which some conducted by the EC itself)<sup>1</sup>.

It is not unuseful to evoke here rather briefly that this malaise in relation to urban environment degradation poses itself for attention under diverse, complex, points of view:

- from the point of view of the *different factors* that provoke it;
- in relation to the *different types of cities* in which it is produced;
- and in relation to the *different "stages" of the urbanization process*.

Here, in fact, the very same concept of the "urban environment" (which we will abbreviate as UE from this point on) referred to is in question: nonetheless we will not discuss this *per se* on this occasion, but we will treat it indirectly, examining environmental degradation from the three points of view indicated above.

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<sup>1</sup>According to a survey promoted by the EC Commission in 1983, in all the member states of the time, the index of "sensitivity" to malaise relative to the six factors selected in the context of daily life (the closest to the familiar urban reality of everyone), ie: "purity of drinking water"; "noise", "air pollution"; "lack of access to green spaces"; "disappearance of good agricultural land"; "degradation of the landscape", - the latter factor is that which is recorded relatively with the highest index in the average of the countries involved in the survey; and then noise, air pollution, and so on (see the publication *Les europeens et leur environnement* EC, Bruxelles, 1983).

### ***1.1. From the Point of View of its Factors (or Causes)***

We propose to classify together the numerous factors of UE degradation, roughly in five principal categories: a) physical pollution; b) congestion of urban traffic; c) congestion of activities and paralysis of functions; d) disappearance of the "urban landscape"; e) breakdown of human communication or "social segregation".

#### **a. Physical Pollution**

*Physical pollution* of cities is certainly the most serious factor<sup>2</sup>, above all for its effects on the physical health of citizens. It appears in its aspects of *atmospheric pollution*, of *water pollution*, and of *waste pollution* (liquids and solids).

Amongst all the environmental pollutions that are found in cities (air, water and soil) the most widespread, the most serious and even the most insidious is atmospheric pollution. In Western cities, at least, where polluting emissions into water and soil are generally controlled by works of adduction and drainage, even if insufficient, atmospheric pollution is today definitely the most harmful to the health of urban dwellers.

The atmosphere of urban areas is already notoriously considered as being subject to a meteorology *worse* than that found in non-urban areas: a lower level of sunshine (calculated at 20%); a great variability of temperature (1-1,5 centigrade on average, 15-20 in Summer); low levels of atmospheric precipitation ( 15% ); heavy clouding ( 100% in Winter) ; a high level of relative humidity (5% on average); a slow wind speed (20-30% yearly average) etc. All of this is due to the different distribution and restoration of heat. It is well known precisely that urban activities, in particular urban heating and automobile traffic, form a "heat column", that is not easily distributed and which constitutes a hot air bubble also called a "thermal island", which represents an important factor in pollution concentration. The suspended materials (called a "dust dome") that are formed, and whose night-time humidity favours the condensation of mist on the suspended particles which, before being able to dilute and disperse fall back on the city restoring the pollution produced by the latter<sup>3</sup>.

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<sup>2</sup> Even if - judging by the EC Survey just mentioned - physical pollution is not at the top any more of the sensitivity index of the average of the European citizens surveyed, but only in third place. Evidently the urban landscape and noise are considered more serious problems in European cities; or at least problems against which policies are in use which are more effective than those against atmospheric or water pollution. Probably the "urban landscape" - as a factor of degradation - includes also the sensitivity for problems of urban traffic (not otherwise indicated among the factors selected) but seen only in its aspects of atmospheric pollution.

<sup>3</sup> Further information can be found in a type of technical literature that is not very accessible, and not very useable for overall evaluation. A limitless source is represented by some works of L. Mammarella (1976 and 1978), of the University of Rome, and President of the "Italian Association for Environmental Hygiene". For a general picture of the problems of the impact of atmospheric

It is well known that the main sources of urban atmospheric pollution are: a) *domestic heating*; b) *vehicular traffic*, with combustion engines; c) *industrial plant*. It is above all on these three fronts that urban atmospheric pollution must be fought, using diverse and complex means. This does not mean that amongst the factors of atmospheric pollution often *noise* and *bad smells* are not of great importance: the first are above all a result of vehicular traffic, the second a result of the location of industry, especially of chemical plants<sup>4</sup>.

Atmospheric contamination, even if the most harmful, as has been said, today goes alongside other emergencies of water pollution and urban waste. In spite of the infrastructure that exists everywhere for these purposes, the absolute and concentrated amount of liquid and solid waste of the city has become such that a sufficient absorption capacity can no longer be found in this infrastructure and in the urban space that it occupies. The same non-urban spaces, in which such waste materials have until now been absorbed, are becoming all the more insufficient. Also because the (peri) urban space has extended, both as a material extension of buildings set up and inhabited, and also for the inclusion in the latter, with the aim of gaining urban access, of many non-urban or green areas, previously rarely frequented, if at all, and today often frequented as a result of the increase in spare time activities that were previously unknown and not practised. Even these green spaces, once considered "rural" or "countryside", are today saturated by urban pollution. Therefore, besides the atmospheric pollution problem, there is also the pressing emergency of water and soil pollution as a result of emissions and urban waste.

An emergency which calls for the research of an *ecological equilibrium at a correct territorial level for the city*, in a space which is precisely urban (even if the concept of urban will have to be redefined precisely to take into account this essential ecological equilibrium)<sup>5</sup>.

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pollution, we recommend a vast essay, which is almost a book, by Gary S. Samuelsen in the collective work edited by J. G. Rau and D. C. Wooten (1980), and a collection of essays edited by Carpenter and Sani (1983).

<sup>4</sup> This is not the occasion to confront what policies, and what "battles" must be faced on these various "fronts"; besides the already mentioned work by Samuelsen, see, for the specific problems of acoustic pollution, a work from the OECD (1971a) and an exhaustive essay by Mestre and Wooten (1980). And for pollution caused by automobile emissions, see the OECD study (1986) in the framework of the "Compass" project. See also Part IV of the OECD study *Transport and the Environment* of 1988, dedicated to the "assessment of technical changes to reduce air pollution and noise emissions from motor vehicles".

<sup>5</sup> A good review of the conditions of contemporary urban malaise, and of the ways, on the basis of which, it can be measured (measuring thus the "quality of the Urban Environment") is the now classic work by the late lamented Harvey S. Perloff from 1969. Here in Table 1 we reproduce, the extremely "comprehensive" "picture" of the various "elements" making up the UE, and of the various indicators for assessing its costs and benefits. In Table 2 is reproduced another table on the *policy measures* - and the possible *actors* of such measures - to manage and improve the UE as classified by Perloff. This table was elaborated by Richard J. and Beverly F. Frankel and published as an appendix to Perloff's work. Important schemes of *Urban Quality Indicators* have been subsequently proposed, on several occasions, by the OECD: in Tables 3 and 4 the taxonomy and structure of such OECD indicators are given, of which we will speak again in Para. 3. See the OECD publication on *urban environmental indicators* of 1978.

## b. Vehicular Traffic

The degradation of the UE is today greatly caused by the congestion of urban vehicular traffic. This has greatly increased in relation to several factors: to the increase in the number of private cars per urban inhabitant; to the intensification of urban "journeys" per car (private or public); to the increase in urban distances as a consequence of the absolute and relative increase in the number of urban inhabitants (urbanization) and of their per capita consumption of land.

All this has produced a sort of "*garagization*" of cities, as well as a chronic personal "traffic jam" in city traffic which produces clear disturbances of psychic stress. Today a chronic and diffuse situation of "time wastage" (or stupid employment of time) is accepted as a result of urban traffic, a situation of malaise whose solution has been found in personal adaptation, which, as a result compromise the same traditional "advantages" of urban life: intensity of interpersonal relationships and exchange efficiency. In reality such a situation causes one to dream of the return to decisively less "civil" and less "civic" forms of life than those that have been achieved mainly thanks to the historical development of cities.

In particular, European cities, especially those built on a Medieval and Renaissance structure, but also those planned with farsightedness on a structure of wide avenues by the Eighteenth and Nineteenth century monarchies, are unsuitable to support, for mere physical reasons of space, vehicular motor traffic in the dimensions it has reached. Every infrastructure and road intervention designed to adapt the dimensions to the traffic (oneway systems, urban motorways, fast lanes, by-passes, high-level and slip roads, underpasses, circular roads, coordinated traffic lights, and other such pieces of engineering wizardry) has caused and does nothing but cause serious and unacceptable damage to the *urban landscape*, producing, on the contrary, exactly the urban degradation that is to be opposed<sup>6</sup>.

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<sup>6</sup> Despite the fact that for a long time the planners profession has acquired the elementary principle that transport flows cannot be either thought out, planned or managed, apart from the conception, planning and management of land-use, urban traffic continues in almost all cities to be managed only with "traffic engineering" methods, usually with disastrous results, since they are totally illusory, in the medium and long term. Few modern Western city town plans are thought out and planned *in strict correlation with the effects on traffic demand that they themselves generate*. And few "traffic plans" are studied and proposed with an eye to the settlement effects that they induce, and thus the town planning problems that they create. The OECD has dealt often with urban traffic (in the old ECMT works - the European Committee of Transport Ministers - but also outside the ECMT), but its works have not gone, on the subject of the relationship of land use/transportation, beyond general appeals for the adoption of policies that pay attention to the problem, which deserve to be recalled if only for the importance of their source and nothing more (OECD 1988a and b). These studies are usually rich in data and information, but all reflect situations that have come about in the absence of an appropriate urban traffic policy, such as that, for example, delineated by previous studies again by the OECD, in which there was at least the attempt to outline the fundamental requisites for a planning policy of urban transport. (See OECD, 1971b and 1979). The second of the OECD works of 1988, which examines the relationships in general between transportation and the environment, contains a chapter on "assessment of innovations in

### c. Congestion of Activities and Paralysis of Functions

Urbanization, that is to say the striking growth of the urban population with respect to the non-urban population and the constant increase of urban functions compared with those of the cities of the past, has occurred without a proportional expansion of the urban infrastructure; rather it has occurred through a massive utilization of the pre-existent and ancient structures (in particular the *historical urban centres* inherited from the past). This has congested beyond measure all the urban activities conducted in these old spaces: offices, hospitals, schools, shops, recreation and amusement centres. Even the pavements are congested and difficult to walk along (from which derives the growing pedestrianization of some parts of ancient cities, this also constructed with a disproportionate access infrastructure).

Congestion has provoked a situation of paralysis of urban functions to which the reaction has been a search for new spaces for activities and for the restoration of functions. There has thus been achieved a spontaneous "decongestion": the transfer of several city activities to the peripheries.

But while the old urban centres as long as they conserved a certain equilibrium between activities and the spaces at their disposal guaranteed a certain *mix (non-congested) of functions*, the new locations have achieved decongestion, but they have lost the *mix*. For this reason, there has come about - as a result of the congestion of activities and of the incipient paralysis of functions - a loss of "complexity" of urban functions, a complexity on which urban quality has always been based. This quality loss is a further factor of degradation of the UE, which has been compromised by congestion and is further compromised by the decongestion that follows it<sup>7</sup>.

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urban transport management"; but this chapter too is limited to examining and discussing (in a very interesting way, however) a vast quantity of single technological measures and innovations, but it does not frame them in an overall general strategy of the land use/transport relationship. For further elaboration on the subject, see the works of Blunden, 1971 (Blunden and Black, 1984, for the 2nd Edition). See also Appleyard (1986) and Appleyard and Lintell (1986).

<sup>7</sup> There is not a specific literature on the subject that can be recommended. On the other hand, there is a vast, plaintive and complaining "jeremiad" of numerous architects, sociologists, historians, and every other type of lover of arts and letters, from which everyone may draw for his or her personal experience. Of this generalised and confused lament, this inexhaustible *laudatio temporis acti*, which is a bit "one way", the disturbing fact is the limited critical-analytical capacity, but also the stubborn irreognition of the progress that the same arts and cultural activities have made in the modern city, despite the undoubted faults and deficiencies to which we are dedicating, in this contribution, our attention. Exactly: we would not like our work of denouncement of the problems and worries about environmental degradation in the modern city, which is motivated by the intention to identify the feasible ways and means to fight it, to be confused with that type of historic superficiality to which we have alluded. Among the most noble and authoritative of this jeremiad, we can recall authors such as: Simmel, Howard, Chambart de Lauwe, Wright and many others.

A comparative study (with a joint contribution of the EC Commission and of the German Government) - carried out at the "Wissenschaftszentrum" in Berlin (WZB) on the "policies of decongestion of urban cities in the EC" (see R. W. Wetmann and W. R. Nicol, Eds., 1980) - is limited to classifying some typologies of territorial urban order, and gathering information and

Certainly urban quality which is talked about here, furnished by the *complexity of functions*, is to a large degree an inheritance from the past, and it is difficult to reproduce it through new settlements. But it could have been possible and could still be possible, through simultaneous and, at the same time, preventive planning on urbanization tendencies, to create *new alternative "centres"* (without accepting the degradation of quality by congestion of our *historical centres*) with *sufficient dimensions and complexities* in their functions so as to constitute a real alternative to the historical one. These new centres should become, in a short time, with a

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data on measures taken by various governments (national and local) in Europe to protect some congested areas from further overloading and installations (especially of industries); but there is no trace in it of any operational model of reference on which a suitable territorial policy could be hinged.

There is something planned in the history of the French *aménagement du territoire* of the post-war period onwards (above all as regards the studies carried out by DATAR) whose central attention was aimed at decongesting the Paris area. But the scale, ie national, of the problem was only seen - in the opinion of the Author - in its suitable dimensions much later, at the conclusion of the following campaigns for the "*S, villes nouvelles*" of the Parisian basin and the "*metropoles d'équilibre*" (V Plan, 1965), and then for the "*villes moyennes*" (VI Plan, 1971), and finally for the more "contractual" forms (*contrats de pays, contrats état-regions*) of development (VII & VIII Plan, 1975, 1979) after the official creation of the "Regions" (1972) and, finally, with the technological fantasies of *Urba 2000* (IX Plan, 1983). Only after 1988 it seem to us does an adequate conception of the organisation of the urban framework make it self heard, by means of the idea of the "*reseau de villes*", but the real functionality of these nets is still not very clear. See on the subject the *Lettre de la Datar*, special number (Aug - Sept 1988) on the theme "Cities and Territorial Planning".

Neither can one consider as an appropriate policy of "decongestion" that of the English satellite towns (or "new" and "expanded towns"), which began with dimensions that were incapable of representing a real alternative to urban congestion, and have represented only a rather modest, localised (but in our opinion failed) attempt at urban "decentralisation".

A satisfying approach (albeit only in the approach, which had no actual implementation) to the problem was had in Italy with the *Progetto 80*, proposed (at the end of the '60s) by some sectors of the Italian government (the Ministry of Budget and Economic Planning), which included a genuine plan for the riequilibrium of urban functions in the territory, articulated in 30 "metropolitan systems", coextensive for the entire territory (see Ministero del Bilancio e Programmazione economica, 1971). This plan has been repropoed on subsequent historic occasions: a) in 1983, by the Ministry for Southern Italy, to reorientate the development of highly unbalanced "urban systems", in Southern Italy (Ministero del Mezzogiorno, 1983); b) in 1985, among the studies of orientation of the General Transport Plan; and finally it has been currently repropoed, with suitable updating of content, by the Ministry of the Environment, in the work for the construction of a territorial framework of reference for a Ten-Year Plan for the Environment (called "Decamb") (Ministero dell'Ambiente - Consiglio Nazionale delle Ricerche, 1989).

In Germany, a country whose urban framework is the most balanced in Europe, the *Raumordnung BundesProgramme* of 1975 (later not applied by subsequent governments) does not give particular indications on methods of urban decongestion, simply because such a problem did not present itself in that country as of priority importance (although it will become so more and more there as well in the opinion of the author).

It is time that at the European level a suitable study was made, with a great effort of cooperation between Community and national structures, in order to construct an *urban framework of reference on the European scale*, and adequate guide-lines for criteria and common indicators of measurement for a standard quality of urban life. See, on the subject, the information collected in the study promoted by the EC on "integrated planning of urban areas and its position in the Environmental policy of the Community" (Heripret, 1989).

minimum "patina" of time, good examples of balanced urban functions, without therefore having to degrade their UE. Indeed, without starting off already degraded, as has almost always happened when such centres or areas are brought into existence without an adequate complexity of urban functions.

All this without considering the case (it is surely the case of Italy, but also of many other European countries built on an ancient urban structure) in which the urbanization that has created the congestion of activities and paralysis of functions, has developed parallel to the emargination, if not even the decline of a great number of small and medium sized cities; cities that would have rather been able to conduct the role - with a preventive planning policy - of these new and alternative centres of decongestion for which we are searching; conserving, and indeed updating their historical «patina».

But to do this it was necessary, and it is still necessary, to have a *conception of urban policy at a national (and today supranational) level* for the protection of the UE, which still must penetrate the conscience of political and administrative action; and of which there are still no tangible sign, either in Europe or in America.

#### d. Loss of the Urban Landscape

It is difficult to imagine that in the past cities displayed environmental degradation of their "landscape" (understood in terms of a visual pleasantness of both their internal spaces as of their external perspectives) analogous to that which they display today. An empirical confirmation of this thesis derives from the observation of how well the "urban landscape" has been nonetheless safeguarded in all those European cities (for example, East European cities) that have not been influenced (for amongst the most diverse reasons) by the phenomenon of economic development and by a considerable urbanization (although these can have been on the contrary degraded by other factors different from those which are only "aesthetic")<sup>8</sup>.

In cities which are quickly undergoing a process of urbanization, in spite of the technical progress in town planning, land use plans have only been able to control and to influence to a small degree urban space and land use.

These urban spaces have been everywhere at the mercy of spontaneous, casual, deregulated, abusive intervention. (Without talking, moreover, about "programmed" interventions - especially in matters of urban transport

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<sup>8</sup> This observation qualifies even better the one developed in Note 6. The urban landscape is certainly degraded and new construction, which is often not regulated by intelligent, cultured, volumetric designs and visual standards (still little known among the architects themselves), have certainly created rather depressing syntheses of the urban landscape (see the observations of the Prince of Wales, who has dealt intelligently with the subject). But also the conservation of the cities obtained thanks to limited economic development has produced negative effects that cannot be forgotten at the same time that their praises are being sung. It is not understood why development cannot be directed - by means of suitable planning - in respect of certain quality and aesthetic standards etc. Planning in fact is the only method to obtain both things.U

infrastructure - which, as has been said, in aiming only at the single "function", have deliberately ignored the aesthetic criteria: we mean those which are possibly sheltered from changes in taste and therefore from the value judgements which time produces).

All this has happened - we wish to emphasise - in spite of the fact that never, in the history of cities (except in the case of wartime destruction), have there been recorded so many factors which converge against urban conservation and against the harmonious growth of civic volumes and spaces (and therefore in favour of creative town planning), as has been recorded in the past decade.

#### e. The Breakdown of Interpersonal Communication

The physical degradation of the UE, including that which affects the physical and mental health of urban inhabitants, has been moreover accompanied by a sort of "social" degradation - or of "sociality" - of the UE, due to a breakdown in interpersonal communication: a breakdown born from the congestion already referred to above, time loss, loss in the complexity of functions of various places and of the specialisation of places and spaces.

In the traditional (and let's even say conventional) opposition between "city" and "countryside", one can say that the breakdown of interpersonal communication in cities has turned the latter into a "countryside of reinforced concrete": that is to say spaces where the same scarcity of interpersonal relationships are reproduced; such a scarcity that was once the sociological apanage of the countryside.

Information rather than communication has certainly improved thanks to the different technologies of telematics and computing: especially television and the incipient televideocommunication, (such as the videotelephone, the videoconference, etc). But has "sociality" improved in like fashion? This seems rather to have worsened, at least compared with the level of needs manifested by today's generations, needs that today's urban organization seems incapable of satisfying<sup>9</sup>.

### ***1.2. In Relation to City Typologies***

One of the most surprising aspects of the degradation of the UE today is that it is revealed almost with the same seriousness *independently of every urban typology*: in other terms, whether large metropolitan or small and medium sized cities are concerned; whether ancient, modern or even "new" cities are in question; whether it is a case of "pole" cities, or of "satellite" cities; whether we

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<sup>9</sup> On the evolution of the city as a centre of social communication, we cannot do better than recall the well known pioneering work of Richard L. Meier (1962). Note that the same author has sufficiently brought up to date his assumptions, in the light of the important increase in material factors of communication, such as the information technology and telematics revolution. See R. L. Meier (1972, 1974, 1985)

are concerned with "industrial" cities or cities whose activities are prevalently commercial, or touristic.

Although the urban typology can influence the way in which different factors or aspects of degradation are presented and united, more precisely it may influence the "mix" of the factors of degradation, the main part of the factors mentioned are present nearly everywhere; to the point that it makes one think that degradation is produced beyond narrowly urban conditions, but which by now represent a condition of every type of territorial agglomeration.

On the other hand, the "urban condition" (as was once said, when it was not so generalized as today) tends to totalize the population, and therefore to englobe in its indicators and parameters each form of location or stable installation of people. The objective of a national (and even supranational) "urban" policy can only be that which will assure an urban lifestyle acceptable to each citizen of the reference community and to make this community benefit from the "urban effect".

It is therefore a matter of restructuring the urban framework so as to englobe in a general urban function 100% of the citizens. The urban "pattern" which results from this is a derivative of this constraining objective, linked - case by case - to the distribution of the pre-existing territorial agglomerations.

In this manner, the problem of urban typology must be "revisited" in the light of the role that different city types can play in a general and "finalized" rehandling of the urban framework<sup>10</sup>.

### ***1.3. In Relation to the Stages of Urbanization***

The ascertainment of UE degradation offers itself also independently of the current stage of urbanization particular to each country, or to each agglomeration, which is in question.

In other words - adopting some classifications already in use - degradation is evident:

- either in the presence of a phenomenon of "*urbanization*", defined as the rapid expansion of urban zones and a parallel residential decrease in rural areas;
- or in the presence of a phenomenon (normally successive to the preceding one) of "*sub-urbanization*", defined as that in which residences and work places transfer to the peripheries of the city;

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<sup>10</sup> In reality, the analysis of the urban pattern in relation to specific phenomena or to urban typologies has been the ground on which the great majority of scholars of "regional sciences" and urban and economic geography have exercised their brains. A movement has been born (of a "descriptivist" type) of an uncontrollable vastness; from which have come even more unreliable and elusive consequent theorisations. But it is the approach itself - that of an interpretation of historic phenomena brought to light - that seems to us to be misleading. Today it has been noticed that the phenomena of environmental degradation have little to do with a large part of the positive analyses mentioned; and that a more "planological" approach is necessary (more orientated towards political choices and decisions) in order to give some sense to the models constructed for the purpose. See, for a vast treatment of the subject, Faludi (1986).

- or in the presence of a phenomenon of "*de-urbanization*" (some have even spoken of a "*counter-urbanization*"), defined as that in which urban agglomerations lose residents and jobs overall;
- or finally, in the presence of that phenomenon which we begin to define as "*re-urbanization*", when the "heart" of the cities (above all of the most ancient ones) undergoes a residential recovery and, at the same time, a building restoration (the phenomenon defined also as "gentrification")<sup>11</sup>;

Yet, no fixed relationship between the degradation of the UE and these stages of urbanization can be found. On the other hand, these stages can in reality present themselves jointly on different territorial layers or in different regions of a same country. And this happens even if each stage is characterized in a country or in a city by their own dominant phenomena, linked essentially to a demographic indicator with its own precise sign.

This mix of stages, besides this "indifference of effect" in terms of environmental degradation, reinforces the opinion that we are in the presence of a largely generalized phenomenon of degradation of the UE that is connected more to factors of general socio-economic development than to typology and urban pattern.

If anything, we must note a close relationship between the progression of the stages indicated above and the stage of economic-industrial development.

As such, it seems that *urbanization* is remarkably contemporary to a *primary stage of industrialisation*, which has seen everywhere residents and jobs concentrated in already existing urban areas. This still occurs in all countries which are still in a more or less rapid industrialisation process in both Asia and Latin America (countries with urban histories considerably different from those of European cities).

It also seems that the stage of *sub-urbanization* corresponds very well to a *further stage of industrialisation*, that of "advanced" or "excessive" industrialisation, in which the per capita product increases, and there develops a greater demand for more spacious and comfortable housing (perhaps with a private garden).

It seems, finally, that the stage of *de-urbanization* corresponds well to the stage succeeding advanced industrialisation, that of *de-industrialisation*, that is of the absolute reduction of jobs in industry, and of growth, on the contrary, of tertiary activities; a stage, besides, in which the public infrastructure network of every type tends to cover the whole national territory, and the areas that were initially of a high urban density lose their "comparative economic advantages". This is also the stage defined by many as the "post-industrial" or "information" society.

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<sup>11</sup> In this case as well there are numerous studies that have aimed at theorising a sort of "life-cycle" of cities and extrapolating some constant trends (see Norton, 1979). The same statistical studies on the development of urbanisation in Europe have been largely influenced by the intention of seeking and codifying constant "*dynamics*" (see on the subject, the empirical analyses by Van den Berg *et al*, 1982, Bradbury *et al*, 1982, Drewett and Rossi, 1984, and the overall evaluations of Nijkamp and Schubert, 1985). With respect to the "planological" approach (which will be better explained in Para. 2) this type of research tends to leave things "as it finds them".

And finally the *re-urbanization* stage which, in its early days, seems in fact to be a phenomenon which has only appeared on the scene of the cities of the economically richer countries.

It seems therefore that we can conclude that the degradation of the UE is to be linked to the advance of economic development rather than to different urban patterns and structures. And that these patterns and structures - in their current stage of development - are nothing more than a *spontaneous and disorganized response to the imbalance that such a development provokes in the use of urban spaces*.

This does not prevent, however, the urban pattern and structure - *if conceived and planned appropriately* - not being able to contribute in the future to the avoidance of the disequilibria that, through successive stages, economic development has produced in the territory, in the absence of planning.

It is only a question of reformulating the problem: that is identifying the *appropriate territorial unit* in which economic development can take place without creating a territorial and environmental imbalance; and tying each location and every further land use to its functional modalities.

In short, it is a matter of identifying an "ecosystem" in which all the values of the modern urban condition can be not only respected but also extolled, that is to say an "*urban ecosystem*".

And it is a matter also of using such an urban ecosystem as a link and reference framework for all the choices of installation and location that any development policy should involve.

In brief, it is a question of adopting a planological approach to the analysis of the urban environment.

## 2. The Urban Ecosystem

Let us examine more closely the concept of the *urban ecosystem*, as an instrument for the orientation of a policy aimed at the elimination of UE degradation<sup>12</sup>.

As has been argued, UE degradation is the product of a *disequilibrium* in the functioning of the urban ecosystem. In fact, cities can be considered as systems in which an exchange (relationship) is constantly realized between the "*demand for territory*" ( for land or environmental resources) determined by the needs of production/social consumption, and the *availability (supply) of territory* ( land or environmental resources)<sup>13</sup>.

If the demand exceeds the availability the territory becomes overloaded with excessive weight, and a disequilibrium is produced which tends to be compensated in some way.

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<sup>12</sup> We will do this here with the rapidity and superficiality imposed by the nature of this type of contribution.

<sup>13</sup> On this point allow me to refer for greater elaboration to many works of the Author relative to the "territory matrix" and its management. See Archibugi, 1979, 1988.

Often the balance is looked for and refound by enlarging the space of the (urban) system and englobing new territorial resources inside. This often carries the imbalance to another territorial level. As with firms, also for cities there is a tendency to "externalize" the cost of the urban equilibrium. However, if a saturation threshold is reached even in the "external" environment, a way also has to be found to "internalize" this cost, to find the equilibrium between the demand and supply of territorial (or environmental) resources internal to each system.

Positive theory, in fact, supposes that in the research for "environmental well-being" (that is of the equilibrium between activities that require resources and the availability of resources) there is a permanent tendency to "balance" demand and supply; and from here derive *urban patterns*, and, perhaps, the (spontaneous) optimization of the UE.

That may be true: but in the long term....!

The degradation of the UE that is evident everywhere, demonstrates that between the initial situation or equilibrium (which corresponds to any stage of urbanization and of economic development, as they are evoked), and the new eventual point of "arrival" equilibrium (in the long term), there is an important temporary and substantial gap, let's say a *transitional* period of imbalance that produces serious wastage which has to be managed, contested, reduced to the minimum: in order to maximize on the other hand environmental well-being.

Positive analysis (theoretical) is always *ex post*. But to minimize the disequilibrium and its waste (no matter how transitional) we need an *ex ante* analysis and a preventive line of action to follow it up. That analysis must develop the theoretical hypotheses of the factors of disequilibrium and simulate the equilibrium (according to a method which I call "planological").

In other terms, it is a question of a *policy* or *programming problem*: to evaluate the demand and the supply of land and of environmental resources, and to prepare for their "balancing"; and to promote a selection of priority activities (*policies*), through the *trade-off* between different objectives, and the accurately studied connection between objectives and means.

A policy for the recovery of UE degradation passes therefore through the identification and construction of an *urban eco-system model*. A model that can be identified as: the space in which the different urban functions can be optimized; the space - above all - in which demand and supply of a community's territory or land resources can find their equilibrium, at least in the framework of its daily needs and of its residential functions<sup>14</sup>.

This model, today, does not exist. Even the attempts to build it, here and there, would need to be compared. The best comparison would be that between sensitively different realities, precisely so as not to risk that the parameters measured are not too dependent on particular historical and geographical

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<sup>14</sup> See on the subject a work by the Author (Archibugi, 1987). From the completely different works of Fox on the identification of appropriate territorial units of well-being evaluation the FEA (*Functional Economic Area*) (Fox, 1974, Chaps. 8 and 12), Berry (1972), and Doxiadis (1968), on the identification of a space for a "*daily urban system*", are gleaned interesting points of identification with that which we have called the "urban ecosystem". More in general see also two essays by Newton and Taylor, 1985 and Klaasen, 1985.

circumstances (the urban typology or the urbanization stage or economic development): which would not render them more constant and significant, because of changes in the urban conditions of the place for which the model was devised.

A common work between diverse realities would certainly be essential to construct this analytical and decision-making instrument for an urban policy.

Would not the best level to develop this model be the level of European Community cooperation?

Of course, such a model should incorporate all the possible factors of urban environmental degradation. It should incorporate not only the *direct* factors of degradation, but also the *indirect* factors, those which are, in their turn, at the base of the direct factors.

Let us provide an example: if atmospheric pollution of cities is caused by the level, by the modalities and by the intensity of vehicular traffic, the latter, in its turn, is caused by the demand for activities, by the location of services to which urban inhabitants must have access, and by the purchasing power of the people, etc. It is difficult to exclude the apparently "indirect" variables of the *urban ecosystem model*, because very often these are the key variables of evolution (degradation or recovery) of the urban ecosystem.

### 3. Program Structure and Urban Indicators

The modelling of the *urban ecosystem*, as has been defined above, needs to be preceded by the determination of the variables and parameters that must be considered. This determination corresponds to the list of social concerns that an urban and/or national, and why not supranational, community can express<sup>15</sup> on the subject of the improvement of the UE.

These social concerns can be expressed in the shape of a series of "objectives", to which can be connected - after the appropriate studies and evaluations - a series of *means* and *instruments* suitable to attain these objectives. As is well known, objectives, and likewise means, are sometimes compatible, sometimes not. They can be directly "synergetic", but they can often enter into conflict, both in the ends and in the means employed and in the resources to be drawn upon.

The objectives are linked together on different hierarchical levels. An objective at an inferior level can be a means to attain an objective at a superior level; and vice versa a means at a superior level can be an objective to an instrumental inferior level.

The *logical framework* (or simply "*logframe*") of the system of objectives and of concatenated means is usually called, in planning science or planology, the *program structure*. It therefore seems essential that every reference policy against UE degradation should use the instrument of a program structure to put order into

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<sup>15</sup> See works on *social indicators* of the OECD (1973, 1982). They have been widely taken up again and discussed in numerous works, amongst which - for the sake of brevity - we recommend that of Fox (1985).

its series of problems, concerns and aspirations. It would be more than ever recommendable that such a structure be elaborated on a European Community level, in a joint operation on more than one territorial level of the Community.

The system of objectives organized in a program structure must be made evident through quantitative and/or evaluative variables, that is through vote or judgement. Each social concern or objective concerning the urban environment (as likewise on the other hand with any other factor of community social well-being) must be measurable and measured by one or more indicators. These indicators (or measuring instruments) indicate the degree of satisfaction or dissatisfaction in relation to the above-mentioned concern or objective, or the degree of achievement on the topic of that concern or objective.

As an example, we will refer to some program structures and indicators of objective and achievement, arising out of some studies that have already attained a certain international consensus: we refer to the OECD studies (mentioned in Note 15), conducted at different times. Tables 3 and 4 reproduce the OECD indicators as far as they specifically concern the urban environment, which are drawn from a specific OECD work (1978). The OECD work has not received great political application: this would have required a certain consistency over time, accompanied by appropriate pressure on governments, at least to establish a periodical data gathering in the direction indicated. Moreover the whole work would have been much more valid if, rather than coming to a standstill, it had continued through the elaboration (as a further step) of an *urban ecosystem model*: this model being built on the same variables expressed by the indicators, but with more accurate findings on the interrelation existing between the said variables<sup>16</sup>.

It would certainly be very appropriate if such a work (a subsequent elaboration of an urban ecosystem model and a close examination of the system of quality indicators of the UE) should proceed also in the European Community on its own initiative.

To develop some initial general thoughts in the direction indicated, we will recall here - amongst many other works existing in the literature on the subject - two schemes which seem to us to be the most worthy of attention. A first, and by now outdated work, going back to the end of the 1960's, and carried forward by Resource for the Future, the well known American organisation for the study of environment problems (a work directed by the late colleague Harvey Perloff). A second, extremely up-to-date work, proposed by a study group of the Town Planning Institute of Montreal (see Institut d'urbanisme, Université de Montréal, 1988).

The sum of documentation quoted testifies in the first instance the unoriginal nature of approaches suggested here, and the possibility to start from a level of research and reflection which is not completely at zero. Besides, it is noted that the oldest studies (1960's) *conformed perfectly with today's needs*, which demonstrates that scientific approaches - if they are good and pertinent - grow old

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<sup>16</sup> In Italy as well, the Planning Studies Centre has attempted to advance a preciser definition of urban environmental indicators, using the schemes proposed by the OECD (see Table 5) but without much particular success.

gracefully and remain valid in time, if only they are given a frequent follow-up and updating.

There arises, however, the regret that even if having advanced well in methodological reflection, there has not been, on the part of national or international public bodies, responsible for this work, an adequate follow-up; such that it gives one the impression that we are always restarting from zero (sometimes the same researchers are negatively influenced by the behaviour of public decision makers, and they reveal themselves as even being little informed on the work of their preceding colleagues<sup>17</sup>).

#### **4. Indications for a European Community Policy on the Urban Environment**

Urban policy is the "jurisdiction" - according to the institutional system of the different European countries - of a certain plurality of political organs. In particular, a certain pluralism of territorial levels of jurisdiction occurs: national, regional, local. Almost everywhere the local level has a certain priority of jurisdiction, compared with other levels. Almost everywhere there is a certain jurisdiction of coordination at both regional and local levels. Almost everywhere, a certain conflict (political and/or administrative) of "jurisdiction" is produced between the diverse levels, a conflict which at its worst produces a certain paralysis of action at both the political and administrative level.

The European Community level represents another level of the above defined pluralism. This will certainly find itself in good company with national governments in the attempt to reserve for itself a certain space for authority compared with local governments. As in many other sectors of intervention, the availability of the financial means of intervention constitutes a good reason to reserve authority for oneself. Their use will certainly prime a certain conflict of opinions over the management of such funds.

One cannot avoid noticing that the more the pluralism of authorities is widespread, the more chances arise for a management of the urban environment which is both unequal and of varying quality. If there can be inequality of efficiency and of capacity in the governments of the twelve countries of the Community for their own national policies, we can imagine all too well the disparity of efficiency and capacity there can be between the thousands of local urban governments of the Community!

There will be a good number of local governments in the avant-garde that adopt advanced measures and that obtain excellent results; and there will be other local governments that are managed in the worst imaginable way and whose administrators, for reasons of culture, training, professional ethics etc, are at totally unsuitable levels. In a general context of this type it is difficult to formulate "prescriptions" on the best distribution of responsibilities.

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<sup>17</sup> This is the impression that one gets from the tenor and results of almost all the numerous "meetings" that have multiplied over the years on the urban environment.

One fact emerges all the more evident, however, in environmental matters. That policies (or their absence) at local and even regional and national level, have effects that concern everyone, and not only the communities involved. This has appeared evident in the case of the great planetary risks which arise from developments which are unsustainable with respect to the scarcity of the available territorial and environmental resources. However, there is also emerging the awareness that even cities, today, are a non-renewable good which are irreversibly deteriorating as a result of the senseless use made of them. And that the policy of protection of the urban environment is today a policy that implies risks common to both the national and supranational level.

In spite of the growing responsibility of UE policy at national and supranational levels, we cannot ignore that local government initiatives, both psychologically and financially must be kept intact, whether they are not yet able to manage alone, or whether they have displayed a certain autonomy. In both cases a "socialization" of experiences and problems works well. And this is the most important function of "subsidiarity" sanctioned by the Single European Act of 1986 (Art. 3b).

In this context, the formal policy of "jurisdiction" (as referred to above) and its respective conflicts of interests shows itself as being a lot less efficient, in every respect, than a substantial "cooperation" policy which leaves "jurisdiction" out of the question; and a substantial cooperation policy starts from the common awareness of concerns and objectives.

Within these broad outlines there is a lot of ground to cover since, at all territorial levels of government, there is *almost nothing* on the subject of the elaboration of a "systematic" UE policy. There are certainly a lot of initiatives - at the local and regional level - which are interesting and useful to put on show, in the framework of an intensive exchange of ideas and experiences, at the Community level. But no organic approach to this policy *through the use of a program structure and a system of objective indicators is known.*

The need, on the other hand, to know not only the achievements, but also the evaluations and the methods pursued in the different countries and different local governments, is very strong whether in official or unofficial environments of the European Community. Would it not therefore be the case to keenly advise the European Community, particularly the Commission, to decisively initiate a work in this direction, proceeding with the elaboration of a *program structure common to the different countries* and of a *system of indicators of urban environmental quality?*

It is the opinion of the writer that in order to set in motion a European program of action in this direction, we need first of all to frame into a conceptual work the sum of experiences, of "case studies", of testimonies on this or that problem, on this or that city. This conceptual work is apparently (but only apparently) less close at hand than the political-administrative practice of a taxonomical definition of objectives; and thus the necessity to build a referential *urban ecosystem model*, to which to refer precisely the different cases under examination for their evaluation.

On the completion of this conceptual work at the European Community level, with the widest possible participation of experts with local experience, it will be possible to draw the attention of political decision-makers, at different levels (local, regional, national) and to study the diverse forms of intervention that could be considered at each level.

#### BIBLIOGRAPHICAL REFERENCES

- Appleyard D. (1980), *Evaluating the Social and Environmental Impacts of Transport Investment*, in: De Boer E. (ed.), *Transport Sociology: Social Aspects of Transport Planning*, Pergamon, Oxford, 1986
- Appleyard D. & M. Lintell (1986), *The Environmental Quality of City Streets: The Resident's Viewpoint*, in: De Boer E. (ed.), *Transport Sociology: Social Aspects of Transport Planning*, Pergamon, Oxford, 1986
- Archibugi F. (1979), *Principi di pianificazione regionale* [Principles of Regional Planning], Angeli, Milano, 1979
- (1987), *La politica dei sistemi urbani* [Urban Systems Policy], Planning Studies Centre, Rome, 1987
- (1988), *La matrice di uso del territorio, strumento di analisi e valutazione dei piani* [The Land-Use Matrix, An Instrument for Plan Analysis and Evaluation], Report to an International Seminar on the Theme "Tecniche di valutazione dei piani e progetti nell'attuazione urbanistica" [Plan and Project Evaluation Techniques in Town-Planning Implementation], Univ. of Rome, DPTU, Rome, 18-19 Mar. 1988, Planning Studies Centre, Rome.
- Berry B. J. L. (1972), *Latent Structure of the American Urban System with International Comparisons*, in: B. J. L. Berry (ed.), *City Classification Handbook*, J. Wiley, New York, 1972
- Blunden W. R. (1971), *The Land-Use/Transport System - Analysis and Synthesis*, Pergamon Press, Oxford, 1971, (2nd Edition with J. A. Black, 1984)
- Bradbury K. L. et al (1982), *Urban Decline and the Future of American Cities*, Brookings, Washington DC, 1982
- Carpenter R. A. & S. Sani (1983), *Urban Air Pollution*, in: Carpenter R. A. (ed.) (East-West Environment and Policy Institute) *Natural Systems for Development*, McMillan P. C., 1983
- Centro di studi e piani economici (Planning Studies Centre) (1985), *Indicatori di qualità urbana discussi in sede OCSE* [Urban Quality Indicators Discussed in the OECD], Centro di studi e piani economici, Roma, 1985
- DATAR, Delegation a l'aménagement du territoire de l'action regionale, *La lettre de la DATAR - Les villes et l'aménagement du territoire*, Numéro Spécial, Août - Septembre 1988, No. 119, Paris, 1988
- Doxiadis C. A. (1968), *Ekistics, An Introduction to the Science of Human Settlements*, Hutchinson, London, 1968
- Drewett R. & A. Rossi (1984), *Urban Europe: Settlement Structure and Change 1959-1980*, Gower, Aldershot, 1984

- EC - European Community (1983), *Les europeens et leur environnement*, EC, Bruxelles, 1983
- Faludi A. (1986), *Critical Rationalism and Planning Methodology*, Pion, London, 1986
- Fox K. A. (1974), *Social Indicators and Social Theory: Elements of an Operational System*, Wiley, Interscience, New York, 1974
- (1985), *Social System Accounts*, D. Reidel Publ. Co., Dordrecht, 1985
- Heripret C. (1989), *L'aménagement intégré des zones urbaines: sa place dans la politique communautaire de l'environnement*, Association pour le développement et la Diffusion des Etudes Foncières (Etude réalisée pour la CEE), Paris, 1989
- Institut d'Urbanisme, Université de Montréal (1988), *Les indicateurs d'environnement urbain*, Ministère de l'Environnement du Québec, 1988
- Klaasen L. H. (1985), *Transport Energy Interactions*, in: J. Brotchie et al (eds.) *The Future of Urban Form*, Routledge, London, 1985
- Mammarella L. (1976), *Insedimenti umani e condizioni ambientali* [Human Settlements and Environmental Conditions] Bulzoni, Roma, 1976
- (1978), *L'atmosfera urbana e le sue contaminazioni* [The Urban Atmosphere and Its Contamination], in: M. Nicoletti, (ed.), *L'ecosistema urbano* [The Urban Ecosystem], Dedalo Libri, Bari, 1978
- Meier R. L. (1962), *A Communications Theory of Urban Growth*, MIT Press, 1962
- (1972), "Communications Stress" in: *Annual Review of Ecology and Systematics* No. 3, pp. 289-313, 1972
- (1974), *Planning for an Urban World: The Design of Resource-Conserving Cities*, MIT, Cambridge (Mass), 1974
- Meier R. L. (1985), *Telecommunications and Urban Development*, in: J. Brotchie et al (eds.), *The Future of Urban Form. The Impact of New Technology*, Groom Helm, 1985
- Mestre V. E. & D. C. Wooten (1980), *Noise Impact Analysis*, in: Rau J. G. & D. C. Wooten (eds.), (1980), *Environmental Impact Analysis Handbook*, Univ. of California at Irvine, McGraw Hill, New York, 1980
- Ministero del Bilancio e Programmazione Economica (1971), *Le proiezioni territoriali del Progetto 80. Ricerca e modelli di base* [Territorial Projections of Project 80. Research and Basic Models], 3. Voll. Rome, 1971
- Ministero dell'Ambiente - Consiglio Nazionale delle Ricerche (1989), *DECAMB - Ten Year Plan for the Environment*, Roma, 1989
- Newton P. & M. Taylor (1985), *Probable Urban Futures*, in: J. Brotchie et al (eds.), *The Future of Urban Form*, Routledge, London, 1985
- Nijkamp P. & U. Schubert (1985), *Urban Dynamics*, in: J. Brotchie et al (eds.) *The Future of Urban Form*, Routledge, London, 1985
- Norton R. D. (1979), *City Life Cycles and American Urban Policy*, Academic Press, New York, 1979
- OECD (1971a), *Le bruit dû a la circulation urbaine*, OECD, Paris, 1971
- (1971b), *The Urban Transportation Planning Process*, OECD, Paris, 1971
- (1973), *List of Social Concerns Common to Most OECD Countries*, OECD, Paris, 1973

- (1978), *Indicateurs d'environnement urbain*, OECD, Paris, 1978
- (1979), *Les transports urbains et l'environnement*, 4 Voll., OECD, Paris, 1979
- (1982), *The OECD List of Social Indicators*, OECD, Paris, 1978
- (1986), *Environmental Effects of Automotive Transport*, The OECD Compass Project, OECD, Paris, 1986
- (1988a), *Les villes et leurs transports*, OECD, Paris, 1988
- (1988b), *Transport and the Environment*, OECD, Paris, 1988
- Perloff H. S. (1969), *A Framework for Dealing with the Urban Environment: Introductory Statement*, in: Perloff H. S. (ed.) (1969), *The Quality of the Urban Environment. Essays on "New Resources" in an Urban Age*, Resources for the Future, Washington DC, 1969
- Samuelsen G. S. (1980), *Air Quality Impact Analysis* in: Rau J. G. & D. C. Wooten (eds.), (1980), *Environmental Impact Analysis Handbook*, Univ. of California at Irvine, McGraw Hill, New York, 1980
- Van den Berg L. *et al* (eds.), (1982) *Urban Europe: A Study of Growth and Decline*, Pergamon Press, 1982
- Wettmann R. W. & W. R. Nicol (1980), *Politiche di decongestionamento dei centri urbani nella Comunità europea* [Policies for Decongestion in the Urban Centres of the European Community], Collezione studi, Serie politica regionale n. 18, Bruxelles, 1980