



The People's Commitment towards Sustainability

[A G E N D A 2 1 B C N]

Ajuntament  de Barcelona

Municipal Council on the Environment and Sustainability

Introduction

Toward a more sustainable Barcelona. The city of Barcelona hereby presents its Agenda 21 through which it commits itself to moving toward sustainable development. This Local Agenda 21 constitutes a response to the invitation formulated by the United Nations at the 1992 World Earth Summit, an invitation to all cities to develop action plans for dealing with the social and environmental challenges of the 21st century.

The Municipal Council on the Environment and Sustainability, the driving force behind Barcelona's Agenda 21. The Council, which brings together 100 representatives from civic and environmental groups, from the business world and academia, from political groups and institutions, has worked for three years to define the main challenges facing Barcelona and the objectives around which to mobilise its citizenry in order to together achieve a more sustainable city.

An innovative, participatory process. The Agenda 21 has been the object of reporting and deliberation for the past year. The creation of The People's Commitment towards Sustainability is the result of numerous debate sessions in the different city districts, as well as dialogues, forecasting sessions and citizen proposals posted on the website, all brought together and agreed upon by consensus through district-wide and topic-based forums.

The People's Commitment towards Sustainability. The document that you hold in your hands is the definitive version of this Commitment, recently approved by the Municipal Council on the Environment and Sustainability, with ten objectives and the lines of action to follow in attaining each objective.

The signing of the People's Commitment. The signing of the People's Commitment implies action plans for the next ten years drawn up regarding those aspects voluntarily chosen by each signer in which he/she pledges to make his/her contribution toward pursuing the mutually set goals.

Barcelona, May 2002

Agenda 21 for the Barcelona of the 21ST century

Cities change. Barcelona is constantly building and rebuilding upon itself and upon the challenges that each new age brings. Barcelona has entered the 21st century with all the impetus of a rediscovered, reinvented city born of the efforts and desires of its inhabitants. The efforts of earlier generations have left us with a heritage we can be proud of, but now it is our turn. We are aware that the shape of the city of the future, the city of the 21st century, will depend on the decisions we collectively take today.

The citizens of Barcelona also change. Both those of us who were already here and those of us who have just arrived change. That is why Barcelona's appearance and its people change. The city is not a temple but an agora, a place of encounter and exchange. The city is a meeting ground that reflects everything happening all over the world. The citizens of Barcelona make the city what it is, and Barcelona makes them the way they are. It has been that way since before the Romans and after the Carolingians, and it will always be so. The citizens of Barcelona change and diversify in order to be citizens of today and not relics of the past.

And that is why we ask ourselves where we are going and how we want Barcelona to change. Different does not necessarily mean better. The Barcelona that we want ought to be the Barcelona that we need. What we need is the possible and inevitable Barcelona, which is to say the city that we are capable of making, but also the Barcelona that the world demands of us. The possible Barcelona that grows out of our will, but also the inevitable Barcelona belonging to the times we live in, both locally and globally. We need to want what we are capable of doing; we ought to want what the planet needs.

Sustainability, then, is the only option. To share in order to survive. To live fully, sharing—in space—with all other living humans, and sharing—in time—with all humans yet to be born. To share resources without damaging them, because saving does not make one poor. To share our well-being with others, because those who most generously give are the richest. To accomplish this, to “go sustainable,” requires better socio-economic organisation, the application of more efficient technologies, and especially changes in civic attitudes. Barcelona must move toward urban sustainability so that its citizens can enjoy a better city, one not built against other cities nor against other people, but one that accepts, welcomes and co-



operates responsibly.

We need a compact, mixed, efficient, diverse city. That is, the city that we already know. Diverse, because all modern cities must necessarily be diverse, with roots deep down into the earth and branches and buds shooting far up into the air. Mixed, in order to function efficiently, since mixed uses assure a steady supply. The Barcelona that we need is the mixed city we have known all our lives, compact, as always, but not quite as dense as before and now; a new city with diverse people and functions, efficient and progressive, competitive yet co-operative.

That is to say, a sustainable city. Sustainability is not vain wishful thinking, but an innovative path towards fully shared and fulfilling human living. It is an exploratory path, but one that is not only real and possible but necessary. Now we consume more resources than we in fact possess; we dump more waste in our environment than it can absorb; we impoverish bio-diversity to a dangerous degree; and above all, we deal out the benefits of this voracious appropriation of the planet's resources in a lopsided, inequitable fashion. Technically speaking, sustainability is the internalisation of all of the consequences of production and consumption. In more colloquial terms, we could say that sustainability is the rewarding path of finding joy in consuming no more than we need while not imperilling the happiness of others or of future generations.

Sustainability means shared responsibility. Being a sustainable city implies being admired, worthy of emulation. Admired by those who work to make the world a better place, by those who look for models to follow, and even by oneself. Barcelona will be admired by the rest of the world if it manages its resources efficiently and responsibly, if it does not export its environmental problems, if it welcomes dreams and new arrivals. This not only implies demands on the government, it also means participation and shared responsibility by all of its citizens because a sustainable city means everyone doing things the sustainable way together. Sustainability is not just wishful thinking but a pact among all citizens to share in caring for the environment and in wisely administering resources.

The Local Agenda 21 guides us in the right direction. It guides us in re-thinking the city, and above all, it helps us to re-think ourselves. The Agenda 21 is both a diagnosis and an action plan. With the diagnosis, it takes the city's pulse, identifying the strengths and weaknesses of the city that wants to advance toward urban sustainability. With the action plan, it establishes objectives and the lines of action deriving from them; to put it more simply, it tells us what to do in order to get to where we want to go. The Agenda 21 is a programme expressing a consensus on how to together turn



our desires for sustainability into realities. The Barcelona Agenda 21 is a list of the things that need to be done in order to build the sustainable Barcelona of the 21st century.

The foundation of the Local Agenda 21 is participation. It is difficult to speak of shared responsibility without participation, and that is why Barcelona's Agenda 21 is a product of the contributions of thousands of citizens made over months of study, reflection and debate. Yet those citizens constitute only a small fraction of Barcelona's citizenry, those that until now have joined the process. But the doors remain open. Anyone who wishes to can get involved. In fact, it is now that the real job, that of putting the Agenda 21 into practice, begins, and this must inevitably be a broadly participatory process, because in one way or another it affects all of us.

The sustainable Barcelona of the 21st century must be a place where solutions are found. Socio-economic, environmental and urban planning solutions to preserve and improve the quality and quantity of community recreational spaces, "people spaces"—the streets and squares, the parks and gardens, with plenty of green space and people-friendly architecture. Solutions so that the mixed, compact city we so desire does not become too dense and suffocating, ways of recovering and re-shaping the urban fabric emphasising creative rehabilitation with a vision toward the future. Solutions that provide new mobility based on public transport, equally accessible for all regardless of destination, with moderate environmental costs. Solutions in order to have healthier people and a healthier environment, free of waste, less noisy, with breathable air, satisfactory as well to the other living beings that share the same space with us. Solutions, thus, that integrate selective collection practices and waste recovery and recycling; that put a premium on fresh and healthy food; that save water, energy and resources; that minimise the city's negative impact on the planet and the atmosphere. Solutions, finally and above all, that foster positive social integration and the social well-being of citizens, wherever they may come from.

Social, environmental, and production solutions. The city is a place for production and exchange, not just a place to live. Environmental and social solutions cannot be dissociated from economic concerns. Production of both goods and services is the city's *raison d'être*. We live side by side in order to produce and then trade with each other. Thus the city needs to be compact, but also habitable. Urban sustainability begins with the sustainable consolidation of the production system, without which the city would just be meaningless scenery.

And also metropolitan solutions. The real Barcelona extends far beyond the official city limits. There is a whole functional metropolitan area which must be taken into consideration when addressing a large number of phenomena



and trying to find solutions to the problems they generate. Mobility, waste disposal, water, leisure activity space, and many other areas affect the entire metropolitan area, as do



production strategies. Thus, there is a need for the municipalities within the metropolitan area to address the tasks of their various Local Agendas 21, but the resulting overall Agenda 21 for all of them together will not just be a sum of its parts but something far greater. This is a challenge that we want to share with our neighbouring cities.

We are not alone. Thousands of towns and cities around the world are in the process of establishing their Local Agendas 21. Just like Barcelona, thousands of European cities have signed the Aalborg Charter. Many of us want this “new, possible world,” different but better. We are not alone, but we are in the vanguard, because few cities have clamoured for sustainability as long and as loud as Barcelona. This is a distinction that we should be proud of, but also worthy of. The Agenda 21 is a shared tool that Barcelona holds aloft as the path toward the much sought after urban sustainability.

But we have to want it, and we have to reach agreements with each other to achieve it. The Agenda 21 is not a magic wand. It is a tool for building the sustainable city that we all want. We will build it by reaching compromises, and this will undoubtedly require great effort, for change is difficult, and not everyone wants exactly the same things. The Agenda 21 carries with it the spirit of self-criticism, of give-and-take, the will to find common ground, as does the very idea of sustainability in the first place. To adhere to an Agenda 21 means realising that every true victory involves some partial surrender.

To change means governing for change. A lack of sustainability comes from our demand, and sustainability therefore implies conscientious stewardship of the supply. The world will be sustainable not when it gives us everything we demand of it but does not have, but when we ask it only for what it really can offer us. To govern is to go against trends. Firm decisions and decisive governing are needed in order to change. The Agenda 21 shows us the way, but it does not govern the city. A better and more sustainable Barcelona is a sustainably governed Barcelona, a city of the present and the future, governed in the present for the future. If it is not governed to bring about the change that we need, the change that we do not need will make the city ungovernable.

How smoothly we handle the transition is the key to the process. Changing means managing the process of change. Difficulties will arise. In urban planning and in transport, in energy and in waste management, in water and in noise levels, in habits and in customs. We know where we are and where we would like to be. Now we need to figure out how to

get there. And above all, we need to get there.

For all these reasons, the **Municipal Council on the Environment and Sustainability**, made up of civic entities, universities and businesses, government representatives and associations, **approves the People's Commitment towards Sustainability, the heart of the Barcelona Agenda 21**, and encourages everyone, both individually and collectively, to join this effort through the adoption of voluntary measures and actions that will contribute to making Barcelona a more sustainable city in the coming decade. We have only just begun. Our task is urgent, yet we have all the time in the world.

Municipal Council on the Environment and Sustainability

Objectives 2002-2012

- 1** To protect open spaces and biological diversity and increase urban green spaces.
- 2** To defend the compact, diverse city with quality public spaces.
- 3** To improve mobility and make the city streets pleasant and people-friendly.
- 4** To reach optimal environmental quality levels and become a healthy city.
- 5** To preserve natural resources and promote the use of renewable resources.
- 6** To reduce the waste generated and promote re-use and recycling.
- 7** To work toward positive social integration, strengthening equality and participation mechanisms.
- 8** To boost economic activities oriented toward sustainable development.
- 9** To progress in the culture of sustainability through environmental education and communication.
- 10** To lessen the city's impact on the planet and promote international co-operation.

Objective 1

Diagnosis

The destruction of the natural spaces around Barcelona is disturbing: over the past 25 years the amount of land within the metropolitan area that is built on has doubled—a larger increase during that period than in all of its history up to that point. Given their scarcity, all open spaces that remain, even those that are run down, are invaluable to the preservation of ecosystems and bio-diversity. The protection, improvement and connection of these free spaces (and their enlargement, if possible) are basic to ensuring the survival of the species that inhabit them and maintaining essential ecological processes. But even beyond that, these spaces play a key role in articulating the city's structure and are necessary for citizens' quality of life. In order to contain the expansion of the greater city and guarantee the protection of a system of open spaces, we face the challenge of approving a Metropolitan Territorial Plan that fully meets these criteria of sustainability.

A place for nature also needs to be made within the city. Over the past few years the surface area devoted to parks and gardens has increased substantially, and advances have been made in supervising them ecologically (Barcelona Green Spaces Plan). But the average of 6.5 m² per inhabitant could still be improved. Moreover, the green spaces we have are distributed irregularly, in a disjointed manner, with some districts (notably l'Eixample and Gràcia) having an index well below the city average.

Furthermore, we must keep in mind that the city's negative impact in terms of bio-diversity extends well beyond its limits: the space occupied by infrastructure, the exploitation of forests and agricultural land in order to provide for city-dwellers' needs, or leisure activities practised *en masse* in nature are just a few examples. Thus, we need to act in accordance with comprehensive plans, such as the Catalan Strategy for Bio-diversity.



To Protect Open Spaces and Biological Diversity and Increase Urban Green Spaces

Lines of action

- 1** Freeze the extension of land that can be built up until a metropolitan territorial plan based on the principles of sustainability can be drawn up. The protection of natural systems and their interconnections should be included among its objectives.
- 2** Catalogue, assess, and protect all the open spaces (farmland, forests, coasts, rivers and streams—and also waste dumps) as places of interest due to their biological diversity. Co-ordinate their protection and management with neighbouring municipalities.
- 3** Take measures to ensure permanent protection of the Collserola hills and work to enlarge it. Establish programmes encouraging the regeneration of other urban border areas, including rivers, beaches, and the seafloor. Improve the efficiency of and resources dedicated to managing open natural spaces.
- 4** Set up comprehensive plans for urban green spaces, incorporating mechanisms for citizen participation. Increase the surface area of city parks and tree-planted areas and improve the connections among them and between them and peripheral areas (“green corridors” or “greenbelts”), thus creating an integrated system of green spaces. Keep them in optimum conditions, encouraging everyone’s participation.
- 5** Improve knowledge of the biological diversity existing within the Barcelona area in order to also improve its management (research and monitoring, specific programmes for targeted species, options of re-introducing species, creation and regeneration of habitats, etc.). Encourage support for natural science museums.
- 6** Add more green to built-up areas. Encourage the presence of plants in squares, streets, interiors of city blocks, and also on façades, rooftops and balconies, with green coverings and hanging gardens. Cultivate urban vegetable gardens for social and educational purposes. Increase surface areas covered with porous pavements, allowing water to filter down to the water table.
- 7** Reinforce the application of sustainability criteria in the supervision of public and private green spaces: water-saving techniques and types, promotion of bio-diversity, non-aggressive plant care, composting organic waste, etc. See that at least 50% of water for plants comes from non-potable sources — the water table, rain and regenerated water.
- 8** Report and prosecute illegal trade and clandestine activities related to plants and animals. Promote responsible pet ownership and discourage pet abandonment.
- 9** Take advantage of the city’s open spaces all year long to enjoy and learn from contact with nature and bio-diversity. Develop educational programmes for everyone. Apply accessibility criteria to allow disabled persons to enjoy city green spaces as well.
- 10** Mitigate the impact of our leisure activities on the natural world, both inside and outside the city.

Objective 2

Diagnosis

With a surface area of only 99 km² and one of the highest population density rates in all of Europe (more than 15,000 inhabitants per km²) Barcelona has traditionally been characterised by great complexity and compactness resulting from its confluence and diversity of activities and uses of space. This Mediterranean and eminently sustainable city model was somewhat weakened during the 20th century under the influence of the international trend that encouraged the isolation of functions and frequently produced urban sprawl. These trends are already being corrected by returning to an urban model organised with less expenditure of energy, space and time. If all goes according to plan, the “22@ zone” should exemplify the compact urban model.

The necessary counterpart in order to sustain this urban model is to make the city an attractive place to both live and work, guaranteeing urban supply quality standards. Among the challenges facing Barcelona is that of renovating fragments of its urban fabric; bettering and updating municipal service networks; arresting deterioration and correcting pathologies suffered by buildings and dwellings; and properly maintaining its public spaces, at the same time adapting them to more sustainable ways of getting about.



To Defend the Compact, Diverse City with Quality Public Spaces

Lines of action

- 1** Improve the quality of the established elements of the urban fabric, and recover obsolete or deteriorated parts through urban renovation while respecting the historic character of each neighbourhood—all in order to gain full use of the urban area and decrease the demand for additional land.
- 2** Maintain and encourage the city's complexity. Modify city ordinances, regulations, and tax measures to be consistently in favour of a compact structure, a mixture of activities and diversified uses and interrelationships among the various social groups, with both workplaces and residences in all neighbourhoods.
- 3** Enlarge and improve public space designed for community recreational activities, children's games, strolling and just being outside (pedestrian islands, small parks and playgrounds, tree-planted avenues, squares, sidewalks). Encourage citizen involvement in the design of these community spaces.
- 4** Maintain the facilities and equipment in public spaces in good condition, since these are considered common property to be enjoyed and taken care of by everyone. Prevent and prosecute vandalism.
- 5** Facilitate the public's access to communication technologies, assessing the various alternatives in terms of their environmental impact.
- 6** Increase the energy efficiency of the city's utility networks while reducing waste of materials and environmental impact. Improve coordination among the different companies to avoid duplication of efforts and undue disruption of citizens' daily life. Ensure that all the city's lighting fixtures be non-polluting and high-performance, and that all piping capable of inspection and all substrata of new streets be made of recycled material.
- 7** Help buildings last longer through proper maintenance. Ensure that all buildings to have a safety certificate.
- 8** Further the renovation of run down but recoverable buildings through reforms in regulations and tax measures. Provide incentives especially for the re-use of unoccupied dwellings.
- 9** Guarantee minimum levels of environmental quality in the construction and operation of buildings, with the goals of eliminating toxic and hazardous materials, monitoring all the rubble produced, and ensuring that all buildings have water-saving mechanisms and certificates of energy efficiency.
- 10** Provide incentives for sustainable building through the creation of a certificate of outstanding environmental quality to be awarded for features such as facilities for selective collection, reduction of internal noise, use of natural light, renewable energy sources, materials bearing eco-labels, the utilisation of rain and regenerated water, bicycle parking, accessibility and use of domotics, etc.

Objective 3

Diagnosis

In Barcelona there is one car for every 2.4 inhabitants, with an average concentration of 63 cars per hectare (within the Eixample, up to 150!). But cars make up only 73% of the city's vehicles; add to them motorcycles, motor scooters, trucks and vans, with all the traffic congestion problems they entail. It is interesting that in the year 1965, with a larger population than now, Barcelona had only one-fourth as many vehicles.

Despite the predominance of the automobile in the urban scene, only 25% of the 4.2 million trips made daily within the city are in private vehicles (with 37% on foot or by bicycle, and 38% by public transportation). These proportions change when we look at the 2 million daily trips in and out of the city; of these, 65% are made by private vehicle. The very proliferation of the automobile contributes to urban sprawl and the separation of uses, which in turn demand greater mobility. For all these reasons, the challenges of mobility need to be recast throughout the entire metropolitan area and require co-operation among the various municipal administrations involved in order to find viable solutions.

Some of the undesirable consequences of the reign of the automobile are the expense in time and energy (transit represents 33% of energy consumption in Barcelona), air and noise pollution (cars are the main culprit in both) and the increase in accidents and aggression on the streets. Although there is a growing tendency to get around the city by bicycle or on foot, in large part due to the increase in car-free zones, the biker or walker still encounters many unpleasant obstacles. Local government, associations and other entities have signed the "Pact for Mobility" which represents a foundation for dialogue and reciprocal commitments.



To Improve **Mobility** and Make the **City Streets Pleasant and People-friendly**

Lines of action

- 1** Achieve maximum accessibility with minimum mobility. The goal is convenient connections, not increased transit.
- 2** Reorder the use of city streets in favour of the community. Give priority to pedestrians, bicycles and public transport, making necessary changes in the assignment of lanes and modifying traffic light timing. Act especially on specific routes (school, sport, tourist, etc.).
- 3** Attain an excellent public transportation system: comprehensive, fast, accessible, clean, and economical, with an integrated fare system for the entire metropolitan area. Improve the connections among transport lines; broaden the networks and increase both the frequency of service and the number of priority lanes for buses and taxis. Create a door-to-door public transport network for persons with severely reduced mobility.
- 4** Tame traffic and improve the safety on roads and streets. Reduce speed limits to 30 km/h for all streets that do not form part of the main traffic network. Strictly enforce speed limits and prevent infractions that block traffic flow (cars that are double-parked or parked in bus lanes, at bus stops, in bike lanes, on sidewalks and in other pedestrian zones).
- 5** Encourage walking. Increase the quantity and quality of pedestrian zones, eliminating unnecessary obstacles and restricting motorcycle parking. Widen sidewalks to a minimum of 3 metres, with single one-level paving and pedestrian priority for all streets less than 8 metres wide. Assure that all public spaces are universally accessible.
- 6** Make further inroads in the use of the bicycle as a daily means of transportation. Enlarge and improve the network of independent bicycle paths. Create an integrated system of bicycle lanes and paths for each neighbourhood, to include bicycle parking areas. Facilitate bicycle access on the metropolitan public transport system.
- 7** Find ways to streamline merchandise distribution to avoid inconveniencing pedestrians and neighbourhood residents. Grant commercial licenses to businesses handling large volumes of merchandise on the condition that they have their own warehouse and loading and unloading spaces. Further the use of common merchandise delivery areas by businesses in close proximity.
- 8** Foster a sense of co-operation and mutual respect on the street and among the users of the different modes of transportation. Promote ongoing driver education emphasising responsible driving.
- 9** Mitigate traffic's negative environmental impact. Provide incentives for the use of less-polluting and renewable fuels through tax ordinances (for electro-solar vehicles, bio-fuels, hybrids, etc.). Hasten the adoption of measures for reducing the noise generated by traffic, especially as applied to motor scooters.
- 10** Nurture cultural changes with respect to the use and abuse of private automobiles. Promote the use of public transport, offer premiums for car-pooling initiatives and establish measures to discourage the use of private vehicles in the city. Stimulate large companies, industrial parks, etc. to adopt mobility plans.

Objective 4

Diagnosis

In cities, the air, food and water quality, as well as the levels of cleanliness and noise, are all vital factors affecting the health of their inhabitants.

Barcelona has much cleaner air now than 20 years ago. Similarly, water treatment and food quality control as well as gradually improved street-cleaning systems assure us at least satisfactory sanitary conditions. But what interests all of us is actively improving our quality of life, not just passively accepting minimally sufficient levels. And noise levels constitute an ongoing environmental problem, mainly due to traffic. The 1997 sonic map of the city revealed that decibel levels on the main streets were high, with 34% of the population living under less than optimal acoustic conditions (registered at over 65 decibels). Some improvement is being made through the installation of sound-absorbing pavement, reduced speed limits and other restrictions and regulations affecting traffic, vehicles and machinery, measures which need to continue. Traffic is also the obvious culprit in accidents, which have been increasing over recent years (nearly 13,000 accidents the year 2000), leaving large numbers of injuries (14,815) and deaths (54) in their wake.

Another cause of much concern is the complexity of the connections between environmental conditions and disease, and we still are not fully aware of the effects produced by many factors (the concentration of air and water pollutants present in minute quantities, electromagnetic radiation, noise, chemical substances used in agriculture or animal feeds, preservatives and other food additives, etc.).



To Reach Optimal Environmental Quality Levels and Become a Healthy City

Lines of action

- 1** Prevent and monitor air pollution by adopting European air quality guidelines. Increase knowledge of secondary air pollution components, especially photochemical components such as ozone, and its precursors such as volatile organic compounds.
- 2** Improve the taste and smell of water meant for human consumption, spreading the application of new technologies for making water drinkable and intensifying hygiene controls.
- 3** Improve sewage and treatment systems. Perfect the public information and alert system on seawater quality at beaches.
- 4** Increase sanitary inspections of foodstuffs and their manufacturing processes. Improve food safety by studying the factors that affect food quality (endocrine disruptors, genetic manipulation, etc.).
- 5** Improve consumer information on foodstuffs by encouraging complete and easily understood labelling. Promote the consumption of organic foods, preferably those grown locally and regionally, and encourage their use in public eating places.
- 6** Reduce the city's noise level, targeting both fixed and moving focuses, especially traffic. Create ordinances and regulations toward this end (vehicle - especially motorcycle - conditions, speed limits, construction work, alarms, leisure areas, etc.), including urban planning projects (sound absorbing pavement and screens, etc.).
- 7** Include noise levels as a criterion for excellence in all urban planning and development projects. Promote citizen awareness that we all generate noise, reinforcing the concept of acoustic comfort as an important element in quality of life.
- 8** Make a conscious, collective effort to keep the city clean and orderly. Require pet owners to assume responsibility for their pets and avoid inconveniencing other citizens.
- 9** Foster and facilitate healthy lifestyles (physical exercise; a balanced, healthy diet; lower consumption of toxic substances; etc.). Enhance the community's means for protecting its own health. Take responsibility for caring for our own health through our daily habits.
- 10** Lower the risks posed by environmental hazards (nuclear power plants and nuclear-powered ships, the transport of hazardous substances, industry, telephone antennae, underground high-tension lines, etc.) through prevention and emergency plans, the application of the right to environmental information and the principle of precaution. Encourage research and promote the use of alternative technologies and clean production methods.

Objective 5

Diagnosis

Water is a limited natural resource essential for all living beings; thus it is in cities' interest to make sustainable use of their water resources. Though it is true that water consumption has held steady for the past few years (with a total consumption of 115 hm³ and total domestic consumption of 134 litres per person per day), in the coming years subterranean water tables and purified waste waters will have to be tapped for various different purposes.

As for energy consumption, over the past five years total end consumption has risen at an average rate of 2.94% annually, with predictions that present trends will continue unless a decided effort is made to contain them. Moreover, the energy system that sustains the city imports nearly the entirety of its energy sources, mainly fossil fuels and nuclear energy. Thus we face the challenges of finding a more efficient energy system based on local, renewable sources and setting self-imposed limits on energy needs, bringing consumption down to minimum levels.

Though difficult to quantify with precision, the city consumes significant amounts of food and other materials. Some annual consumption figures are: 1,500,000 tonnes of vegetables, 1,300,000 tonnes of meat and fish, 230,000 tonnes of paper, 287,000 tonnes of wood, and 760,000 tonnes of cement.



To Preserve **Natural Resources** and Promote the Use of **Renewable Resources**

Lines of action

- 1** Learn more about the water cycle. Plan water management in a co-ordinated manner, with the participation of everyone involved.
- 2** Reduce water consumption and increase the efficiency of water use. Raise public awareness and knowledge of the water cycle and water management.
- 3** Exploit subterranean waters to the degree necessary and re-use treated waters, including rainwater.
- 4** Reduce energy consumption. Increase efficiency in both energy generation and energy use, using the best technology available.
- 5** Increase the proportion of energy derived from non-polluting, renewable sources, with a minimum goal of 12% of total consumption coming from renewable sources, as stipulated in European Union guidelines. Install 500,000 m² of solar energy panels, generating a minimum of 15 MWp from photovoltaic cells.
- 6** Develop and promote projects that demonstrate energy efficiency and the use of clean, renewable energy sources. Co-operate to eliminate information, price, or marketing barriers that impede their widespread use.
- 7** Apply environmental and energy efficiency criteria to urban housing developments. Include these in the granting of construction licenses, with tax credits for projects that apply these criteria.
- 8** Reduce the consumption of raw materials and promote the use of environmentally friendly products. Foster re-use and second-hand markets, and establish channels to make use of food surpluses. Encourage the exchange of goods for services, foster the sharing of possessions, time bank systems, etc.
- 9** Help municipal markets and shops lead the way in encouraging good practices such as responsible consumption, using local products, avoiding overly young fish, using paper bags, eliminating excess packaging, etc. Provide incentives for shopkeepers to adopt and encourage such good practices.
- 10** Acquire daily water-saving and energy-saving habits, the respect for natural resources in general, and desirable shopping and consumption practices.

Objective 6

Diagnosis

The Barcelona municipal waste collection services collect the equivalent of 1.35 kg of waste per inhabitant per day, 40% more than twenty years ago. This waste is mainly produced in homes, although a significant portion also comes from commercial activities and services. In order to save raw materials and energy, as well as to protect the natural environment and citizens' health and quality of life, that figure should be reduced, but effective measures have yet to be applied. Although selective materials collection has increased greatly in recent years (in 1997 it was only 3.4% of total collection), it still represents only 12% of overall collection. That is, the amount of waste produced is increasing, with the bulk of the material simply going to waste, not being re-used or recycled. Most of the material generated goes to the Garraf landfill, located in a carstic massif, not at all an advisable geological site for waste deposit. The other destination is the incinerator in Sant Adrià del Besòs. At both sites, corrective measures are applied to reduce the environmental impact.

City waste management falls under the aegis of the Metropolitan Municipal Waste Management Programme, which bases its strategies on reducing the amount of waste and assessing it correctly, as well as proper waste disposal and the restoration of dilapidated areas. In addition, the Civic Agreement for a Clean and Sustainable City has recently been signed and should serve as a participatory focus and tool for implementing and assessing the new sanitation and waste collection service.



To Reduce the **Waste** Generated and Promote **Re-use** and **Recycling**

Lines of action

- 1** Reduce waste to a minimum, especially that resulting from packaging, one-use or disposable products and special wastes. The best waste is that which is not produced in the first place.
- 2** Create waste reduction plans for use in government offices and different economic sectors: commerce, distribution chains, large shopping centres, offices, etc.
- 3** Provide for an equitable distribution of the responsibility for waste, distinguishing between domestically generated waste and commercial waste. Implement tax incentives and ordinances to stimulate waste reduction and selective collection, along with dissuasive measures designed along the lines of “whoever pollutes pays for it,” to encourage people to stop polluting (punish the use of plastic bags, reward effective waste sorting for recycling, etc.).
- 4** Stop considering organic leftovers as useless garbage. Spread selective collection over the entire city in order to eventually recover at least 80% of organic material through quality composting and methanisation.
- 5** Avoid excessive, superfluous packaging and foster efficient selective collection systems in order to internalise management costs and environmental repercussions. Promote returnable and reusable bottles and packages (money back for returning containers, beverage machines designed to encourage the use of one’s own glass, etc.).
- 6** What we throw away contains recoverable resources. Improve selective collection to the point of recovering at least 75% of paper and cardboard, 80% of glass and 60% of plastic, metal and mixed-material containers. Set a calendar with deadlines for meeting these goals.
- 7** Effect the separate collection of all special-category wastes (bulky objects, oils, toxic or hazardous substances) while bringing these specific collection points as close as possible to the citizen (door-to-door collection, neighbourhood shops and small local waste disposal sites) and making information on these services readily available.
- 8** Close down the Garraf landfill for restoration, monitoring its subsequent environmental impact, and replace it with smaller treatment facilities that reduce deleterious environmental effects (composting plants, methanisation plants, controlled dumpsites for previously treated waste material, etc.).
- 9** Improve the design of waste-collection objects and apparatuses (household garbage pails, street containers, trucks, etc.) to facilitate the sorting and management of different materials from the kitchen to dumpsites. Incorporate the concept of equal accessibility in the improved designs.
- 10** Develop educational, communication, information, participation and support strategies aimed at getting all citizens to buy into these objectives and adapt their everyday habits accordingly.

Objective 7

Diagnosis

A sustainable society has to be a cohesive, tightly knit community where all members participate with equal opportunities in its economic development and social progress. The development of the social welfare state in our country over the past two decades (universal education, health care, pensions and other resources in the social safety net) already lends itself to this type of society. Local policies also contribute, as do a whole range of non-profit entities active in social and health care services, the fight against drug addiction, active education programmes, the organisation of cultural and sporting events, the integration of the disabled, and so on. Life expectancy is high in Barcelona, illiteracy has nearly disappeared and schooling is practically universal.

Nevertheless, the city faces significant social challenges, some of them due to new phenomena such as demographic changes and changes in family structures. The most outstanding among these challenges include: the ageing of the population (more than 20% is over 65 years of age), which makes inevitable demands on the social service and health care systems; a still-high unemployment rate hitting women and youth the hardest, and an increasingly unstable job market; the limited presence of the public sector in the educational system and high rates of student failure; a shortage of infant day-care centres and nursery schools; the persistence of relative poverty in certain sectors of the population (between 9% and 14%, according to different studies); and the increasing influx of immigrants, who require positive policies and resources to assure their social integration.



To Work toward **Positive Social Integration,** Strengthening **Equality and Participation** Mechanisms

Lines of action

- 1** Give priority to universal schooling and access to knowledge. Increase the number of vacancies in infant education, reduce student failure and promote lifelong learning programmes. Spread the use of the new technologies among the entire citizenry.
- 2** Enhance active local employment policies, including training and support strategies such as guidance counselling for employment and self-employment, especially for populations at risk of social exclusion. Allow more flexibility in work schedules in order to make workdays more compatible with family life. Combat job instability.
- 3** Broaden social protection coverage for needy groups, above all in the form of services for the elderly and the disabled, as well as in anti-poverty programmes. Seriously study the Basic Social Income option.
- 4** Strengthen and innovate preventive programmes (public health, drug addiction, school absenteeism, etc.) aimed at the roots of social marginalisation, working with the specific social groups most at risk. Prevention must also form part of programmes designed to enhance citizen safety.
- 5** Make Barcelona a totally accessible city, removing all physical barriers to universal mobility as well as social obstacles, encouraging the complete integration of persons with disabilities.
- 6** Sustain the universal public health care system. Work to eliminate inequalities due to socio-economic factors, geographical location within the city, physical condition or gender. Reduce avoidable and premature mortality.
- 7** Guarantee equal opportunities and combat discrimination based on sex, age, race, religion, physical condition, etc.
- 8** Search for innovative solutions to the housing problem. Encourage rentals to avoid price hikes in housing. Develop public policies aimed at discouraging speculation. Implement active public housing policies to serve the young and families with limited economic resources. Develop policies to promote independent living spaces with pooled community services for the elderly and those with significant physical disabilities.
- 9** Consolidate and increase co-operative strategies between the public sector and non-profit organisations in order to promote citizen participation, volunteerism and the co-ordination of energies. Encourage and facilitate the development of citizen networks. Move toward participatory public budgeting processes.
- 10** Be a city that welcomes immigrants. Assist them in their integration into the working world and the social, economic and cultural life of the city through a respect for differences. Strengthen mechanisms to foster immigrants' political participation and the exercise of their rights and duties in general, in conditions equal to those of the rest of the citizenry. Help to further their knowledge of the Catalan culture.

Objective 8

Diagnosis

The problems of unsustainability facing us stem in large measure from a model of economic development associated with ever-growing material and energy requirements without our being aware of the limits imposed by the Earth's capacities in terms of the extraction of resources and the absorption of wastes. Similarly, our future survival will depend on whether the environment will be able to continue to supply us with needed resources and absorb our waste products. The challenge for Barcelona, as for all other developed regions, is to evolve in the direction of a more sustainable economic development model. In this new model, wealth and well-being are not exclusively associated with quantitative increases, but above all with qualitative improvements in goods, services, resources, and people's access to them. This new developmental model must also demonstrate a greater solidarity with the rest of the world's regions, cities and peoples in terms of the distribution of wealth and the preservation of the planet's resources.

Currently, Barcelona's economy is characterised by the predominance of services and commerce. Tourism, for example, has experienced enormous growth, while much industry has relocated outside the city. Overall, the city has increased the number of jobs in spite of a drop in population. Average annual family income is above 13,000 euros and unemployment has fallen to seven per cent, although it is higher among youth and women.

Companies will have to include environmental and sustainability criteria in their modernisation processes, concomitantly adopting the most suitable management practices. Government's regulatory and tax frameworks, as well as consumers' conscientious choices, will have to encourage the business world's efforts toward greater eco-efficiency and the environmental quality of goods and services. Two possible incentives include official certificates and eco-labels for environmentally friendly products. Also noteworthy is the emergence of a new environmental sector within industry and business, a fresh source of employment and wealth.



To Boost **Economic Activities** Oriented toward Sustainable Development

Lines of action

- 1** Align local economic development and promotion with the goals of sustainability and solidarity. Reduce the urban economy's environmental impact to the minimum possible. Promote eco-efficiency, innovation and environmental management systems.
- 2** Foster awareness of environmental costs. Encourage businesses' orientation toward sustainability through tax incentives and legislation (such as mandatory reparation of environmental damages), and by implementing environmental auditing and inspection mechanisms to assess sustainability.
- 3** Work toward creating a new generation of employment opportunities both in the newly emerging environmental protection sector and in the adaptation of traditional industry and manufacture to meet sustainability criteria.
- 4** Bring about co-operation among government organisms, universities and the private sector in order to adapt university education and professional training to the demands of sustainable business. Promote research and technological innovation that can be applied in the transition to sustainable business.
- 5** Make more and better use of new technologies and digital telecommunication tools to improve procedures in the working world in order to reduce environmental impact.
- 6** Increase actions aimed at integrating members of disadvantaged groups into the workforce (women in conditions equal to those of men; disabled persons, etc.). Support enterprises that encourage re-use, recycling and social integration.
- 7** Develop the environmental sector of the economy in the area of services offered to businesses and citizens. Encourage associations among sustainable companies as well as research and education in this field.
- 8** Support small- and medium-sized businesses and neighbourhood shops in residential areas.
- 9** Promote and strengthen the sustainable tourism movement, encouraging respect for the limits to the load of tourists and other uses that the city can handle.
- 10** Include environmental criteria and social clauses in public bidding processes for construction work and service projects. Promote environmentally friendly purchasing on the part of local government.

Objective 9

Diagnosis

Evolving toward more sustainable lifestyles requires questioning individual and collective ways of thinking and acting, as well as the socio-economic and cultural milieu from which they have arisen. Such questioning is unavoidable in order to shape a new culture that links progress to the preservation of the foundations of life in all its diversity. Learning to live with fewer resources and causing less environmental impact is an experimental process that demands the active participation of everyone.

Ever since the 1980s a great many environmental education initiatives have been proffered to the Barcelona citizenry by both public institutions and community groups. Undoubtedly progress has been made in informing and raising environmental awareness among citizens; nevertheless, 70% of the population considers itself insufficiently informed. The educational proposals have focused primarily on schoolchildren, and there has been a lack of both overall strategy and continuity in their implementation. Some 125 associations, the majority of which are quite small, have participated. This diversity of educational providers, with widely varying levels of training and experience, certainly offers great potential while also posing the challenge of avoiding wasted energy and the duplication of efforts. At the same time, few studies exist on people's perceptions of these issues, nor is there much information on the profiles of the different groups at whom education is aimed; thus, little guidance is available as to the best strategies for working with each group. The lack of evaluation of the different endeavours already under way also hinders the proper allocation of resources and energies.



To Progress in the Culture of Sustainability through Environmental Education and Communication.

Lines of action

- 1** Practice what is preached by recognising the educational value of exemplary city management. Encourage concrete measures favouring sustainability and utilise them as an educational resource for disseminating good practices.
- 2** Produce and disseminate practical and readily understood environmental information that allows citizens to be aware of the individual and collective risks involved in continued unsustainability, that proposes alternatives, and that helps the citizenry assume its responsibility through changes in daily habits.
- 3** Create a social climate in favour of sustainability. Improve communication strategies in alliance with the media.
- 4** Develop a co-ordinated, ongoing educational campaign bringing together the various existing initiatives, with mechanisms for co-operation among the different education providers while respecting differences in approach. Create a network of environmental education providers.
- 5** Seek to involve people from all walks of life and social groups in environmental consciousness-raising in its varied forms (professional associations, neighbourhood coalitions, associations, volunteer groups, civic centres, families, businesses, governments, etc.).
- 6** Encourage active learning through involvement in specific projects carried out by various citizen groups and volunteer networks. Encourage encounters and the sharing of experiences.
- 7** Cultivate environmental education at all levels, from nursery school through university, above all in the training of professionals who exercise influence over the rest of the population (educators, journalists, politicians and mediators in general) and of those whose work directly affects the environment (engineers, architects, chemists, etc.).
- 8** Encourage environmental audits with the participation of those involved as an excellent first step toward initiating collective reflection, which can then lead to the adoption of improvements in management.
- 9** Continue the study of the perceptions, knowledge and lifestyles of different segments of the Barcelona population in order to decide on the most appropriate means and strategies to use in environmental education.
- 10** Systematically evaluate environmental education endeavours, disseminating information on the most successful experiences and encouraging innovative techniques. Investigate the most reliable criteria to use in such evaluations.

Objective 10

Diagnosis

Just as a city imports resources, it also exports impact. Local events merge into global realities; each step the city takes leaves its imprint, its environmental and social repercussions, on territories and communities all over the planet.

In addition to the impact generated by land occupation, the use of resources and solid waste disposal, we must also shoulder the responsibility for the quality of the water we return to nature, still very deficient at the present time (30% without receiving any treatment of all; the dumping of sludge), and for the effects of our energy system. These are devastating, both at the local and regional levels (pollution, the impact of energy generation and transport infrastructures) and at the global level, since carbon dioxide emissions arising from the use of fossil fuels only serve to increase the greenhouse effect. Add to these the methane produced at the Garraf landfill, and Barcelona's emissions of greenhouse-effect gases are on the order of 5 million tonnes of carbon dioxide per year, more than 3 Tm per inhabitant. In accordance with the voluntary Commitment proposed by the city of Heidelberg and accepted by Barcelona City Hall to reduce emissions by 20% with respect to their 1987 levels, the emissions per inhabitant must drop to 2 Tm by 2005. And to reach a globally sustainable scenario, we would need to come down over the coming decades to a maximum of 1 Tm of carbon dioxide per inhabitant. In addition, the increase in chlorine and bromine concentrations in the atmosphere is the primary factor in the depletion of the ozone layer.

We must also take responsibility for the social repercussions of advertising and sales strategies that do not always encourage the purchase of products from less developed economies, nor do they encourage sustainable forms of development.



To Lessen the City's **Impact** on the **Planet** and Promote **International Co-operation**

Lines of action

- 1** Systematically study the environmental impact of all urban planning and public works projects.
- 2** Treat all waste water. Construct the Llobregat water treatment plant and finish the Besòs plant for biological and sludge treatment. Perfect the monitoring of what is dumped into sewage systems and improve the sewers, especially to prevent overflows due to storms.
- 3** Protect the water in our natural environment: rivers, beaches and ports. All municipalities involved should form the consortia necessary to make a concerted effort to prevent pollution and guarantee clean river water (the Besòs and Llobregat rivers). Regenerate the seafloor and install artificial reefs in order to prevent trawler fishing (up to a depth of 50 fathoms).
- 4** Reduce the emissions of greenhouse gases. Make a local inventory of emissions and design action plans to co-ordinate energy saving programmes, plans to increase the use of renewable energies, clean transport technologies, good household practices, etc.
- 5** Eliminate methane emissions into the atmosphere at landfills. Capture and capitalise on biogas as a fuel for buses and public utility trucks, in the gas network and for electricity generation.
- 6** On a global level, contribute to protecting and nurturing the planet's forests, expressing solidarity through economic and technical aid. Promote the use of environmentally certified wood, and make it mandatory to use such wood in all public works.
- 7** Bring down the emissions of gases that harm the ozone layer. Make a local inventory of emissions and design an action plan that provides for the replacement of products and apparatuses and the proper elimination of those that use harmful gases.
- 8** Promote fair commerce as a way of supporting the economies and social progress of less developed countries, the wise use of their natural resources, and their sustainable development. Participate in strategies designed to bring about changes in international trade regulations to make them more equitable.
- 9** Make Barcelona a paradigm of solidarity and international co-operation. Offer special support to cities in impoverished countries and those suffering serious conflicts and crises.
- 10** Develop programmes and projects to strengthen peaceful attitudes, giving preference to preventative strategies and conflict resolution.

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