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The Metropolitan Region of Curitiba

Cristina de Araujo Lima

The metropolitan region of Curitiba includes 27% of the population of the country and has a turnover of 38.48% of the Federal State revenues (SEFA 1997). The main functions of the state government are concentrated in Curitiba and the main educational, commercial and cultural structures are located there. These features, together with the population's condition of high income and school attendance and the city's role as an industrial centre, confer on the Curitiba Metropolitan Region (RMC) an important place in the content of the whole country. Currently the RMC consists of 26 municipalities, which have developed from the old mining villages and from the colonies of immigrants in the last hundred years. According to the 2000 census the population is 2,726,556: 91.69% of them are resident in urban zones, whether centres having fewer than 5,000 inhabitants or Greater Curitiba with two million inhabitants. Although all 26 municipalities form part of the metropolitan region, among them there are great differences especially regarding their participation in the dynamics that are daily triggered between persons, products and activities. The municipalities in the RMC present differences in terms of amount of population, income levels, school attendance rate, population density, infrastructures, equipment and urban services, and specific public policy actions. In addition, 89% of the territory of the RMC is represented by partly urbanized areas, from the village up to the metropolis (IBGE 1996): in such a scenario, one of the most characterizing

elements is constituted by the different spatial contexts consequent upon different levels of territorial transformation and different trends in the productive sector. The spatial sectors present extreme values: on the one hand, the maximum population concentration and on the other hand, a progressive abandonment/drift away. The fulcrum of this trend is the Municipality of Curitiba, which since 1971 implemented and perfected its Master Plan, based on three main points: prescribing of permitted activities, infrastructural system and collective transport. A reading of the housing density and of the daily commuting flows in the RMC evidences three levels or rings (Moura, Kleinke 1999, 2003; Ipardes 2003). The first level includes the largest number of urban functions and the largest number of daily movements: more than 80% of the flows in the whole metropolitan region. It is formed by the city-pole and by eleven other municipalities (Almirante Tamandaré, Araucária, Campina Grande do Sul, Campo Largo, Campo Magro, Colombo, Fazenda Rio Grande, Pinhais, Piraquara, Quatro Barras and São José dos Pinhais). Of the total daily movements converging on the first metropolitan level, Curitiba absorbs 85.35%, or 144,000 persons who go to their place of work or study using urban services. At present 58% of the population of the RMC is concentrated in Curitiba, i.e. 1,587,315 inhabitants, and the town planning, economic and social-cultural indicators assume better values, attributing to the city the role of reference point for the south of the country, above all as place of business and investment. The second level of population concentration and daily commuter flows

consists of seven municipalities having no physical continuity with the Curitiba built-up area where there is an average level of demand for infrastructures and urban public services, because in this context both sectors of excellence and sectors of poverty are to be found. The municipalities in this second metropolitan level have frequent exchanges with the pole. The third level is formed by seven municipalities having a mainly rural character whose economic dynamics are going through a phase of depression and are hardly connected with the activities present in the other two levels. In some of the municipalities belonging to this level, therefore, a population reduction is recorded.

Migrations and restructuring the productive sector

The settlement concentration around Curitiba reproduces a characteristic of the urban system of the south of the country, structured and consolidated as a network of urban centres. The formation of this urban system is linked with regional employment in the economic sectors, according to the restructuring of the productive sectors that started taking shape in the Seventies. In that decade the traditional agriculture of Paraná underwent transformations due to the adoption of mechanized techniques aimed at the international market, with products such as soya beans and others. After this, the revenue from the primary sector, which in the Seventies corresponded to more than 40% of the total product of Paraná, was passed by the output of the secondary sector, which in 1996 reached 50% of the state's revenue. In the Nineties industries were set

up in the RMC in the consumer goods sector, especially in the engineering sector working for the multinationals (e.g. Audi and Renault) for the assembly of automobiles. This gave rise to various transformations, including the structure of land use and occupancy, the improvement in the value of real estate, apart from affecting the increase in demand for public services and infrastructures, exercising a force of attraction for persons seeking work, especially in the low-income bracket. The specialist pole thus formed in the metropolitan region was started up on the initiative of the state government by means of upgrading infrastructures and resources, such as electrical power, as well as through the introduction of advantageous tax incentives. In this way the urban concentration in Greater Curitiba, formed by 12 municipalities, became even denser, reproducing a network model with a concentration at given points, as occurs also in the neighbouring states of Santa Catarina and Rio Grande do Sul. However, some positive modifications also took place. Among these was the contribution of the RMC to the Gross Domestic Product of the State of Paraná. In 1996 the RMC contributed 39.1% of the GDP and in 2000 41.8% (SEFA, IPARDES 2003). Another positive element is industrial output: while in 1996 industry was 7.8 times less than in the city of São Paulo, the national industrial pole and the largest city in Latin America, in 2000 this proportion was down to 5.3 times (Descamps, 2004). Other positive aspects to be stressed are the growth in jobs, the expansion of the scientific and technological area, are the calendar of cultural events.

Marginal areas: poverty and demand for infrastructures and urban services

Placing the accent on the urban occupation process and on the regional planning procedure, other data have to be analyzed pertaining to the increase in population transferring to the Curitiba pole. In various other parts of the country, but in a decisive way in the state of Paraná, migratory flows are a sign of the phenomenon of the shift of the rural population to the urban centres that occurred during the Seventies. The end of the Eighties witnessed the end of a period of accelerated increase in all the metropolitan regions of Brazil. The RMC was the only one in which, in this period, there was a population growth, both in the Curitiba pole and in the periphery (first level) greater than the Brazilian growth rate of 1.64%. In the national context Curitiba occupies, at the moment, eleventh position in terms of population growth (COMEC 2001). Although there are the lowest rates recorded in the last quarter of last century, the metropolitan poles in the south of Brazil continue to record commuting movements both within the State and between different States, but above all within the same metropolitan region. According to the Brazilian Institute of Geography and Statistics (IBGE 2000) while in 1991 45% of the population of the metropolitan regions of Brazil lived in peripheral municipalities with respect to a pole, in 2000 this population percentage had decreased to 43.7%. Between 1970 and 1980 Curitiba absorbed 66.87% of the population that had chosen the region as its goal for living in. Between 1980 and 1991 this percentage dropped to as

low as 51.41% and in the last decade, Curitiba has absorbed only 40.94% of immigrants and the first level of the RMC received 55.01%. The remainder of the population, remaining in the RMC, is located in areas further away from the pole. The population of the periphery relating to the first metropolitan level has tripled in only 20 years, while in the other levels the population increase has strongly declined. Between 1995 and 2000 of those who arrived in Paraná, almost one-third chose the metropolitan region of Curitiba to live in and, in particular, the metropolitan pole and the first-level municipalities. The distribution of the immigrant population, in differentiated form, shows social and economic inequalities among the immigrants themselves and among the municipalities, regarding for example the cost of purchasing or renting real estate, the imposts and taxes of the Prefecture, foodstuffs and collective transport. In Curitiba, 12.46% of those domiciled there have the head of their family with an income corresponding to the minimum wage, approximately 80 dollars a month: this explains the existence of favelas in the city. Meanwhile this percentage rises to 50%, or even more, in the municipalities further from the pole. In the metropolitan region, other indicators show the precarious nature of the life of a large part of the population residing in the municipalities adjoining Curitiba: the state of precariousness inevitably increases as the distance from the pole increases.

Regional planning

The territorial organization of the RMC is disciplined by the Integrated Development Plan of the Curitiba Metropolitan Region (PDI)

drawn up in 1978 and revised in 2003. This was the first specific plan for the metropolitan region and after its approval, the regional co-ordination organ COMEC, together with the municipal administrations, started on the implementation phase. This intense technical work went on throughout the Eighties and the Nineties with the town planning and legal support of the prefectures, especially for drawing up the municipal master plans, and the revision and preparation of other laws such as that on zoning, the regulations for public works and, above all, questions of territorial organization and mobility. At the same time various policies, programmes and projects were developed which, although sectoral (environment, transport, road system) were integrated at regional level thanks to COMEC's co-ordination in accordance with joint planning rules and principles. In the Nineties, with the denser population in the outskirts of Curitiba, COMEC carried out a number of co-ordinated actions, such as the important programme upgrading and completing the basic infrastructures at metropolitan level Prosam, which made available a large quantity of resources for starting up the execution of basic renewal works, such as the extensive sewage collection and treatment network for the whole region. The operative management of the integrated metropolitan collective transport system, at present constituting the logistics support for locating industries, came into force in 1992. The approval of Law 12,248 of 1998, the 'law on springs', made some innovating proposals possible (Territorial Planning Units) for the areas characterized as environmentally fragile,

such as the eastern Metropolitan spring areas which had been illegally invaded and occupied since 1990.

Safeguarding water resources

Springs for public water supply take priority in the planning and management of Metropolitan space. About 41% of the territory of the municipalities forming the urban built-up area, centred on Curitiba, is located in region of catchment basins that supply the population of Greater Curitiba. These municipalities, undergoing intense urbanization ever since the Seventies, are still today marked by considerable growth processes, threatening the use of these rivers for water supply purposes due to the lack of adequate water control structures. The risk represented by the city's growth becomes crucial when it is observed that, between 1992 and 1997, the percentage of the population illegally settled increased from 5% to 12% and one-third of this population is located in protected spring areas (COMEC 2000). The historical tendency to occupy the eastern areas of the RMC has not undergone any reversal, especially since the boom in occupying the peripheries in the Seventies. With reference to the plot division approved in the eastern areas, it has been observed that between 1949 and 1994, 47% of the plots approved in the metropolitan region were located in the municipalities in the eastern areas which, due to the concentration there of springs supplying 70% of the water demand, ought to have limited the settlement there of a very large part of the population. In the past decades, in spite of the existence of the regional plan, the guidelines

foreseen for protecting the springs have not been applied; this would have meant implementing measures of social scale regarding sectors of the population without an income, to find answers to questions such as housing, the provision of infrastructures and the identification of alternative solutions aimed at generating income opportunities. The gravity of the question is summed up in three aspects: the high growth rate of the population in the areas of the springs, the physical and biological limits of the water resources (capacity to absorb polluting agents), and the characteristics of poverty of the population and of the municipal administrations in relation to the necessity to construct and maintain the basic infrastructures network (Lima 2000). The law on springs, instead, has established an integrated system of management and protection of the springs in the RMC (SIGPROM-RMC) aimed at guaranteeing the essential conditions for the recovery and protection of the springs for public water supply. The law foresees the setting up of a management council for the springs (a collegial organ with advisory and deliberative powers intended to draw up the requisite public policies); the formation of Territorial Planning Units (UTP), formed by sub-basins pertaining to the springs concerning the metropolitan region, so as to facilitate planning, including municipalities with homogeneous characteristics; the drawing up of an environmental protection and territorial reinstatement plan in spring protection areas (PPART); and the establishment of a fund for the environmental safeguarding of the Curitiba

metropolitan region (FPAA-RMC) to pursue the objectives of the integrated spring management and protection system. The formation of these Territorial Planning Units by COMEC and implemented with its co-ordination should be stressed. They are portions of metropolitan territory in the areas of the springs which have received special zoning aimed at rearranging the occupancy and use of the land depending on environmental sustainability.

Ecological potential: exchange of building potential

The UTP foresee an exchange mechanism for the right to build, which permits concentration in given areas by means of exchanging lands. This exchange takes place between the owner and the municipal administration, whereby the latter grants a higher building 'potential' on a site situated in an area where this increase is permitted and regulated. This practice is adopted when the owner's areas are on lands where current zoning does not permit construction because of restrictions linked to the presence of green areas, watercourses and so on. Initially the prefecture determines, in the UTP already approved by state decree, where concentrations are possible that are exchangeable with areas to be safeguarded. This definition is included in the concept of compatible or incompatible destination in the UTP zoning. The zoning considers four groups, classifying the area as follows: The areas of limited occupancy are the areas of safeguarding interest, the objective being to promote the recovery and conservation of natural resources, ensuring that biodiversity is maintained;

the areas of guided occupancy are compromised areas, involved in urban plot-division processes, substantially transition areas between the city and the countryside, subject to settlement pressure and necessitating the intervention of the public authorities in order to minimize the polluting effects on the resources; the areas of consolidated urbanization are the areas in need of urban consolidation, upgrading and recovery of the environmental conditions; Rural areas: areas intended for agro-sylvo-pastoral activities. This innovation of the ecological potential is in keeping with the proceedings established in the new zoning regulations of Curitiba approved in 2000. The prefecture in fact admits a greater concentration in a number of areas of the municipal territory in which it is possible to apply this solution in exchange for areas to be safeguarded situated within metropolitan territory. For metropolitan management, there are two important points in this initiative. The first one is the flexibility of the regulations relating to land use and occupancy, based on concrete facts such as occupancy in spring areas, absolutely forbidden in the preceding legislation; and the second one refers to the integration of instruments and actions between different subjects of planning (municipal administration of Curitiba and the metropolitan context). It must be pointed out that the proposal advanced by the UTP has made an economic use of the areas possible; this goes towards meeting the needs of the communities and of the owners insofar as it adds market value to the properties. In the UTP

the transfer of the population of the favelas to UTP areas, in the zone termed 'of consolidated urbanization' is contemplated, provided the basic technological infrastructures are possessed. Hence in the RMC a spring protection policy exists that attaches priority to two protection instruments: the Territorial Planning Units which are set up by the metropolitan management body, COMEC, and approved by state decree. And the Areas of Environmental Protection (APA), regulated by federal legislation. These last ones are the public water supply reservoir areas in which there are harsher restrictions on human activities because of the risk of contaminating the waters. In the RMC there are five APA, all in the spring areas: Irai, Pequeno, Piraquara, Passauna and Verde. The spring protection system (SIGPROM-RMC) foresees procedures for the sustainability and maintenance of the system such as drawing up and implementing monitoring and control plans for the spring protection areas; the training and specialization of local technical teams for the management of land use and occupancy in these areas; participation of civil society by means of direct control of occupancy of spring areas; the introduction of a system of information on the Upper Iguaçú basin; and the participation of private operators in carrying out initiatives compatible with safeguarding the springs.