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Andalusian Environmental Health Plan 2008-2012

JUNTA DE ANDALUCIA

Andalusian Environmental Health Plan (2008-2012)

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Consejería de Salud. Junta de Andalucía

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Consejería de Salud. Junta de Andalucía

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Presentation

Today's scientific and technical information, far removed from the uncertainties of the past and the limited availability of systemised information, enables us to prove that the deterioration of the environment has a negative effect on health. However, it is hard to establish a cause-effect relationship between specific environmental factors and adverse health effects due to the complex nature of the links between environment and health. Because of this, the relationship between environment and health has not been adequately dealt with in the past and this heightens the need to establish new ways of approaching this subject.

As a result of some of the events of recent years, European citizens have become more aware of the effect that the environment has on health, giving rise to a demand for corrective and preventive measures. The Special Eurobarometer "Attitudes of Europeans towards the Environment", published in April 2005, shows that Europeans think a healthy environment is as important for quality of life as the state of the economy or social factors. In Andalusia, according to information published in the 2006 Ecobarometer, 52% of those consulted were quite concerned about the environment and 40% were reasonably concerned.

This concern is reflected in European countries and institutions who have been working on the Environmental and Health Process in Europe (EHPE) since 1989 when the European Charter on Environment and Health was adopted by the Ministers of Health and the Environment of the World Health Organisation Regional Office for Europe; the Helsinki (1994) and London (1999) declarations set out additional actions, above all the National Environmental Health Action Plans (NEHAPs).

In 2002 the European Council approved the EU Sustainable Development Strategy as a long-term strategy bringing together environmental, economic and social approaches to sustainable development policies. One of the aims of the strategy is to limit significant public health risks; the subsequent review of the strategy in 2005 and 2006 highlighted several fundamental areas, one of which was public health, which needs a strong push at the highest political level in order to involve citizens, speed up decision making and adoption processes on all levels, stimulate a more collective thought process and speed up the adoption of new, improved ideas.

In the light of this, expert and institutional opinion tends more towards formulating proposals aimed at integrating health and environmental policies and taking joint decisions and actions which provide a coordinated response to this problem. This was acknowledged by the Commission of the European Communities in its Communication to the Council, the European Parliament and the European Economic and Social Committee on 11 June, 2003, in which it put forward the need to establish a new European Environment and Health Strategy with a more integrated approach. This approach involves incorporating information, research and intervention in health and environmental matters and including health and environmental considerations in other EU policies and measures.

The main aims of the Strategy are to reduce the disease burden caused by environmental factors, to identify and prevent new health risks stemming from environmental factors and to establish policies within this context in the European Union. The ***European Environment and Health Action Plan*** was drawn up in 2004 to serve as an instrument of the new strategy. The next landmark in the process will be the Pan-European Ministerial Conference on Environment and Health to be held in Italy in 2009. Countries participating in this process have undertaken to develop and implement any national environment and health plans and health care measures needed to achieve the agreed aims.

Andalusia has sufficient planning instruments to undertake this process. The Regional Ministry of Health has a structured public service which meets environmental health needs. Over the past 20 years environmental health surveillance networks and systems have been consolidated, adequate response has been provided in risk situations and environmental considerations have been incorporated into epidemiological surveillance, health programmes and health care installations. The reduction of environment related health risks is currently one of the priority aims of the Andalusian Health Plan (2003-2008) and specific strategies have been developed to this end.

Item 9.10 of the Andalusian Strategy for Sustainable Development, approved in 2004, concerns environmental health in cities, and in 2007 the Andalusian Action Plan for the Climate was approved within the framework of the Andalusian Strategy for Combating Climate Change. Among the priority areas of the Andalusian Environment Plan (2004-2010) can be found the integrated management of water resources, urban sustainability in line with Agenda 21, and the environmental management of coastal areas.

As a result, the Autonomous Region's current strategic planning contains the basic elements of health and environment but leaves plenty of scope for carrying out specific processes in this field which would complement existing plans.

An important factor in the decision to set this planning process on health and environment in motion was the fact that Andalusia's new Statute of Autonomy establishes a title concerning the environment which states that the Andalusian government authorities will promote policies aimed at improving citizens' quality of life by reducing different kinds of pollution and setting standards and levels of protection. It also states that these policies will be aimed, above all in towns and cities, at guarding against noise pollution and controlling the quality of water, air and soil. This mandate is included in the competencies established in the sphere of environmental health (article 55) and the environment (article 57).

The Statute acknowledges that all people have the right to live in a balanced, sustainable and healthy environment and to enjoy natural resources and those of the surroundings and landscape on an equal basis. Responsible use of these resources must be made to prevent them from deteriorating and they must be preserved for future generations, in accordance with the provisions of the law.

The Andalusian Environmental Health Plan, wholly in line with international mandates and the first of its kind in Spain, will provide the following benefits:

- Better identification of environmental factors which are negative to health and the introduction of management procedures for correcting them which integrate environmental and healthcare measures.
- Risk prevention through monitoring instruments and integrated procedures to evaluate health and environmental situations.
- Greater integration of health aspects in environmental and other sectorial policies, above all at a local level, through supporting intersectorial measures aimed at developing healthy environments

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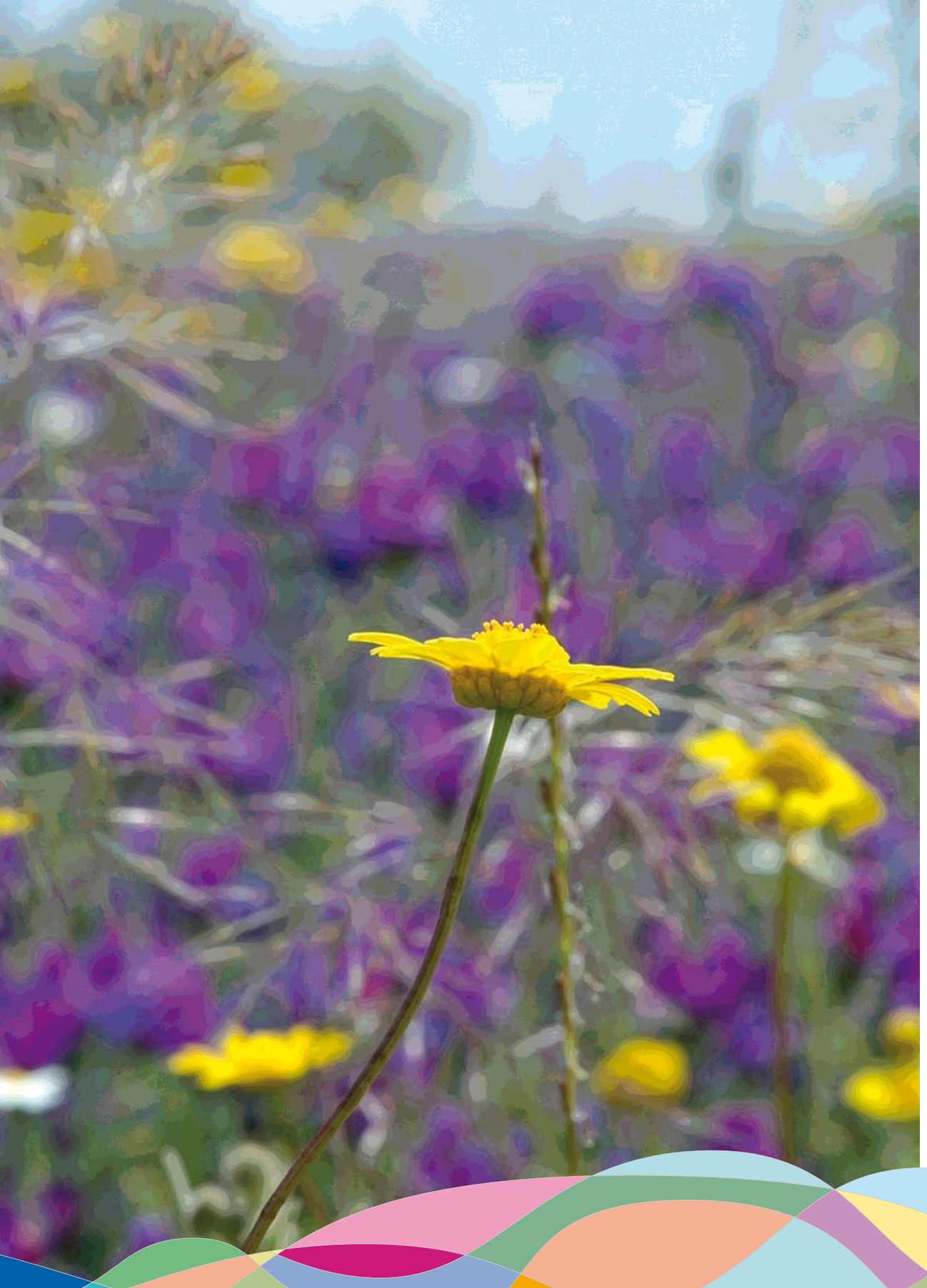
ÍNDICE

1
Introduction



This Andalusian Environmental Health Plan has been drawn up for several reasons.

Firstly, there has been a considerable increase in the concern felt by the general public about the effect of the environment on health, giving rise to a demand for protective and preventive measures in line with those observed in the European Union. Water pollution, climate change, air pollution and the potential danger posed by chemical products are some of the environmental questions which most concern European citizens.

In this respect, some events which have occurred in Europe over the past decade have caused alarm among citizens. Although these occurrences differed in nature and repercussions – toxic waste, contaminated food, etc. – the general public has seen them as manifestations of the same fundamental problem which affects, or may affect, their individual health, and whose roots lie in an economic model – agricultural, cattle-breeding, industrial – based on productivity at all costs, and on a social model which thrives on a high level of consumption of all kinds of resources with no regard for the possible repercussions on health protection or environmental control.

To this must be added the rapid introduction of new technologies which, although they aim to make life easier, are associated with potential risks which are not always well defined and explained. This is the case with communications technologies, biotechnologies or nanotechnologies.

Secondly, today's scientific and technical information has shown that environmental deterioration causes loss of health. Studies have been made of the economic dimension resulting in the conclusion that environmental problems are the cause of up to 6% of health care spending.

In relation to the circumstances mentioned above we must bear in mind the answers provided by European public authorities. In recent years, aside from the palliative and corrective measures applied to disaster situations, proposals have been put forward and structural decisions have been taken which affect various policies, such as those relating to food (created by the European Food Safety Authority and national agencies), agriculture (the reformation of European agriculture policy which dissociates funds from intensification of production),

the environment (thematic strategies, review of EU sustainable development strategies) and health care (promoting the pan-European health and environment process, etc).

On the other hand, health protection has always been one of the mainstays of European Union environment protection policies. EU environmental legislation is based on the adoption of safety measures and the implementation of systems to monitor and control many known health risk agents. The main spheres of action are, among others, chemicals, atmospheric and soil pollution, water protection and management, noise, industrial waste and accidents. Thus, the Sixth Environment Action Programme aims at helping citizens achieve a high standard of quality of life and social welfare by providing an environment where pollution levels are not harmful to human health and the environment, and the Programme of Community Action in the Field of Public Health (2003 – 2008) regards the environment as a determining factor for health.[1,2] In the same vein, the EU research framework programmes have created specific measures for this field.

Nevertheless, it must be acknowledged that in spite of the positive effects of current legislation on human health the measures have so far been adopted without thorough knowledge of the consequences of widespread exposure to a specific pollutant or other risk agents, or the synergic effects of exposure to several pollutants or risk factors. The complex nature of environmentally based health risk phenomena is a challenge to both scientists and decision making institutions. There are many potential assaults (physical, chemical or biological) to which an individual can be exposed and it is difficult to gauge the circumstances in which these can arise (outdoors, at home or at work) and their duration. All this makes it difficult to identify the link between an environmental factor and health effects. On the other hand pollutants, except when accidents occur, are usually low level and are on the borderline of observable effects. The effects of an exposure of this kind are usually only seen in the long term, though at times a significant number of populated areas are potentially exposed. The measures which can be adopted in these situations often contain great scientific uncertainties, have important economic consequences and raise questions of social acceptability which spread the problem and its solutions beyond the strict health impact framework.

In 2003 the European Commission decided that the political measures adopted to date had not taken these facts sufficiently into account, raising the need to integrate them to enable environment and health interactions to be tackled more efficiently. To achieve this integration the Commission considered it

essential to develop both environmental legislation and human health protection measures and committed itself to a new EU Strategy on Environment and Health. [3]

The added value provided by this Strategy is the development of a community system which integrates all the information on the state of the environment and human health. This will enable an evaluation of the global environmental impact on human health to be made which would take into account all the effects on the latter, such as the "cocktail" effect, combined exposure, cumulative effects, etc. The ultimate aim is to develop an environment and health cause-effect framework which will provide all the necessary information for the development of a policy which deals with the sources and the pathways through which environmental stressors act. This can only be achieved through an integrated approach within the community framework of sustainable development.

In 2004 the European Environment and Health Action Plan 2004–2010 was approved. [4] This will be the instrument through which the Strategy is implemented and its main objectives are as follows:

- To reduce the impact of diseases caused by environmental factors
- To identify environmental health risks and strengthen response in this area
- To review and adapt risk reduction policies
- To improve coordination between health care, environmental and research sectors

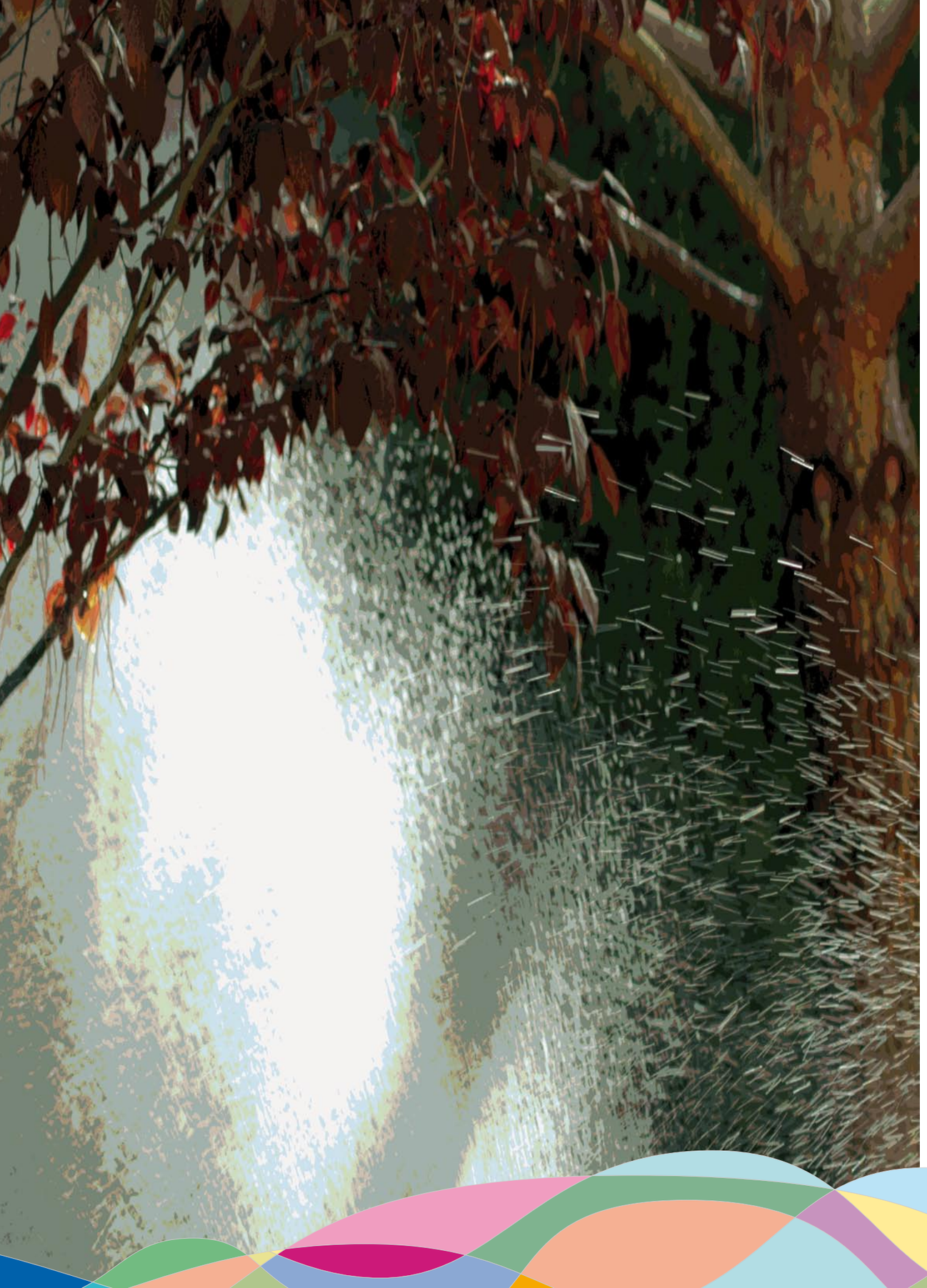
It is also significant that, in tune with the afore-mentioned concerns of European citizens, the 2002 United Nations Summit Meeting in Johannesburg echoed the need to take steps to assess the links between health and the environment by creating more effective national and regional policies to combat environmental threats to human health, as stated in the Johannesburg Plan of Implementation. [5]

In the light of all these circumstances, the approval of this Environmental Health Plan aims to bring Andalusia closer to the European process and place the region within the framework of the approach outlined in the European

Environment and Health Strategy and in line with the action plans implemented by other member countries (Germany, Denmark, France…). Following its first enforcement period, 2008-2012, the Plan should be reviewed and updated with the results obtained from the evaluation and with improved scientific and technical knowledge.

Andalusian Environmental Health Plan 2008-2012

2 Principles and Structure of the Plan



2.1 FORMULATION OF THE PLAN

This plan has been formulated by technicians from the regional ministries of Health, the Environment and Agriculture and Fisheries, the Andalusian Water Agency and through the contribution of experts from the Andalusian School of Public Health and the Carlos III Health Institute. Some specific contributions have also been made by external consultants

Prior to drawing up the Plan the regional ministries of Health and the Environment jointly undertook to analyse the environmental health situation in Andalusia in order to determine which measures were necessary to:

- Improve health protection against identified environmental factors
- Prevent new health threats stemming from emerging environmental risks

This analysis was approached from four basic standpoints:

1. The environmental situation: water, air, soil and biome
2. The effect of anthropic action on the environment: main activities and affected sectors
3. Risk factors: physical, chemical and biological pollutants
4. The assessment and management of health risks: responsibilities and jurisdiction

The conclusions, which were included in a preliminary document, have been used as the basis for drawing up this Plan and determined the advisability of implementing actions designed to:

- Improve environmental conditions (indoors and outdoors)
- Reduce population exposure to pollutants
- Moderate activities which effect the condition of the environment
- Improve health risk assessment and management
- Increase information on health and the environment

2.2 FIELD OF ACTION OF THE PLAN

The field of action of the Plan is, therefore, wide; it integrates the main environmental problems affecting health and is based on prevention and precautionary principle.

In line with plans drawn up by other European countries, certain subjects which, due to their nature, should not be included in this Plan have been left out: food contamination; food additives; genetically modified organisms; road, industrial and domestic accidents; natural disasters and radiation. Other plans (annex IV) or regulations, for the time being, give sufficient coverage to these subjects. Nevertheless, if the need arises, some of these could be included when the second Andalusian Environmental Health Plan (2013-2017) is drawn up.

2.3 STRUCTURE OF THE PLAN

The Plan is divided into ten priority thematic areas, seven of which are sectorial and three transversal. These areas, together with their objectives, are included in the table on the following page.

Each priority thematic area mentioned in the document will include a brief situation analysis, a description of the main lines of action and the measures needed to put them into practice.

The Plan lays out 38 actions (annex I) for carrying out the twelve specific objectives; these, in turn, will be developed through 122 measures. Although these are sectorial measures related to their particular thematic area, they are all united by a horizontal relationship. This horizontal relationship is explained through the 11 Structural Priorities of the Plan included in annex II.

In order to improve the contents of the Plan, prior to being approved, it has been subjected to public inspection and has been the object of reports drawn up by the Andalusian Health Council and the Andalusian Environment Council.

GENERAL PRINCIPLES	THEMATIC AREAS	SPECIFIC OBJECTIVES
	Sectorial areas	
To improve health protection against identified environmental factors To prevent new health threats stemming from emerging environmental risks	Water quality	• To prevent health risks associated with different uses of water
	Air quality	• To reduce the general public's exposure to atmospheric pollution and noise • To gain more knowledge about the health impact of atmospheric pollutants
	Chemical safety	• To improve control of health risks associated with chemical products
	Biological safety	• To improve measures to protect the population against diseases associated with wild animals
	Facilities posing health risks	• To reduce the rate of infectious diseases associated with risk installations, above all Legionnaire's Disease
	Indoor air quality	• To prevent allergic and respiratory diseases associated with indoor air quality in buildings
	Health risks in specific population groups	• To prevent risks associated with prolonged exposure to excessive levels of amplified music, especially among the young
	Transverse areas	
	Assessment of health risks linked to environmental factors	• To strengthen the integration of health criteria in environmental protection and prevention processes and instruments • To evaluate health risks associated with environmental factors based on the best scientific knowledge available
	Information and communication	• To provide professionals and citizens with access to information on health and the environment
	Environmental health training	• To develop and consolidate health and environmental training

3

Thematic areas

3.1. CALIDAD DE LAS AGUAS

The supply of water to the general public of sufficient quality and quantity for different uses is a service of general interest and is a fundamental aim of public health policies.

Microbiological, chemical or radiological contamination of water destined for, among other things, human consumption, recreational activities, the maintenance of installations in public buildings and irrigation can cause, or contribute towards the appearance of, many different diseases.

Management of water-related health risks demands the correct coordination of environmental, water and healthcare policies, the involvement of various sectors in the solutions and the implication of the general public.

The European Environment Agency's report on the *Status of Europe's Water (November, 2003)* [6] indicates the following fundamental problems in Europe's water:

- Limit values of nitrates are exceeded in approximately a third of Europe's ground water bodies. In France, Germany and Spain, over 3% of drinking water samples exceeded the nitrate levels permitted by community legislation.
- Pesticides used in agriculture are found in surface, groundwater and drinking water at levels of concern.
- Over-abstraction of water in Mediterranean coastal areas has caused drinking water sources to be contaminated with seawater.

The report concludes that the impact of agriculture on Europe's water must be reduced, and for this to happen a correct integration of environmental and agricultural policies is needed. The current water situation in Andalusia can, in general, be said to coincide with that of Europe.

Directive 2000/60/CE of the European Parliament and the Council of 23 October 2000 establishing community action in the field of water policy establishes the definition of European waters and their characteristics on the basis of river basins a water districts, and the adoption of management plans and programmes of measures appropriate for each body of water. The measures provided for in the plan seek to:

- Prevent further deterioration, enhance protection and restore bodies of inland surface water, achieve good chemical and ecological status of such water and obtain a significant reduction in pollution from discharges and emissions of hazardous substances;

- Enhance protection and restore all bodies of groundwater, prevent the deterioration of their status and ensure a sustainable balance between groundwater abstraction and recharge;

- Preserve protected areas.

The directive also establishes that it is mandatory to pass the costs of water services on to the beneficiaries.

Generally speaking, the quality of Andalusia's inland surface water is below national levels; in Andalusia, the overall quality rating stands between 50 and 65 (admissible rating), while national levels stand at between 75 and 100 (acceptable rating).

The erratic Andalusian climate, the effect of various human activities on the environment and the inadequate management of impoundment and supply infrastructures can, at times, give rise to supply problems and deterioration in water quality. Drought, deforestation, erosion, sedimentation, diffuse pollution and discharges are, therefore, determinant factors.

On the other hand, water demand for various uses (agricultural, industrial, leisure, supply, etc.) is on the rise and in 2004 reached 5,661 Hm^3. An example of this is the consumption in Andalusian homes, which rose15% over the 1996-2004 period, while in Spain as a whole it increased by 17%.

Water intended for human consumption

According data from the Indicators on water, of the Spanish National Statistics Institute [7], consumption in Andalusian homes in 2004 was above (189 l/hb/day) the national average for Spain (171 l/hb/day).

Most of Andalusia's water resources for supply systems comes from surface water (73% of the population supplied). Nevertheless, many supply systems which collect surface waters also have alternative groundwater collecting systems. These are either used normally or as an exceptional measure (drought or emergencies) and are mixed with surface waters. Currently around 600 companies supply water to the inhabitants of Andalusia, including town and city councils who supply water directly to their municipalities.

Desalination is acquiring greater importance at securing drinking water supply, so it is becoming a strategic factor. Currently, there are two desalination plants: one is on Malaga's Costa del Sol and the other in Almería. Future planning includes strengthening this alternative. The framework of the *Plan de Ordenación del Territorio de la Costa del Sol Occidental* (town and country planning of the western Costa del Sol area) [8] includes setting up six desalination plants in various phases.

Although generally speaking the quality of Andalusian drinking water is good, in 2006 1.23% of the population experienced supply problems due to the available drinking becoming unfit for consumption and alternative supplies had to be used. The main problems found were basically caused by the following factors:

- High salt levels in water intended for human consumption in some areas of Andalusia. This situation, which is accentuated during periods of drought, affected 1.02% of the Andalusian population. It has its origin in the characteristics and structure of the land where the water supply for these areas lies. Although high salt levels are not a consumer health risk, the quality of the water supplied does not comply with regulation standards.

- Isolated episodes of microbiological contamination due to incorrect application of water disinfection treatment or unsuitable maintenance of the distribution infrastructure. Water rendered unfit for consumption due to the above affected 0.06% of the population.

- Contamination by agricultural products, specifically pesticides and nitrates, of surface waters and groundwater intended for human consumption.

  - Nitrate contamination rendered water supplied to 0.15% of the Andalusian population unfit for consumption. This was mainly due to excessive use of fertilisers and farming waste.

  - Various isolated episodes of pesticide contamination linked to specific weather situations also occurred in reservoir stocks used to make drinking water. This rendered drinking water supplies for 0.001% of the population unfit for consumption, a figure which fell below last year's levels.

Recreational water

581 kilometres of the Andalusian coast is regularly used by the public for bathing. In 2006, for the purpose of health monitoring, 232 coastal bathing areas were registered and 324 sampling points were established at these points. 98.8% of the sampling points returned good water quality complying with EU directive 76/160/CEE [9]. The water did not come up to EU regulation standards in 1.2% of the points. In Spain as a whole, 99.3% of the sampling points returned satisfactory levels, while 0.7% did not.

The main source of contamination of coastal bathing water is wastewater discharge from urban centres. This is a very seasonal problem caused by the failure of some water treatment infrastructures to cope during the summer when the population is double or triple that which the installations were originally designed to handle. Organic waste is the main contaminant in these discharges.

As far as the 28 inland bathing areas (rivers, streams and reservoirs) registered in 2006 are concerned quality was higher than that of recent years, with 93.1% complying with EU regulations and 6.9% being sub-standard. In Spain as a whole, 94.5% of the sampling points comply while 5.5% do not.

Wastewater treatment

There has been a positive evolution in Andalusia's sanitation. There are currently 497 urban sewage treatment plants in service with capacity to treat enough sewage for a population of 10 million inhabitants, which is 74% of the total contaminant load from urban centres generated in Andalusia.

Installations needed to purify 4% of the contaminant load generated in Andalusia are currently under construction.

Measures taken by the Andalusian Regional Government to equip the region with a well-distributed system of sewage treatment plants have focussed mainly on dealing with large towns, coastal municipalities and towns which discharge wastewater onto protected areas: water supply source areas and those of environmental interest.

Reuse of reclaimed water

Promoting the reuse of reclaimed wastewater has for some years been one of the main aims of improving the use made of water in Andalusia. In 2004, 143.990 m^3/day of wastewater was reused; this is 6.38% of the volume of wastewater collected and 7.21% of wastewater treated. The reclaimed water was mainly used for watering agricultural land, parks, gardens and golf clubs.

According to data from January, 2007, collected by the Royal Spanish Golf Federation, Andalusia is the autonomous region with most golf courses in the whole of Spain: there are 90 golf courses, compared with 340 in the whole country. Of all the Andalusian provinces, Malaga is the most note-worthy, with 45 official golf courses.

Various initiatives have been taken in recent years, such as the *Plan de Ordenación del Territorio de la Costa del Sol Occidental*, which includes the construction of a distribution system for reusing treated wastewater.

CONCLUSIONS DRAWN FROM THE CURRENT SITUATION

- As in other European countries, one of the main challenges as far as water management is concerned is to reduce the impact of agriculture on water resources.

- Although the sanitary quality of water intended for human consumption and for recreational use can generally speaking be described as good, management of the same must be improved in order to correct isolated

incidents of contamination which still occur. To this end it is essential that the administrative bodies involved in applying the different sectorial regulations coordinate with each other.

- The evolution of sanitation in Andalusia has been positive and priority areas, such as sensitive areas, large towns and coastal tourist enclaves, together with other centres, have been equipped with treatment plants. Nevertheless, the level of compliance with the EU directive on the treatment of wastewater (91/271/CEE) should still be improved.

- Owing to the water situation in Andalusia it is advisable to make greater use of reclaimed wastewater. To this end, reuse of these waters should continue to be promoted, taking into account sanitary guidelines to minimise the risks associated with different uses.

- Information available to the general public on the health aspects of different uses of water should be improved with a view to involving them in the solutions applied.

OBJECTIVE

To prevent health risks associated with different uses of water

ACTIONS

1. To improve prevention and intervention measures applied to the management of water quality in order to ensure a high level of protection for the target population

1.1. To strengthen monitoring of pesticides in reservoirs used for drinking water supplies, carried out by basin organisations.

1.2. To develop support measures for drinking water treatment plant (WTP) management companies with a view to installing technologies designed to eliminate contamination by plant protection products more effectively.

1.3. To set in motion, during the enforcement period of the Andalusian Environmental Health Plan, research into the behaviour of certain pesticides in water.

1.4. To protect any open water channels used for human consumption which could be exposed to the risk of contamination.

1.5. To carry out studies on reservoir basin catchment areas with a view to determining possible measures to protect water abstraction for human use.

1.6. By 2008, to implement Royal Decree 140/2003 establishing health criteria governing the quality of drinking water in Andalusia in order to adapt it to the regional situation. [10]

2. To improve prevention and intervention measures applied to the management of bathing water quality in order to guarantee risk-free bathing

2.1. To adapt, in 2008, the *Red Andaluza de Vigilancia Sanitaria de Calidad de las Aguas de Baño* (Andalusian Network of Sanitary Monitoring of Bathing Waters Quality) to the criteria established in the new EU directive 2006/7/CE of 15 February concerning the management of bathing water quality. [11]

2.2. To define, during 2008, the characteristics of Andalusian bathing waters and establish a new register of bathing waters in compliance with Directive 2006/7/CE.

2.3. To draw up, in 2009, new regional regulations governing the management of bathing water quality in line with the European directive.

2.4. To set up studies aimed at determining the effect on bathers' health of the presence of cyanobacteria in the water.

3. To promote and facilitate the use of reclaimed wastewater according to health criteria

3.1. To review and adapt to technical advances the health criteria applied to the reuse of reclaimed water in Andalusia, during 2009.

3.2. To create a good practise guide to the safe use of reclaimed wastewater, and make it available to users in 2010.

3.3. By 2012, to achieve the goal of reusing 60 million cubic metres of reclaimed water.

4. To develop new coordination instruments which integrate the work of all the government offices involved in water management and enable the sector to adopt the measures within their jurisdiction

4.1. To develop and implement protocols to determine the coordinating actions between different government bodies involved in the management and monitoring of water quality. In 2008, for water supplies and in 2009, for bathing waters.

4.2. To develop and implement in 2008 a protocol to determine steps to be taken to achieve coordination between health authorities (local and regional) and the supply management companies involved in the research and control of sporadic episodes of contamination of drinking water

4.3. To establish measures to coordinate the actions of the health administration and basin organizations with regard to the processes of granting concessions or authorizations to use water sources for water supply.

4.4. To establish measures to coordinate the actions of the Regional Ministry of Health and the Andalusian Water Agency with regard to subsidies for building new infrastructures.

4.5. To draw up an intersectorial plan to reduce the impact of agricultural products on the quality of water to be used in the water supply system.

5. To provide consumers, users, business and public bodies with sufficient information on aspects related to water which could affect their health

5.1. In 2009, to take whatever steps are needed to ensure that consumers have specific and adequate information about the quality of the drinking water supplied to them.

5.2. In 2010, to drawn up and make available to the general public a Guide to Sanitary Recommendations in the event of isolated alterations in the quality of the drinking water occurring.

5.3. In 2009, to implement a public information system concerning the health and environmental conditions of bathing waters.

3.2. AIR QUALITY

In recent years, studies carried out in various cities have concluded that increases in atmospheric pollution levels, even below air quality levels considered safe, are linked with adverse effects on health, above all respiratory and cardiovascular disorders, although evidence also points to the existence of adverse reproductive effects, such as the increase of perinatal mortality and of premature birth (low birth weight or intrauterine growth retardation). [12,13]

In Europe, around 60,000 deaths a year could be associated with long term exposure to air pollution by particles above permitted levels, according to studies carried out on a total of 80 million inhabitants in 124 European cities. [14]

In recent decades, the prevalence of asthma and allergies caused, among other things, by air pollution, has increased yearly. On average 10% of European children suffer from the symptoms of this disease and the rate of occurrence of these is ten times higher in western European countries than those in the east. [15]

Approximately 20% of the population of Western Europe is exposed to noise levels considered unacceptable by both health care professionals and scientists [16]*. It is now estimated that traffic noise alone is damaging the health of nearly a third of Europeans. The main risks identified by the WHO are hearing difficulties (pain and hearing fatigue, hearing impairment and various kinds of auditory problems) and also other non-auditory effects such as altered social behaviour (aggressiveness, etc.), difficulties in communication, sleep disturbance, cardiovascular effects, hormonal effects (which can give rise to irregularities in the metabolism and immune system) and a decrease in concentration which affects intellectual performance.* [17]

Chemical quality

Emissions of air pollutants

In Andalusia monitoring of emissions of air pollutants is carried out through the Regional Ministry of the Environment's mobile units, collaborating institutions specialising in environmental protection, self-control carried out by companies and, for sources of greater potential contamination, continuous monitoring with real-time data transmission to the Regional Ministry of the Environment. Emission data from 2004 registered in the *Inventario de Emisiones a la Atmósfera de Andalucía* (Andalusian Atmospheric Emissions Inventory) shows that the main sources of emission according to type of pollutant are the following: [18]

Sulphur dioxide (SO_2)	Factories
Particles of less than 10 microns (PM_{10})	Mainly traffic although contributions from factories and other stationary sources are also significant
Nitrogen oxides (NO_x)	Mainly traffic, followed by factories
Carbon monoxide (CO)	Traffic and stationary sources
Non-methane volatile organic compounds (VOC)	Other sources, among them, biogenic emissions

Greenhouse gas emission data for 1990 – 2004 shows continuous yearly increases.

Ambient air pollution levels

Based on data from the *Red de Vigilancia y Control de la Calidad del Aire de Andalucía* (Andalusian Network of Monitoring and Control of Air Quality) for 2005 and 2006, which consists of 86 stations distributed around 42 municipalities, we can extract the following conclusions:

- Non-acceptable ratings, mainly due to high levels of ground-level ozone and particulate matter (PM_{10}) were fairly frequent in several of the *Red de Vigilancia* stations. The levels reached by these pollutants are similar to those of other autonomous regions and of other Southern European countries.

- Ground-level ozone formation is dependent on emission of its precursors (nitrogen oxides and volatile organic compounds) and mainly occurs under climatic conditions prevalent in spring and summer throughout Andalusia (clear skies, bright sunlight, high temperatures and great atmospheric stability). This is why high ozone levels, which frequently exceed the thresholds and objectives contained in current regulations, are registered in summer across most of our autonomous region. In Andalusia, the provinces which exceeded the target value for most days were Seville and Huelva.

- As far as PM_{10}, particulate matter are concerned, the limit values are frequently exceeded, a common situation across the whole of Southern Europe. These particulate matter pollution contain a quite significant percentage of particles of natural origin, such as the intrusion of dust from Africa and the re-suspension of particles from the land. Nevertheless, in some parts of Andalusia industry and traffic greatly contribute to this pollution.

- The limit values for sulphur dioxide was only breached in one of the stations situated in the bay of Algeciras.

- High levels of nickel and arsenic have also been registered near some Andalusian industrial areas, such as Huelva, the bay of Algeciras and Bailen.

- Concentrations of the rest of the pollutants registered fell below the regulation limit values.

Situations requiring greater attention have already been tackled through environmental quality plans. Since 2005 the *Plan de Acción Medioambiental para el Campo de Gibraltar* (Gibraltar Area Environmental Action Plan) has been enforced. This action plan has achieved a significant reduction in the number of sulphur dioxide incidents. Another plan currently enforced is the *Plan de Mejora de la Calidad del Aire* (Air Quality Improvement Plan) in Bailen, and the *Mejora de la Calidad Ambiental de Huelva y su Entorno* (Improvement of Environmental Quality in Huelva and Surroundings) and the *Bahía de Algeciras* (Bay of Algeciras) plans are also being drawn up. [20,21,22]

It is estimated that the measures adopted in the above-mentioned plans should reduce pollutant levels and also minimize the environmental effects brought about by transient and isolated situations related to the activities which cause a deterioration of air quality.

Biological quality

The main health problem linked to biological air quality concern allergies caused by pollen levels in the air. The prevalence of allergies among the population of Spain stands at 21.6%; a third of these are caused by pollen. Within the 18 to 24 age group the prevalence rises to 26.9%. [23]

In 2006 pharmaceutical costs stemming from prescriptions for treating typical springtime allergies dispensed within the Andalusian health system stood at 34.2 million euros [24]. These were mainly for nasal decongestants, ophthalmological preparations for ocular infections and antihistamines. Nearly a third of this spending was occurred in March, April and May, which is when the majority of allergies occur.

The most commonly found allergenic pollens in Spain come from cypress trees, holm oaks, grasses, olive trees and plane trees. In fact, the most significant cause of polynosis is the atmospheric presence of pollen from wild grasses (not cultivated); olive tree pollen is also important in Andalusia, being the primary cause of polynosis in Jaen, Cordoba, Malaga and Seville.

The annual pollen concentration registered in Andalusia for 2005 differed from the distribution pattern of previous years. Although the highest pollen levels are usually registered in inland provincial capitals, in 2005 the highest pollen levels were registered in Cadiz.

Environmental noise

Environmental noise caused by traffic and both industrial and recreational activities are one of Europe's main environmental problems and is the source of an ever increasing number of complaints from the general public.

Noise, in the Andalusia's 2001-2006 Ecobarometer, was the local problem which most concerned Andalusians, taking precedence over dirty streets, refuse, lack of parks and gardens and rubbish.

According to the document *"La Contaminación Acústica en las Ciudades de Andalucía"* (Noise contamination in Andalusian cities), which brings together various studies carried out by the Regional Ministry of the Environment between 1992 and 2005, the main source of urban noise in Andalusian cities of more than 50,000 inhabitants is road traffic, which is responsible for 79% of all emissions. [25]

There are no significant differences between the levels of urban noise registered in different population centre in Andalusia and those registered in the main cities in Spain and our immediate social and economic neighbours.

CONCLUSIONS DRAWN FROM THE CURRENT SITUATION

- The main air pollutants in Andalusia are particulate matter and ground-level ozone. These are common in urban settings due to traffic, and occur in more isolated cases in some areas where concentrations of industrial emission sources are found.
- In recent years a gradual increase in allergic diseases has been observed due to the presence of allergens in the air, such as pollen and mites. This is more prevalent in urban settings than in rural environments.
- Environmental noise affecting the inhabitants of Andalusia is one of the main causes of loss of quality of life in urban populations.

OBJECTIVES

To reduce the general public's exposure to atmospheric pollution and noise

To gain more knowledge about the health impact of atmospheric pollutants

ACTIONS

1. To improve poor air quality classifications, above all those caused by ground-level ozone and particulate matter

   1.1. To draw up, in areas where the limit values or target values are exceeded, plans to improve air quality aimed at reducing emissions of nitrogen

oxide and volatile organic compounds with a view to improving ground-level ozone levels in the ambient air.

1.2. To draw up, wherever required due to breach of limit values or target values, plans to improve air quality aimed at reducing primary particle emissions and also those of the precursors of secondary particles.

1.3. To increase monitoring of certain pollutants, such as $PM_{2,5}$, metals, polyaromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs) ozone precursors and to optimise the *Red de Vigilancia de la Calidad del Aire* (Air Quality Monitoring Network).

1.4. To promote existing plans on Environmental Quality and Air Quality Improvement and boost the monitoring and effectiveness of the same.

2. To adopt prevention measures which have a bearing on the reduction of emissions from transport vehicles

2.1. To promote the creation of urban mobility plans and make significant progress in implementing less contaminating means of transport.

2.2. To promote alternative means of travel, encouraging the use of public over private transport.

2.3. To promote the use of cleaner fuels and technologies, rewarding non-motorized means of transport.

2.4. To promote education and citizen awareness concerning transport-related problems.

3. To reduce noise levels by improving prevention measures, promoting and intervening in noise management

3.1. To promote and coordinate the creation of strategic noise maps in large towns and transport infrastructures within the legally established time limit.

3.2. To draw up action plans aimed at improving acoustic quality in urban centres within the legally established time limits. These plans should tackle issues relating to noise and its effects as registered on the strategic noise maps, reducing, wherever necessary, noise emissions and the spread of the

same, above all those sources with a greater affect on acoustic quality: transport, industrial areas and commercial and leisure activities.

3.3. To promote the use of more silent means of travel (bicycles, public transport, walking, etc.) and also the use of technologies aimed at reducing noise emission.

3.4. To encourage local councils to declare "Acoustic Saturated Areas" wherever necessary.

3.5. To promote the inclusion of acoustic criteria in town planning in order to prevent further acoustic trouble spots, to identify the existing ones and create measures to combat them.

3.6. To adapt Andalusian environmental noise regulations to Law 37/2003 of 17 November regulating noise, to comply with its regulations and with the acoustic principles established in the Technical Building Code. [26,27]

3.7. Maintain and, wherever possible, strengthen additional steps taken by the Regional Ministry of the Environment concerning noise pollution in order to guarantee the general public maximum protection.

4. To gain more insight into and information on the health impact of atmospheric pollutants

4.1. To improve the integration of data on air quality and the state of health of the population in order to prevent risk situations, facilitate the adoption of measures aimed at reducing emissions and promote traffic planning measures.

4.2. To carry out detailed studies on possible health effects in areas where there is thought to exist a greater impact on health due to air pollution.

4.3. To assess the health impact of air pollutants by monitoring health indicators associated with this kind of exposure.

5. To strengthen coordination mechanisms between administrations and establish new channels of collaboration with sectors involved in the reduction of atmosphere-contaminating emissions

5.1. To improve the protocol for measures to be taken by different adminis-

trations in case of a breach of alert threshold or an information threshold, extending these to other government offices above the municipal level.

5.2. To enhance collaboration channels with local councils to take steps to comply with environmental noise regulations.

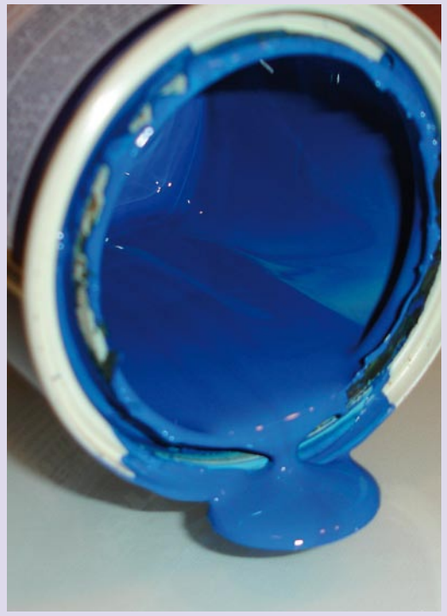
5.3. To promote investments in infrastructure and installations which reduce the emission of industry-generated air pollutants.

6. To gain greater insight into air quality for the general public, business and institutions

6.1. To incorporate new technologies which enhance the communications channels used to inform the general public about air quality.

6.2. To inform the population as a whole, and particularly health care professionals, about current and forecast pollen levels.

3.3. CHEMICAL SAFETY



There are estimated to be around 100,000 different chemicals sold in the European Union, of which approximately 70% are dangerous substances [28]. Of these, around 30,000 are sold in large quantities – over a ton/year [29]. To date, the European Union has only been able to harmonise classification criteria for dangerous substances for about 4,000 products and assess the health and environmental risk of only about 200. [30,31]

Generally speaking most European countries have neither scientific proof nor information about real exposure to chemicals and their possible effects on health.

Increases in testicular and breast cancer have been reported in several countries together with a fall in sperm quality. The causes are unknown, but it is possible that it could be a result of exposure to chemicals. [31,32]

A third of the world's chemical production originates in the European Union, with a turnover of 578,000 million euros in 2004. In that year the chemical industries of member states accumulated over half (53%) of world imports, thus consolidating its ranking as the leading international market.

Spain is the fifth largest chemical producer in Europe with an annual turnover of 41,600 million euros. This represents 7.2% of the overall European Union production figures and is only surpassed by Germany, France and Great Britain. The Spanish chemical industry accounts for 10% of total sales of the whole industrial sector (2004 data). As in the rest of Europe, the Spanish import market is very strong and an estimated 60% of the domestic market is supplied by products coming from other countries (76% from the European Union). [33]

It is significant, within this context, that the plant protection products manufacturing industry accounts for less than 2% of turnover of the Spanish industrial sector, reaching sales figures of 555 million euros, which is a drop of more than 7% over the average for the past 8 years.

According to a report published by the *Asociación Empresarial para la Protección de las Plantas* (AEPLA) in 2006, the autonomous regions with the highest consumption of plant protection products were Andalusia (31.37%), Valencia (14.28%) and Murcia (10,65%). [34]

As far as the structure of the chemical sector in Spain is concerned, 92% of the 3,676 companies operating within the industry employ less than 100 workers and over half (56%) have less than 10 employees. These figures reflect the importance of the SMEs within the fabric of the chemical industry in Spain.

Chemical production in Andalusia accounts for nearly 8% of the overall chemical production in Spain and it is fourth in the ranking of autonomous regions which most contribute to the overall national production figures. It is significant that two of the most important chemical industry centres in Spain are situated in the industrial parks of Huelva and Algeciras. With regard to the kind of chemical products manufactured in Andalusia, 44% are consumer products and 13% are for agricultural use.

According to data from the *Cámara Oficial de Comercio, Industria y Navegación de Sevilla*, there are 5,904 companies within Andalusia's chemical sector, of which 11% are directly concerned with manufacture. The remaining 89% are chemical distribution companies (26% being wholesalers and 63% retailers. [35]

The systems for providing specific information on health and environmental risks of chemical products consist of the label and the Safety Data Sheet.

The ECLIPS Project (European Classification and Labelling Inspections of Preparations) which was carried out in member states in 2003-2004 showed that 60% of the dangerous chemical products sold in Europe have defects in the contents and format of their labels and 70% had incorrect Safety Data Sheets [36]. These results are fully in accordance with the situation in Andalusia, which returned the worst results in the SMEs inspection.

With regard to information on exposure, the European Agency for Safety and Health at Work has estimated that all professional sectors are exposed to dangerous chemical products, although those which are at the greatest risk are

agriculture, the chemical industry, cleaning, construction, food treatment, hairdressing, health care, vehicle repair centres, printing, textile/leather and waste collection and treatment. [37]

As far as non-professional users are concerned, the yearly consumption of chemical substances per head in Spain in 2005 exceeded 1,000 euros for the first time. This is 140% more than the 1980 consumption figures.

The Spanish National Toxicology Institute recorded 59,724 consultations regarding intoxication by chemical products in 2005, of which 9,709 (16.3%) were carried out in Andalusia, which is the autonomous region with most consultations concerning exposure to chemical products. 78% of these consultations have their origin in the home environment due to exposure to chemicals for domestic use (34%) and prescription drugs (44%). The number of consultations according to age groups was as follows: 27% of children under 2 years, 22% of children up to 14 years and 42% of adults. The route of exposure was oral in 71% of cases.

In 2001, as a result of this situation, the European Union concluded how difficult it was for current European regulations to satisfy existing public and political concern in Europe about the potential impact of chemical products on health and the environment.

In 2008-2012 new legislation on dangerous chemicals will be introduced and will be implemented in various European regulations and directives:

- Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), which replaces current regulations on new and existent substances, limitations to commercialization and use of dangerous chemical and safety data sheets. It establishes new registration and risk assessment procedures for chemical substances and administrative authorization for handling more dangerous substances. [39]

- Regulation of the European Parliament and the Council on classification, labelling and packaging of substances and mixtures. This will replace the directives on substances and dangerous preparations and lay the foundations for a new system of dangerous substances classification and user information on dangerous chemical products. [40]

- As a result of the enforcement in 2004 of the European regulation on Persistent Organic Pollutants (POPs), the intentional production, sale and use of POPs was outlawed and a scaled reduction of non-intentional emis-

sion of POPs was regulated in a more restrictive way than that of the 2001 Stockholm Agreement [41]. Over the next few years Spain will enforce the National Implementation Plan (NIP) for POPs to comply with the commitments stemming from the European regulations and the ratification of the Agreement.

- Directive 98/8/CE on biocidal products establishes a harmonised system of marketing biocidal products in the EU based on a process of authorization/registration of these products, subject to the identification, notification and risk assessment of active biocidal substances. [42,43]

  In 2012 the implementation of the second phase of work of this Directive will be concluded, permanently eliminating from the market the existing active substances posing an unacceptable risk and obtaining the results of the risk assessment for the remaining products. In some cases, this will mean a prohibition on the commercialisation of these substances and in others there will probably be restrictions on their use, or on the type of user of biocidal formulations.

- As far as the marketing of plant protection products is concerned, a community action framework has been established to achieve sustainable use of pesticides which will guarantee greater control and safety in the marketing and use of plant protection pesticides. Over the next few years a new European Regulation will be approved which will replace and improve the current Directive 91/414/CEE. This new approach, very similar to that of the Biocide Directive as far as the risk assessment process of active plant protection substances and the authorization of formulates goes, is also planned to be integrated with the "Thematic strategy on the sustainable use of pesticides". [45]

CONCLUSIONS DRAWN FROM THE CURRENT SITUATION

- Although the sector concerned with the manufacture and formulation of chemical products does not have a major presence in Andalusia, many professional sectors prioritized due to their continued exposure in the workplace to dangerous chemical products are the backbones of Andalusian economy.

- In the home there is widespread exposure to dangerous chemical products

affecting all the inhabitants of Andalusia, above all vulnerable groups such as children.

- In Andalusia, as in the rest of Europe, there are very significant shortcomings regarding the information about dangerous substances, adverse effects and steps to be taken to avoid them, provided by the suppliers of chemical products. As a result, in many cases the real danger of these products is underestimated and in consequence it is impossible, especially in the workplace, to take effective steps to reduce the risks.

- Greater monitoring of the restrictions imposed on high risk chemical products is needed.

OBJECTIVE

To improve control of the health risks associated with chemical products

ACTIONS

1. To gain greater knowledge about the marketing conditions of chemical products and their control

   1.1. To increase monitoring and control of dangerous chemical products marketed in Andalusia with special attention to toxic and very toxic products, carcinogenic, mutagenic, reprotoxic and sensitising (allergenic) products.

   1.2. To determine the extent of compliance with European health legislation on commercial chemical products throughout the supply chain to the end user.

   1.3. To increase surveillance and control of the quality and management of Safety Data Sheets throughout the supply chain to the end users.

   1.4. To increase surveillance and control of the quality of the format and content of the labels of dangerous chemical products.

   1.5. To strengthen surveillance and control over compliance with legal restrictions on the marketing and use of certain dangerous chemical products.

   1.6. To carry out an inventory of manufacturers, importers, formulators or

wholesale suppliers of chemical products with a view to providing a profile of the sector in Andalusia.

1.7. To carry out specific analytical control campaigns on dangerous chemical products.

1.8. To strengthen the *Red Autonómica de Inspección, Vigilancia y Control de Productos Químicos* (Regional Network of Inspection, Surveillance and Control of Chemical Products) (RNISCCP) as rapid information exchange system, and establish a management protocol in 2009.

1.9. To strengthen coordination between the health administration and other regional government departments, particularly competencies regarding environmental, agricultural and health in the workplace, in order to optimize administrative control over compliance with legislation applied to chemical products.

2. To strengthen monitoring and control of companies manufacturing, marketing or applying biocides and plant protection products

2.1. To ensure that the marketing and application of authorised or registered plant protection products or biocides is carried out according to the requirements established in their respective authorisations or registers.

2.2. To give priority to monitoring and controlling companies manufacturing, marketing or using very toxic, toxic, carcinogenic, mutagenenic or toxic for reproduction biocides.

2.3. To promote the development of a technical-health regulation in Spain, establishing the requirements for the manufacture, marketing and application of biocides and for professional qualifications.

2.4. To develop, in 2009, a regional health regulation controlling the traceability of toxic and very toxic, carcinogenic, mutagenic and reprotoxic biocides from the moment they are marketed in Andalusia to their end use.

2.5. To improve control of, and encourage, professional qualifications for biocides and plant protection products and users.

2.6. To participate in the development of Biocide Inspection European Projects in order to establish harmonized approaches to surveillance and

control in European regions.

3. To adopt management and prevention measures which ensure the correct application of REACH and GHS regulations

3.1. To improve regional capacities in the enforcement of the regulations.

3.2. To survey and control the compliance of chemical products marketed in Andalusia with the new regulations.

3.3. To participate in European Commission work groups concerned with the monitoring and control of REACH and in European Inspection Projects aimed at developing common working methods in European regions.

3.4. To undertake the training of health inspectors to monitor and control compliance with REACH and GHS regulations.

3.5. To adopt measures to ensure that Andalusian companies involved in the manufacture, formulation, importation or marketing of chemical products are aware of the obligations and commitments stemming from the implementation of the new regulations.

4. To improve systems of intervention and monitoring of the impact of chemical products on health

4.1. To enhance management of episodes of acute intoxication through exposure to chemical products in the public health alert system

4.2. To give priority to monitoring and controlling the application of biocides in buildings or spaces associated with children: nurseries, schools, high schools, school dining rooms, playgrounds or other areas.

4.3. To contribute towards the development and tracking of biological indicators gauging exposure of the inhabitants of Andalusia to the most dangerous chemical products, with special attention to children or other particularly vulnerable groups.

5. To promote the limited and rational use of chemical products

5.1. To inform the general public of the health risks derived from exposure to household chemicals, with special attention to children.

5.2. To inform professional users of the health risks of exposure to chemical products in the workplace.

5.3. To distribute information about endocrine disruptors and their effects on human health, with special attention to more vulnerable groups.

5.4. To encourage a reduction of the use of dangerous chemical products and to replace them with safer alternatives, both in the sphere of professional pest control and in the general public.

3.4. BIOLOGICAL SAFETY

Man naturally shares his living space with fauna native to his place of abode. At times this symbiosis can have adverse effects on human health, such as stings and bites or other kinds of contact with some animal species, above all insects and other arthropods.[46]

Adverse effects on health can occur in some cases due to the capacity of animals to transmit diseases or because they become real parasites. Other effects are the immediate consequences of injuries some species can cause as a defence mechanism or due to chance contact.

Every year in Andalusia, as in areas around the Mediterranean region and Western Europe, there are cases of transmissible diseases whose origin can be traced back to the animal population. Apart from the zoonoses transmitted through food or those which are associated with direct contact with domestic animals, certain wild vertebrates or invertebrates pose a risk of pathogen transmission for humans. The morbimortality rates are low for these diseases (Leishmaniasis, Q Fever, Lyme's disease or Tick-borne relapsing fever) or tend to diminish (Mediterranean spotted fever). [47]

A certain prevalence of etiological zoonosis agents (especially for viruses) is known to exist in certain populations of wild vertebrates, although no human deaths associated with these pathogens have been registered in Andalusia [48], Examples of these are cases of rabies in bats (in *Eptesicus serotinus*) [49] or West Nile virus [50,51,52,53] and avian influenza in birds (this virus has not been detected in Andalusia to date). [54]

The importance of vectors, such as the Asian *Aedes albopictus* and/or pathogens of diseases originating, above all, in the sub-Saharan area and North Africa, and the emergence of pathologies caused by new agents in our country are latent

risks in Andalusia. In this same context we should also bear in mind the possible re-emergence of diseases made possible by climate change. [55,56,57]

The Andalusian coastline is rich in wetlands which are ideal for producing culicid mosquitoes, potential carriers of parasites and arboviruses. They are also home to a wide range of migratory birds which could be a source of emergent zoonoses.

In addition to the traditional collective affections caused by mosquitoes around these wetlands, a change in the behaviour of the Mediterranean jellyfish in recent years has caused urticaria in thousands of people in sea bathing spots, almost always attributed to *Pelagia noctiluca.* [58]

The introduction of exotic animal species for the benefit of legal, or at times illegal, trade involves risks which, although they rarely materialise, could give rise in Andalusia to extremely serious cases with demonstrated morbimortality.

Current information systems concerning fauna-related incidents are centred on situations of great individual or collective alarm associated with a real or potential risk, and are indirectly indirectly feeding by epidemiological surveillance data, alerts or registered cases of mandatory declaration diseases (ND). Incomplete studies provide information about some of the risks suggested by scientific knowledge or health impacts in other countries and this is leading to the creation of specific plans to monitor certain pathologies. [59,60]

CONCLUSIONS DRAWN FROM THE CURRENT SITUATION

- In addition to health care interventions aimed at dealing with the commonest problems such as stings, bites and their dermatological effects, it is in the interests of government offices concerned with public health and animal health management and population control to monitor infections whose origin can be put down to wild animals, or those which involve vectors.

- It is important, within health services, to implement and strengthen information systems which enable situations and risk factors associated with species of wild animals to be typified.

- The design of measures aimed at preventing and controlling diseases needs the participation of agents involved in the management not only of health care but also of direct population control and intervention in environmental factors behind the proliferation of vectors or of epidemiological cycles of transmissible diseases.

- Prior to adopting preventive measures and designing systems to monitor emergent diseases linked to wild animals, more detailed studies on the prevalence of pathogens in animal populations and their impact on humans should be carried out.

- Procedures to be followed in cases of epidemics or outbreaks should be established, taking into account the role of all the agents and government office involved.

- Coordination between government offices responsible for controlling the risks associated with the introduction of exotic species should be improved.

OBJECTIVE

To improve measures to protect the population against diseases associated with wild animals

ACTIONS

1. To identify and assess both historical and emergent risks to human health associated with wild animals and typify the determining factors of the same

   1.1. To have, by 2009, a preliminary Andalusian inventory of etiological agents, vectors and reservoirs which are part of the cycles of transmissible diseases in which wild animals are involved.

   1.2. To improve scientific knowledge on the etiological agents, vectors and reservoirs of these diseases.

2. To empower the health administration to undertake preventive interventions in the case of transmissible diseases which have their reservoir, or are transmitted by, wild animals and to control outbreaks or epidemics related to these

2.1. To promote the definition of procedures and protocols for intervening in cases of outbreaks or epidemics in Andalusia. The task of continuing to draw up new specific documents will continue in 2008.

2.2. To enhance the capacity to detect and assess the risks of outbreaks and epidemics in Andalusia associated with wild animals.

To strengthen systems designed to detect risks associated with wild animals and to develop new systems of information on vectorial zoonosis and anthroponosis

3.1. To consolidate the system of information on health incidents caused by animals and bring it into general use by 2008.

4. To disseminate health aspects connected with wild animals and inform the general public on risk-limiting measures

4.1. To consolidate information channels and training for the general public about animals and their health impact.

3.5. FACILITES POSING HEALTH RISKS

The technological, industrial and leisure changes which society has undergone in recent years have given rise to new kinds of facilities which, while considerably improving the comfort and quality of life, have also introduced situations of potential health risks for the general public.

Some of the public health problems associated with these buildings stem from the specific kind of installations involved. Generally speaking, these installations are situated in public buildings or complexes belonging to the services, tourism and leisure sectors and also to the industrial sector. Some examples of this are cooling and humidifying installations, water purifying equipment (swimming pools, water parks) or various installations in so-called "urban spas" and traditional spas.

The Legionella bacteria in particular, linked with several kinds of installations and equipments and the cause of the so-called legionnaires' disease, is of particular interest to the health authorities due to the importance of controlling this illness.

Installations which work with water and the formation of aerosols, above all badly designed installations which are not subject to maintenance, or are insufficiently maintained, can be the source of the spread of legionnaires' disease. Hot and cold water supply systems and water evaporation-based cooling systems such as cooling towers and evaporative condensers are the most high risk installations for transmitting legionnaires' disease.

Legionnaires' disease alerts in Andalusia have been rising steadily in recent years, a situation which is mostly due to improvements in the detection and diagnosis of the disease.

In 2006, in Andalusia, 132 cases of legionnaires' disease were reported compared with 1278 in the whole of Spain. This was a slight rise in the rate per 100,000 inha-

bitants in Andalusia with respect to 2005 and a slight drop in the overall rate in Spain. Due to the importance of controlling legionnaires' disease from a health care point of view a monitoring network has been created to deal specifically with this disease on a European level (EWGLI network). [61]

There are a large number of installations in Andalusia which are at risk of legionnaires' disease and they affect different kinds of public facilities: tourist accommodation, hospital, spas, thermal spring facilities, indoor swimming pools, retirement homes, etc.

Data from 2006 shows a significant percentage of installations with health deficiencies:

- Installations in 41% of public swimming pools inspected do not comply with established health regulations.
- In the course of the inspection it was observed that a significant percentage of installations should improve compliance with health criteria for the prevention of legionnaires' disease.
- Water treatment systems and chemicals used in the same are either not the most efficient or are not correctly applied.

In the same vein, it is significant to note how seldom the Municipal Risk Installations Registers are notified about installations at risk of legionnaires' disease. [62,63]

CONCLUSIONS DRAWN FROM THE CURRENT SITUATION

- The multiplicity of regulations which can be applied to the design and operation of buildings and installations, the many different actors involved in providing solutions, the multisectorial nature of the measures and the complex interactions involved in the propagation of the disease call for coordination between the government departments and sectors involved in adopting preventive measures.
- It is essential to correct deficiencies in risk installations and provide adequate training for the technicians responsible for maintaining them in order to reduce health risks.

- Although, generally speaking, municipal risk installation registers are gradually being notified about installations posing the greatest risk of legionnaires' disease, management improvements on a municipal level are essential if greater health control is to be achieved.
- The proliferation of installations providing comfort in residential buildings (cooling towers, humidifiers, Jacuzzis, spas, etc.) and the emergence of new leisure facilities (urban spas) raise the need to adopt new health criteria which minimizes the risks associated with the use made of these buildings.

OBJECTIVE

To reduce the rate of infectious disease associated with risk installations, particularly legionnaires' disease

ACTIONS

1. To improve the operation and sanitary control of health risk facilities

1.1. To optimize the adaptation of buildings and installations to the technical requirements established in the corresponding health regulations currently enforced, giving priority to government owned buildings.

1.2. To typify the risks associated with new kinds of installations in order to evaluate their impact on health and enhance hygiene monitoring.

1.3. To improve knowledge of population exposure to health risks associated with urban spas, due to the increased presence of these infrastructures in our autonomous region.

1.4. To undertake, in 2010, a review of the regulations governing health criteria applied to public swimming pools in Andalusia in order to adapt them to scientific and technical progress.

2. To improve coordination instruments between different administrative bodies concerned with controlling installations and to strengthen collaboration between business sectors

2.1. To draw up an Action Plan for the prevention and control of legionnaires' disease in Andalusia.

2.2. To encourage reporting to the Municipal Risk Installation Registries the existence of installations at risk of legionnaires' disease.

2.3. To provide local administrations, by 2010, with the tools needed to harmonise municipal risk installation registers.

2.4. To outline coordination and action guidelines with local administrations for inspecting, researching and managing health incidents associated with installations.

2.5. To establish channels of collaboration with professional and corporate sectors involved in the management and maintenance of risk installations.

2.6. By 2010, to provide owners and businesses with technical good practise guides on the maintenance of installations at risk of transmitting legionnaires' disease.

3. To improve the information available to the general public, businesses and institutions about risk installations

3.1. Editar materiales de amplia difusión sobre consejos sanitarios y medidas para la prevención de enfermedades asociadas a instalaciones o establecimientos de uso colectivo.

3.2. Proporcionar a los ciudadanos información sobre la incidencia de instalaciones en el desarrollo de la enfermedad de la legionelosis y los criterios sanitarios para reducir los riesgos asociados.

4. To promote training of personnel working in companies responsible for the maintenance of risk installations

4.1. To support and promote staff training programmes in companies involved in the sanitary and health maintenance of risk installations.

4.2. To harmonise teaching material criteria for training courses for maintenance staff of installations at risk of transmitting legionnaires' disease.

4.3. To draw up, in 2009, a teaching guide for students attending courses on the hygienic maintenance of installations at risk of transmitting legionnaires' disease. This will be made available to training companies.

5. To give backing to training and enhance interventions by professionals involved in researching outbreaks of legionnaires' disease

5.1. During 2008, to implement a work protocol aimed at coordinating the actions of all healthcare professionals involved in researching and controlling outbreaks of legionnaires' disease.

5.2. To train healthcare professionals in the management of health risks associated with new kinds of leisure facilities.

3.6. INDOOR AIR QUALITY

Generally speaking, a person spends between 80% and 90% of his or her time in enclosed spaces, either during the working day or during free time periods.[64]

The evolution of construction, decoration, maintenance and cleaning materials together with today's lifestyle and way of life lead to increased contamination inside buildings, while the ventilation and airing of these spaces is reduced in pursuit of greater energetic efficiency.

This situation has led to indoor air quality acquiring great significance from a healthcare point of view.

The term *indoor air* is applied to non-industrial indoor environments: office buildings, public buildings (schools, leisure facilities, restaurants, etc.) and private homes.

When over 20% of the occupants of a building complain about the quality of the indoor environment or show clear symptoms or illnesses associated with the building, there is said to exist a phenomenon known as the *Sick Building Syndrome (SBS)*. In order to consider the existence of SBS the temporal relationship between the symptoms and the time spent in the building must be demonstrated and it must be proved that the disappearance and appearance of the symptoms coincide with entering and leaving the building. This contamination of indoor environments is due, among other causes, to the existence of various chemical products from three kinds of sources: heating apparatuses, the constituent parts of the building including equipment and furniture, and human activity itself.

The commonest causes of sick building syndrome are, in this order, inadequate ventilation (insufficient supply of outside air and deficient distribution of

the same within the building), contamination created inside the building, contamination coming from outside the building (with incorrect placing of air intake vents and suction vents), microbiological contamination in ventilation pipes, humidifiers and cooling towers and, lastly, chemical contamination from products used in construction and decoration.

Studies available in Europe indicate the presence of problems associated with bad indoor air quality in schools due to some building materials used, bad maintenance or inadequate ventilation; high levels of volatile organic compounds or allergenic substances are commonly found [65]. Poor indoor air quality in these buildings can cause students, teachers and other staff to suffer from short and long term health effects and various kinds of complaints. Bearing in mind that in this case it is mainly the younger population who are exposed and that less studies about schools have been conducted that than those carried out on other indoor environments, such as offices, the indoor air quality in infant and primary schools should be consider a priority.

Current regulations governing the prevention of risks at work establish several rules concerning renewing air in buildings and protecting workers against risks associated with exposure to biological agents, chemical and carcinogenic agents, and establish professional exposure limits to be applied to industrial hygiene. However, neither the *Reglamento de Instalaciones Térmicas en los Edificios* (Regulation of Heating Installations in Buildings) nor the Additional Techniques (AT) applicable to non-industrial heating installations, nor the Technical Building Code (TBC) make it mandatory to assess the air quality of buildings or facilities for such things as sports or shopping, or transport.[66,67]

CONCLUSIONES SOBRE LA SITUACIÓN ACTUAL

- In Andalusia, as in other autonomous regions, the above factors have not been tackled in enough detail.

- In Spain, legislation on the quality of indoor environments is at the research stage and there is a growing demand for a *standardisation* of processes and for *agreements over standards* to be reached by the different professional sectors involved. In this vein, a European Parliament Resolution establishes the need for the European Commission to put forward a directive proposal dealing specifically with this matter.

OBJECTIVE

To prevent allergic and respiratory diseases associated with indoor air quality in buildings

ACTIONS

1. To provide the general public with information and health recommendations on factors which may affect the quality of indoor air

   1.1. To provide health criteria to prevent risks associated with indoor environments, mainly focused on building design and installation, levels of ventilation and correct maintenance of the installations.

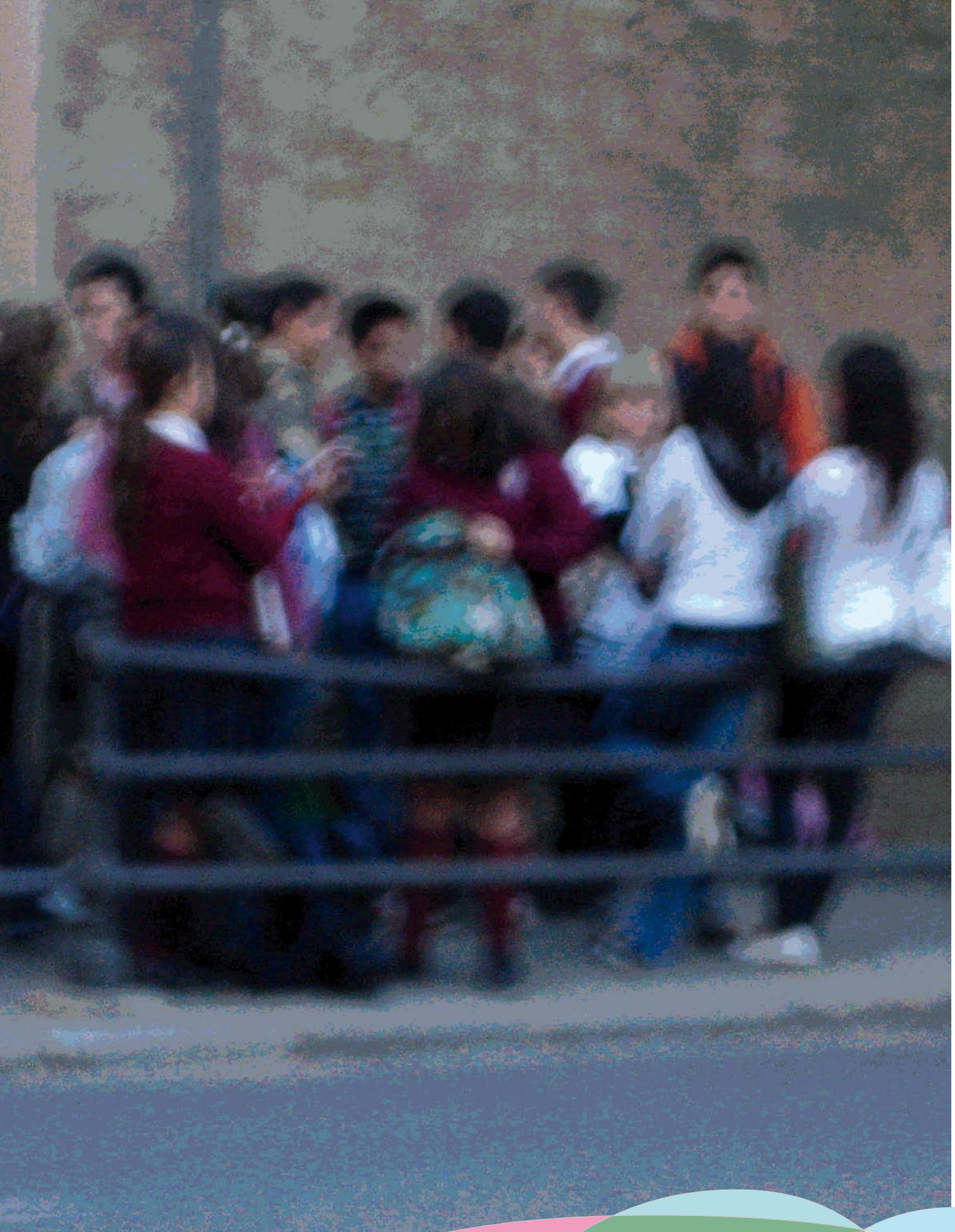
   1.2. To establish collaboration channels between different government offices, professional sectors and social agents with a view to encouraging quality controls over indoor air to be carried out.

2. To improve knowledge about exposure to indoor environment contaminants and their health impact

   2.1. To encourage scientific societies to take part in drawing up technical and management guides concerning the risks associated with indoor environment contaminants.

   2.2. To carry out studies on the assessment of environmental air quality in buildings or facilities, above all on the possible presence of chemical and biological contaminants and their routes of exposure in indoor environments, giving priority to pre-school centres and primary schools in Andalusia.

   2.3. To develop processes aimed at assessing the health impact of chemical pollutants on indoor air.



3.7. HEALTH RISKS IN SPECIFIC POPULATION GROUPS

Certain situations associated with new habits or lifestyles are a cause for concern for the health authorities. Among these, in particular, is the excessive exposure to levels of loud music which young people are subjected to, either through personal music systems with earphones or headphones [68] ("walkman", "discman", MP3, iPod, etc) or through amplifiers in leisure facilities. [69]

Such exposure to high sound levels for prolonged periods of time can pose a risk of hearing loss which, in some cases, can be permanent. The extent of the risk is directly proportionate to the period of exposure and the volume. It should also be borne in mind that the effects are usually first noticed many years after exposure and that other, non-auditory effects can also be felt; these have already been described in paragraph 3.2, on air quality.

OBJECTIVE

To prevent risks associated with prolonged exposure to excessive levels of amplified music, especially among the young

ACTIONS

1. To improve and disseminate knowledge on the health impact of prolonged exposure to high levels of amplified music

   1.1. To assess, with the participation of scientific societies, the auditory effects on young people produced by portable music systems with earphones or headphones.

   1.2. To disseminate scientific knowledge on the health impact on young people of portable music systems with earphones or headphones.

1.3. To review existing guidelines or measures concerning music levels in facilities providing leisure activities for the young.

3.8. ENVIRONMENTAL HEALTH RISK ASSESSMENT

Exposure to various physical, chemical and biological risk factors in the environment, either occasionally or over long periods, is detrimental to the population's health.

Each individual is subjected to a variety of potential assaults (physical, chemical or biological) and the circumstances and duration of the exposure (in a natural, domestic or professional setting) are difficult to assess. On the other hand, except when accidents occur, contamination is usually on a low level, with borderline observable effects. The effects of an exposure of this kind are usually only seen in the long term; though at times a significant number of populated areas are potentially exposed. All this makes it difficult to identify the link between an environmental factor and health effects.

Nevertheless, it is essential to have knowledge of the consequences of the health impact on people, both from a preventive standpoint (as an instrument with which to prevent possible detrimental effects and search for and find alternatives) and from the point of view of protection once the health impacts have been felt. This will enable controls and adequate measures aimed at reducing the effects of the impact to be carried out, especially on more vulnerable or exposed population groups.

Current prevention and control policies include not only emission restrictions for various environmental compartments (control), but also risk assessments which enable measures to be taken before the damage occurs (prevention). Environmental Risk Assessment is the process by which the probability that adverse effects to the environment or to human health will, or may, occur as a result of exposure to one or more physical, chemical or biological agent are calculated. It is, therefore, an essential tool for gaining a better understanding of the cause-effect relationship between the environmental and health.

Some examples of the way in which implementation of risk assessment is present in new European Union policies are the directives on Biocides, the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and Plant Protection Products, when substances are released into the environment for a particular purpose, and also the Integrated Pollution Prevention and Control directive and the Urban Waste Water Treatment directive concerning the contamination resulting from the operation of an activity or plan.

This concern is not a new phenomenon in the European Union; policies and prevention measures aimed at tackling the origin of environmental problems have been developed since 1985.

In Spain, these processes have been regulated since 1986 in the field of environmental impact assessment (EIA) as an efficient prevention tool and specific mention is made to the effect that the general public is on the receiving end of potential environmental impacts, highlighting the importance of health protection.

In Andalusia, the new Law on Integrated Management of Environment Quality has brought Law 7/1994, of 18 May, on Environmental Protection, up to date with knowledge, progress and new environmental demands.

Till now, the practical application of the EIA process has been mainly centred on developing methodologies which give priority consideration to the vulnerable elements of the ecosystem and territory, dealing with the potential effects on human health in a less detailed way. This was due to the complex nature of health-environment interaction which needs to be tackled using specific methodologies and requires existing information registers to be improved.

CONCLUSIONS DRAWN FROM THE CURRENT SITUATION

- The approval and implementation of the European Environment & Health Action Plan (2004-2010) has created an ideal framework which provides the member states with scientific information aimed at reducing the adverse effects of environmental factors on health and strengthening environmental, health and research cooperation between participants. Because of this it is essential to widen the intersectorial nature and coordination of joint activities between the environment and health.

- The European Union has proposed a health risk assessment methodology in order to have sufficient objective criteria for taking the necessary decisions to avoid or minimize the aforementioned risks. With this aim in mind, special bodies have been set up in several spheres – for example, chemical safety – to carry out these kinds of assessments. In other spheres directly related to the environment, such as air and water quality, the European Commission has created committees of independent scientific experts, specifically the Scientific Committee on Health and Environmental Risks (SCHER)

  The aim of this committee is to evaluate issues relating to examining the toxicity and ecotoxicity of chemical, biochemical and biological compounds, the use of which could be detrimental to human health and the environment. Specifically, it will be concerned with matters relating to new and existing chemicals, the restriction and marketing of dangerous substances, biocides, waste, environmental contaminants, plastic and other materials used for water pipe work (e.g. new organic substances), drinking water, indoor and ambient air quality. It will also tackle human exposure to mixtures of chemicals, and awareness and identification of endocrine disrupters.

- The effectiveness of interventions is linked to the ability of different government departments to work together. Till now, inadequate organization and coordination have meant that activities have been aimed at an incomplete approach to problems; on the one hand, dealing with health problems and on the other establishing measures to protect the environment.

- Greater technical consensus, therefore, should be reached on the conceptual and methodological approach. This will allow human health risk assessment to be integrated in a preventive capacity in prevention and protection processes and instruments.

OBJECTIVES

To strengthen integration of health criteria in environment protection and prevention processes and instruments

To evaluate health risks associated with environmental factors based on the best scientific knowledge available

ACTIONS

1. To ensure the participation and coordination of the health authorities and other government departments in developing and implementing environment prevention and protection instruments

   1.1. 1.1. To integrate the health administration in processes regulating environmental prevention and control instruments when the activities to be carried out could create a adverse impact on the population and, specifically, in the context of the new Integrated Management of Environmental Quality law (integrated/harmonised environmental authorisations, assessment of plans and programmes).

   1.2. To guarantee the participation of the health administration in other administrative processes where the health of the population can be affected by environmental impacts as a result of carrying out projects, infrastructures, plans, programmes or other instruments.

2. To promote the technical qualification of public and environmental health professionals to apply the methodology of assessing health risks caused by environmental factors and in environmental prevention processes

   2.1. To train public and environmental health professionals in assessing environmental risks with impact on human health.

   2.2. To develop specific action protocols for assessing health risks.

3. To help improve scientific knowledge on the assessment of health risks linked to environmental factors

   3.1. Of all the actions subject to prevention and environmental control instruments in Andalusia to give priority to those which, due to their nature and intrinsic values, can cause a greater impact on the health of the general public.

   3.2. To analyse the extent of the implementation and fulfilment of studies carried out on the health impact of EIAs to identify necessary improvements in the current information and control systems.

   3.3. To locate and identify work and research groups concerned with health risk assessment (identification of dangers, exposure assessment and risk description).

   3.4. To participate in the process of defining indicators to measure population exposure to environmental risk factors.

   3.5. To monitor pilot projects carried out in Europe within the framework of the European Environment and Health Action Plan, with emphasis on dioxins, heavy metals and endocrine disruptors, and the framework of CEHAPE (Children's Environment and Health Action Plan for Europe).

4. To establish the process of creating scientific committees to identify and assess each type of risk and to establish the work methodology

   4.1. To design a method of guaranteeing that scientific committees are created through competitive calls and to establish a protocol with which members responsible for risk assessment may declare their independence.

   4.2. To establish a working method including the creation of maps of the greatest prevalence of physical, chemical and biological risks.

   4.3. To establish a transparent method of communicating reports which is compatible with the need to maintain the confidentiality of the scientific and technical debates of the scientific committees for risk assessment.

3.9. INFORMATION AND COMMUNICATION ON ENVIRONMENTAL HEALTH

In times of progress and economic growth such as these, scientific knowledge has been one of the main pillars of political decisions on health and safety. Nevertheless, it must be said that science is not always able to provide unambiguous interpretations and generally accepted practical recommendations when dealing with complex issues concerning technological and environmental risks which are characterised by uncertainty about the facts, the link between the events and the influence of human actions on the observed phenomena. [70]

Opinion polls lead us to conclude that citizens are becoming more and more unsatisfied with delegating assessment and management of health matters to groups of experts, managers and decision makers and demand their right to participate more often and more effectively in decisions which affect them.

Participation implies a learning process and a personal decision to wish to be involved and to contribute solutions to problems both in the professional field and in the private sphere. This is only possible, however, through the use of certain instruments.

At present, however, we must acknowledge that not enough information on environmental health is made available to influence individual and group behaviour; we must take on this responsibility and make it possible for citizens and social agents to become involved in the problems and in their solutions. To this end coordinated policies and information and communication instruments aimed at various social groups (professionals, business people, citizens, specific groups, etc) must be created with a view to promoting participation.

At present, information on health aspects and related environmental matters are basically available at two institutional web sites, one belonging to the Regional Ministry of Health, where there is a section on Environmental Health aimed at both the general public and professionals, and another which belongs to the Regional Ministry of the Environment, which includes information about environmental factors in relation to various environmental issues (climate, air quality, coastal quality, water resources, etc.). Although the contents may share a common interest, the approach is determined by the overall competencies of the organisations, which means that access to the information on some subjects can be difficult.

In both cases the contents are to a large extent heterogeneous, both as far as the issues are concerned and also the scope and the way they are presented; the items included range from static references to specific data to on-line data base consultations. There are also many downloadable documents available.

However, there is not enough correlation between the environmental factor monitoring data obtained by the Regional Ministry of Health and that of the Environment or other organism. Neither is there a web page with environmental and health quality indicators.

CONCLUSIONS DRAWN FROM THE CURRENT SITUATION

- There is a significant degree of concern about health and environmental issues in Andalusia. A good way of responding to this concern would be to provide an institutional channel shared by the regional ministries of Health and the Environment aimed at providing open and accurate access to data queries, relevant information and additional information services of interest to the general public. In this respect, priority should be given to the Internet environment.

- The web page should be designed along the lines of an Environmental Health Portal, hosted by the Regional Ministry of Health. In addition to providing information generated by the Andalusia health system, the portal should integrate, or provide access to, interesting information from sources outside the health system (Regional Ministry of the Environment, Regional Ministry of Agriculture and Fisheries or other bodies).

- It is useful for the government offices involved to have access to overall data about environmental factors which are monitored or measured by the competent bodies, and also to health indicators related to these factors (drinking water quality network, air quality, conditions of beaches, etc.). In view of this it would be advantageous for both regional ministries to work towards achieving an increased convergence of formats and information-generating processes with a view to creating a joint information system geared towards public access.

OBJECTIVE

To provide professionals and citizens with access to information on health and the environment

ACTIONS

1. To integrate information on the synthesis of results or health and environment indicators derived from the monitoring and management of environmental factors relevant to health, generated by the competent bodies

   1.1. To develop, in 2008, a joint work space shared by the regional ministries of Health and the Environment aimed at pooling existing information and standardising criteria for the integrated management of information in a shared information system.

   1.2. To create, in 2009, mutual interest information channels for importing and exploiting the results of the activities of the regional ministries of Health and the Environment.

2. To provide access to information for professionals working in companies belonging to sectors whose activity involves health and environmental risks, or those who are involved in the management of environmental contamination or environmental resources

   2.1. To have, by 2009, a web page providing integrated information about health and the environment aimed exclusively at business professionals.

3. To transmit information about health and the environment to the general public

3.1. To have, by 2009, a web page providing integrated information about health and the environment aimed exclusively at the general public.

3.2. To create the Andalusian Health and Environmental Observatory (OSMAN).

3.10. ENVIRONMENTAL AND HEALTH TRAINING

The continuing evolution of scientific and technical knowledge, the complex nature of the phenomena typical of environmental health risks and new approaches which now require these to be analysed (risk assessment, management and communication) mean that health ministry personnel in charge of these tasks must undergo continuous and updated training in order to improve the efficiency and effectiveness of institutional undertakings.

In addition to this, new methods and instruments are needed if economic and social agents are to be involved in environment and health management. These instruments, while complying with regulatory criteria, are based on dialogue, trust, collaboration and participation. They are, therefore, new ways of approaching and fulfilling public service with a view to causing a positive impact on society, and continuous training is needed to put them into effect.

In view of this, professional development, being a combination of the knowledge, skills and attitudes needed by environment health professionals to correctly carry out the duties and activities they are charged with, must be improved and strengthened.

On the other hand, in order to make progress in integrating public health, and above all environmental health, into sectorial policies basic notions of health and the environment must be included in training programmes for other, non-healthcare, professionals, especially those designed for people in charge of companies concerned with the prevention of environmental risks.

CONCLUSIONS DRAWN FROM THE CURRENT SITUATION

- Continuing training is an essential tool for providing adequate training for personnel responsible for working in the field of environmental health, both at basic learning levels and at the level of professional specialisation.

- Currently, training programmes on all levels lack the integrated, combined health-environment approach, and it is therefore necessary to improve them and establish a timetable for implementing and developing such programmes.

OBJECTIVE

To develop and consolidate health and environmental training

ACTIONS

1. To include health and environmental subjects in environmental science and healthcare programmes

   1.1. To establish channels of dialogue and coordination with universities and the educational authorities with a view to including environmental health tuition in environmental science and healthcare training programmes.

2. To promote the Professional Development of environmental health healthcare professionals

   2.1. To define and implement, by 2008, a Training Plan for healthcare professionals working in the area of environmental health.

3. To develop environmental health training for company employees in charge of prevention

   3.1. To promote and giving backing to ongoing and updated training programmes provided by companies involved in environmental health.

Andalusian Environmental Health Plan 2008-2012

4

Monitoring and assessing the Plan

4.1 MONITORING THE PLAN

The monitoring of the Andalusian Environmental Health Plan will be carried out on two different levels:

- A Technical Monitoring Commission will be formed, made up of technical staff from the regional ministries of Health, the Environment and Agriculture and Fisheries. This Commission will hold a minimum number of meetings a year and will publish a report which will include information on the level of completion of the Plan.

- Every two years the Plan will also be subjected to a review carried out by two official social participation bodies assigned to the regional ministries of Health and the Environment respectively: the Andalusian Health Board and the Andalusian Environment Board.

4.2 ASSESSING THE PLAN: INDICATORS

The DPSEEA (Driving Forces, Pressures, State, Exposure, Effects and Actions) model, the classification of indicators used by the World Health Organisation (WHO) has been used as a guideline for choosing the indicators for assessing the Plan together with the following projects and criteria:

- Indicators recommended by ECOHEIS (Development of Environment and Health Indicators for the EU Countries), a project set forth by the European Commission and the World Health Organisation (WHO).

- Existing indicators related to environmental health found in other Andalusian plans.

- The possibility of constructing the indicators based on the available data.

In addition to these, we should take into account indicators which echo the means used, the activities carried out and the results obtained, according to the structural priorities of the Plan.

CODE	INDICATOR
Water	
Drinking Water	
Indicator 1	Quality of drinking water
Indicator 2	Sporadic episodes of contamination which render the water temporarily unsuitable for consumption and/or other uses
Indicator 3	Water outbreaks reported in the Public Health Alert Network
Indicator 4	Drinking water treatment plants with technologies which can eliminate pesticides and other substances
Indicator 5	Grants for financing the treatment and elimination of pesticides and other substances from water meant for human consumption
Indicator 6	Existence of regional regulations on drinking water
Bathing water	
Indicator 7	Quality of bathing water
Indicator 8	Short lived episodes of contamination in bathing water
Indicator 9	Existence of regional regulations on bathing water
Reuse of treated wastewater	
Indicator 10	Reused treated wastewater
Indicator 11	Authorisations granted to reuse treated water
Indicator 12	Health reports issued for the reuse of treated wastewater
Air	
Air pollutants	
Indicator 13	Extent of compliance with annual PM10 established limit values
Indicator 14	Breaches of regulation average daily levels for human health protection for PM_{10}
Indicator 15	Breaches of regulation target levels for human health protection for ozone
Indicator 16	Breaches of regulation information threshold levels for ozone
Noise	
Indicator 17	Population exposed to various noise levels
Indicator 18	Measures and steps taken to reduce noise
Chemical Safety	
Commercial chemical products	
Indicator 19	Compliance of commercial chemical products with current health regulations
Indicator 20	Compliance with legal restrictions on the supply and use of dangerous chemical products
Indicator 21	Episodes of intoxication through exposure to chemical products reported to the Public Health Alert Network
Indicator 22	Consultations about episodes of intoxication by chemical products received in the National Toxicology Institute
Companies manufacturing, marketing and using chemical products	
Indicator 23	Quality of information management in the supply chain of chemical products for professional use
Indicator 24	Adaptation of Biocide establishments and services to regional health regulations
Indicator 25	Existence of healthcare regulations governing the ability to trace toxic and very toxic, carcinogenic, mutagenic and reprotoxic biocides
Biological Safety	
Indicator 26	Registered health incidents caused by animals
Facilities posing health risks	
Indicator 27	Outbreaks of legionairres' disease announced in the Public Health Alert Network
Indicator 28	Reported cases of legionairres' disease (annual rate per 100,000 inhabitants)
Indicator 29	Compliance with notifying municipal registers of the presence of risk installations
Indoor Air	
Indicator 30	Publication of informative materials aimed at preventing risks in indoor environments
Indicator 31	Studies in progress on air quality of indoor environmental air
Health risks in specific population groups	
Indicator 32	Studies set up to assess the auditory effects on young people caused by music systems with earphones
Health Risk Assessment	
Indicator 33	Inclusion of suitable information on health effects on the population in the documentation required for obtaining environmental authorisations
Indicator 34	Classification of activities with greater impact on the population's health which are subject to environmental prevention and control
Indicator 35	Existence of a methodology for creating scientific committees to assess environmental health risks
Information and Communication	
Indicator 36	Existence of a web page with information on health and environment aimed at the general public, professionals and businesses
Indicator 37	Creation of the Andalusian Health and Environmental Observatory (OSMAN)
Indicator 38	Publication of materials on environmental health
Training	
Indicator 39	Existence of a Training Plan for health professionals in the field of environmental health

5

Annexes

ANNEX I

THE OBJECTIVES OF THE PLAN AND ITS PRIORITY ACTIONS

I. To prevent health risks associated with different uses of water

1. To improve prevention and intervention measures applied to the management of water quality in order to ensure a high level of protection for the target population

2. To improve prevention and intervention measures applied to the management of bathing water quality in order to guarantee risk-free bathing

3. To promote and facilitate the use of reclaimed wastewater according to health criteria

4. To develop new coordination instruments which integrate the work of all the government offices involved in water management and enable the sector to adopt the measures within their jurisdiction

5. To provide consumers, users, business and public bodies with sufficient information on aspects related to water which could affect their health

II. To reduce the population's exposure to atmospheric pollution and noise

III. To gain more knowledge on the health impacts of atmospheric pollutants

6. To improve poor air quality classifications, above all those caused by ground-level ozone and particulate matter

7. To adopt prevention measures which have a bearing on the reduction of emissions from transport vehicles

8. To reduce noise levels by improving prevention measures, promoting and intervening in noise management

9. To gain more insight into and information on the health impact of atmospheric pollutants

10. To strengthen coordination mechanisms between administrations and establish new channels of collaboration with sectors involved in the reduction of atmosphere-contaminating emissions.

11. To gain greater insight into air quality for the general public, business and institutions

IV. To improve control of the health risks associated with chemical products

12. To gain greater knowledge about the marketing conditions of chemical products and their control.

13. To strengthen monitoring and control of companies manufacturing, marketing or applying biocides and plant protection products

14. To adopt management and prevention measures which ensure the correct application of REACH and GHS regulations

15. To improve systems of intervention and monitoring of the impact of chemical products on health

16. To promote the limited and rational use of chemical products

V. To improve measures to protect the population against diseases associated with wild animals

17. To identify and assess both historical and emergent risks to human health associated with wild animals and typify the determining factors of the same

18. To empower the health administration to undertake preventive interventions in the case of transmissible diseases which have their reservoir, or are transmitted by, wild animals and to control outbreaks or epidemics related to these.

19. To strengthen systems designed to detect risks associated with wild animals and to develop new systems of information on vectorial zoonosis and anthroponosis

20. To disseminate health aspects connected with wild animals and inform the general public on risk-limiting measures

VI. To reduce the rate of infectious disease associated with risk installations, above all legionnaires' disease

21. To improve the operation and sanitary control of health risk facilities

22. To improve coordination instruments between different administrative bodies concerned with controlling installations and to strengthen collaboration between business sectors

23. To improve the health information available to the general public, businesses and institutions about risk installations

24. To promote training of personnel working in companies responsible for the maintenance of risk installations

25. To give backing to training and to enhance interventions by professionals involved in researching outbreaks of legionnaires' disease

VII. Prevenir las enfermedades alérgicas y respiratorias relacionadas con la calidad del aire interior de los edificios

26. To provide the general public with health information and recommendations on factors which may affect the quality of indoor air

27. To improve knowledge about exposure to indoor environment contaminants and their health impact

VIII. To prevent, above all in the young, risks associated with prolonged exposure to excessive levels of amplified music

28. To improve and disseminate knowledge on the health impact of prolonged exposure to high levels of amplified music

IX. To strengthen the integration of health criteria in environment prevention and protection processes and instruments

X. To evaluate health risks associated with environmental factors based on the best scientific knowledge available

29. To ensure the participation and coordination of the health authorities and other government departments in developing and implementing environment prevention and protection instruments

30. To promote the technical qualification of public and environmental health professionals to apply the methodology of assessing health risks caused by environmental factors and in environmental prevention processes.

31. To help improve scientific knowledge on the assessment of health risks linked to environmental factors

32. To establish the process of creating scientific committees to identify and assess each type of risk and to establish the work methodology

XI. To provide professionals and the general public with information on health and the environment

33. To integrate information on the synthesis of results or health and environment indicators derived from the monitoring and management of environmental factors relevant to health, generated by the competent bodies

34. To provide access to information for professionals working in companies belonging to sectors whose activity involves health and environmental risks, or those who are involved in the management of environmental contamination or environmental resources

35. To transmit information about health and the environment to the general public

XII. To develop and consolidate health and environmental training

36. To include health and environmental subjects in environmental science and healthcare programmes

37. To promote the Professional Development of environmental health healthcare professionals

38. To develop environmental health training for company employees in charge of prevention

ANNEX II

THE STRUCTURAL PRIORITIES OF THE PLAN AND ITS MEASURES

I To strengthen intervention and control

1. To strengthen monitoring of pesticides in reservoirs used for drinking water supplies, carried out by basin organisations.

2. To protect any open water channels used for human consumption which could be exposed to the risk of contamination

3. To define, during 2008, the characteristics of Andalusian bathing waters and establish a new register of bathing waters in compliance with Directive 2006/7/CE.

4. To draw up, in areas where the limit values or target values are exceeded, plans to improve air quality aimed at reducing emissions of nitrogen oxide and volatile organic compounds with a view to improving ground-level ozone levels in the ambient air.

5. To promote existing plans on Environmental Quality and Air Quality Improvement and boost the monitoring and effectiveness of the same.

6. To draw up, wherever required due to breach of limit values or target values, plans to improve air quality aimed at reducing primary particle emissions and also those of the precursors of secondary particles.

7. To draw up action plans aimed at improving acoustic quality in urban centres within the legally established time limits. These plans should tackle issues concerning noise and its effects as registered on noise maps, reducing, wherever necessary, noise emissions and the spread of noise, above all pf sources which have a greater affect on acoustic quality: transport, industrial areas and commercial and leisure activities

8. To promote and coordinate the creation of strategic noise maps in large towns and transport infrastructures within the legally established time limit.

9. Maintain and, wherever possible, strengthen additional steps taken by the Regional Ministry of the Environment concerning noise pollution in order to guarantee the general public maximum protection.

10. To strengthen surveillance and control over compliance with legal restrictions on the marketing and use of certain dangerous chemical products.

11. To increase monitoring and control of dangerous chemical products marketed in Andalusia with special attention to toxic and very toxic products, carcinogenic, mutagenic, reprotoxic and sensitising (allergenic) products

12. To determine the extent of compliance with European health legislation on commercial chemical products throughout the chain of supply to the end user.

13. To increase surveillance and control of the quality and management of Safety Data Sheets throughout the supply chain to the end users.

14. To increase surveillance and control of the quality of the format and content of the labels of dangerous chemical products.

15. To ensure that the marketing and application of authorised or registered plant protection products or biocides is carried out according to the requirements established in their respective authorisations or registers.

16. To give priority to monitoring and controlling companies manufacturing, marketing or using very toxic, toxic, carcinogenic, mutagenenic or toxic for reproduction biocides..

17. To improve control of, and encourage, professional qualifications for biocides and plant protection products and users.

18. To optimize the adaptation of buildings and installations to the technical requirements established in the corresponding health regulations currently enforced, giving priority government owned buildings.

II To improve the coordination and integration of the measures

19. To develop and implement protocols to determine the coordinating actions between different government bodies involved in the management

and monitoring of water quality. In 2008, for water supplies and in 2009, for bathing waters.

20. To develop and implement in 2008 a protocol to determine steps to be taken to achieve coordination between health authorities (local and regional) and the supply management companies involved in the research and control of sporadic episodes of contamination of drinking water.

21. To establish measures to coordinate the actions of the health administration and basin organizations with regard to the processes of granting concessions or authorizations to use water sources for water supply.

22. To establish measures to coordinate the actions of the Regional Ministry of Health and the Andalusian Water Agency with regard to subsidies for building new infrastructures.

23. To draw up an intersectorial plan to reduce the impact of agricultural products on the quality of water to be used in the water supply system.

24. To improve the protocol for measures to be taken by different administrations in case of a breach of alert threshold or an information threshold, extending these to other government offices above the municipal level.

25. To enhance collaboration channels with local councils to take steps to comply with environmental noise regulations.

26. To strengthen coordination between the health administration and other regional government departments, particularly competencies regarding environmental, agricultural and health in the workplace, in order to optimize administrative control over compliance with legislation applied to chemical products.

27. To participate in the development of Biocide Inspection European Projects in order to establish harmonized approaches to surveillance and control in European regions.

28. To participate in European Commission work groups concerned with the monitoring and control of REACH and European inspection projects aimed at developing common working methods in European regions.

29. To promote the definition of procedures and protocols for intervening in

cases of outbreaks or epidemics in Andalusia. The task of continuing to draw up new specific documents will continue in 2008.

30. To draw up an Action Plan for the prevention and control of legionnaires' disease in Andalusia.

31. To provide local administrations, by 2010, with the tools needed to harmonise municipal risk installation registers.

32. To outline coordination and action guidelines with local administrations for inspecting, researching and managing health incidents associated with installations.

33. During 2008, to implement a work protocol aimed at coordinating the actions of all healthcare professionals involved in researching and controlling outbreaks of legionnaires' disease.

34. To establish collaboration channels between different government offices, professional sectors and social agents with a view to encouraging quality controls over indoor air to be carried out.

35. To integrate the health administration in regulation processes of environmental prevention and control instruments when the activities to be carried out could create a negative impact on the population and, specifically, in the context of the new Integrated Management of Environmental Quality law (integrated/harmonised environmental authorisations, assessment of plan and programmes).

36. To guarantee the participation of the health administration in other administrative processes where the health of the population can be affected by environmental impacts as a result of carrying out projects, infrastructures, plans, programmes or other instruments.

III To improve monitoring and warning systems

37. To adapt, in 2008, the *Red Andaluza de Vigilancia Sanitaria de Calidad de las Aguas de Baño* (Andalusian Network of Sanitary Monitoring of Bathing Waters Qualtiy) to the criteria established in the new EU directive 2006/7/CE of 15 February concerning the management of bathing water quality.

38. To increase monitoring of certain pollutants, such as $PM_{2,5}$, metals, polya-

romatic hydrocarbons (PAHs) and volatile organic compounds (VOCs) ozone precursors and to optimise the Red de Vigilancia de la Calidad del Aire (Air Quality Monitoring Network).

39. To improve the integration of data on air quality and the state of health of the population in order to prevent risk situations, facilitate the adoption of measures aimed at reducing emissions and promote traffic planning measures.

40. To strengthen the *Red Autonómica de Inspección, Vigilancia y Control de Productos Químicos* (Regional Network of Inspection, Surveillance and Control of Chemical Products) (RNISCCP) as rapid information exchange system, and establish a management protocol in 2009.

41. To enhance management of episodes of acute intoxication through exposure to chemical products in the public health alert system

42. To consolidate the system of information on health incidents caused by animals and bring it into general use by 2008.

IV To strengthen support and collaboration with the corporate sector

43. To develop support measures for drinking water treatment plant (WTP) management companies with a view to installing technologies designed to eliminate contamination by plant protection products more effectively.

44. To create a good practise guide to the safe use of reclaimed wastewater, and make it available to users in 2010.

45. By 2012, to achieve the goal of reusing 60 million cubic metres of reclaimed water.

46. To establish channels of collaboration with professional and corporate sectors involved in the management and maintenance of risk installations.

47. By 2010, to provide owners and businesses with technical good practise guides on the maintenance of installations at risk of transmitting legionnaires' disease.

48. To support and promote staff training programmes in companies involved in the sanitary and health maintenance of risk installations.

49. To harmonise teaching material criteria for training courses for maintenance staff of installations at risk of transmitting legionnaires' disease.

50. To draw up, in 2009, a teaching guide for students attending courses on the hygienic maintenance of installations at risk of transmitting legionnaires' disease. This will be made available to training companies.

V To develop information and communication

51. In 2009, to take whatever steps are needed to ensure that consumers have specific and adequate information about the quality of the drinking water supplied to them.

52. In 2010, to drawn up and make available to the general public a Guide to Sanitary Recommendations in the event of isolated alterations in the quality of the drinking water occurring.

53. In 2009, to implement a public information system concerning the health and environmental conditions of bathing waters.

54. To incorporate new technologies which enhance the communications channels used to inform the general public about air quality.

55. To promote education and citizen awareness concerning transport-related problems.

56. To inform the population as a whole, and particularly health care professionals, about current and forecast pollen levels.

57. To inform professional users of the health risks of exposure to chemical products in the workplace.

58. To distribute information about endocrine disruptors and their effects on human health, with special attention to more vulnerable groups.

59. To consolidate information channels and training for the general public about animals and their health impact.

60. To provide the general public with information about the part played by installations in the spread of legionnaires' disease and the health criteria to reduce the associated risks.

61. To publish material to be widely distributed about health measures and advice to prevent diseases associated with public installations or establishments.

62. To establish a transparent method of communicating reports which is compatible with the need to maintain the confidentiality of the scientific and technical debates of the scientific committees for risk assessment.

63. To have, by 2009, a web page providing integrated information about health and the environment aimed exclusively at business professionals.

64. To have, by 2009, a web page providing integrated information about health and the environment aimed exclusively at the general public.

65. To create the Andalusian Health and Environmental Observatory (OSMAN).

VI To consolidate training

66. To undertake the training of health inspectors to monitor and control compliance with REACH and GHS regulations during the 2008-2011 period.

67. To adopt measures to ensure that Andalusian companies involved in the manufacture, formulation, importation or marketing of chemical products are aware of the obligations and commitments stemming from the implementation of the new regulations.

68. To train healthcare professionals in the management of health risks associated with new kinds of leisure facilities.

69. To train public and environmental health professionals in assessing environmental risks with impact on human health.

70. To establish channels of dialogue and coordination with universities and the educational authorities with a view to including environmental health tuition in environmental science and healthcare training programmes.

71. To define and implement, by 2008, a Training Plan for healthcare professionals working in the area of environmental health.

72. To promote and giving backing to ongoing and updated training programmes provided by companies involved in environmental health.

VII To improve knowledge and further research

73. To set in motion, during the enforcement period of the Andalusian Environmental Health Plan, research into the behaviour of certain pesticides in water.

74. To carry out studies on reservoir basin catchment areas with a view to determining possible measures to protect water abstraction for human use.

75. To set up studies aimed a determining the effect on bathers' health of the presence of cyanobacteria in the water.

76. To carry out detailed studies on possible health effects in areas where there is thought to exist a greater impact on health due to air pollution.

77. To carry out an inventory of manufacturers, importers, formulators or wholesale suppliers of chemical products with a view to providing a profile of the sector in Andalusia.

78. To carry out specific analytical control campaigns on dangerous chemical products.

79. To have, by 2009, a preliminary Andalusian inventory of etiological agents, vectors and reservoirs which are part of the cycles of transmissible diseases in which wild animals are involved.

80. To improve scientific knowledge on the etiological agents, vectors and reservoirs of these diseases.

81. To typify the risk associated with new kinds of installations in order to evaluate their impact on health and enhance hygiene monitoring.

82. To improve knowledge of population exposure to health risks associated with urban spas, due to the increased presence of these infrastructures in our autonomous region.

83. To encourage scientific societies to take part in drawing up technical and management guides concerning the risks associated with indoor environment contaminants.

84. To develop, in 2008, a joint work space shared by the regional ministries of Health and the Environment aimed at pooling existing information and standardising criteria for the integrated management of information in a shared information system.

85. To create, in 2009, mutual interest information channels for importing and exploiting the results of the activities of the regional ministries of Health and the Environment.

VIII To strengthen protection of children and adolescents

86. To give priority to monitoring and controlling the application of biocides in buildings or spaces associated with children: nurseries, schools, high schools, school dining rooms, playgrounds or other areas.

87. To inform the general public of the health risks derived from exposure to household chemicals, with special attention to children.

88. To contribute towards the development and tracking of biological indicators gauging exposure of the inhabitants of Andalusia to the most dangerous chemical products, with special attention to children or other particularly vulnerable groups.

89. To monitor pilot projects carried out in Europe within the framework of the European Environment and Health Action Plan, with emphasis on

dioxins, heavy metals and endocrine disruptors, and the framework of CEHAPE (Children's Environment and Health Action Plan for Europe).

90. To assess, with the participation of scientific societies, the auditory effects on young people produced by portable music systems with earphones or headphones.

91. To disseminate scientific knowledge on the health impact on young people of portable music systems with earphones or headphones.

92. To review existing guidelines or measures concerning music levels in facilities providing leisure activities for the young.

93. To carry out studies on the assessment of environmental air quality in buildings or facilities, above all on the possible presence of chemical and biological contaminants and their routes of exposure in indoor environments, giving priority to pre-school centres and primary schools in Andalusia.

IX To develop support and control instruments

94. By 2008, to implement Royal Decree 140/2003 establishing sanitary criteria governing the quality of drinking water in Andalusia in order to adapt it to the regional situation.

95. To draw up, in 2009, new regional regulations governing the management of bathing water quality in line with the European directive.

96. To undertake, in 2010, a review of the regulations governing health criteria applied to public swimming pools in Andalusia in order to adapt them to scientific and technical progress.

97. To review and adapt to technical advances the health criteria applied to the reuse of reclaimed water in Andalusia, during 2009.

98. To adapt existing Andalusian acoustic quality regulations to Law 37/2003 of 17 November regulating noise, to comply with its regulations and with the acoustic principles established in the Technical Building Code.

99. To promote the development of a technical-health regulation in Spain,

establishing the requirements for the manufacture, marketing and application of biocides and for professional qualifications.

100. To develop, in 2009, a regional health regulation controlling the traceability of toxic and very toxic, carcinogenic, mutagenic and reprotoxic biocides from the moment they are marketed in Andalusia to their end use.

101. To improve regional capacities in the enforcement of the regulations.

102. To observe and control the compliance of chemical products marketed in Andalusia with the new regulations.

103. To provide health criteria to prevent risks associated with indoor environments, mainly focussed on building design and installation, levels of ventilation and correct maintenance of the installations.

X To improve health risk assessment capacity

104. To assess the health impact of atmospheric contaminants by monitoring health indicators associated with this kind of exposure.

105. To enhance the capacity to detect and assess the risks of outbreaks and epidemics in Andalusia associated with wild animals.

106. To develop processes aimed at assessing the health impact of chemical contaminants on indoor air.

107. To develop specific action protocols for assessing health risks.

108. Of all the actions subject to prevention and environmental control instruments in Andalusia to give priority to those which, due to their nature and intrinsic values, can cause a greater impact on the health of the general public.

109. To analyse the extent of the implementation and fulfilment of studies carried out on the health impact of EIAs to identify necessary improvements in the current information and control systems.

110. To locate and identify work and research groups concerned with health

risk assessment (identification of dangers, exposure assessment and risk description).

111. To participate in the process of defining indicators to measure population exposure to environmental risk factors.

112. To design a method of guaranteeing that scientific committees are created through competitive calls and to establish a protocol with which members responsible for risk assessment may declare their independence.

113. To establish a working method which includes creating maps of the greatest prevalence of physical, chemical and biological risks.

XI To promote and foster environmental health

114. To promote the creation of urban mobility plans and make significant progress in implementing less contaminating means of transport.

115. To promote alternative means of travel, encouraging the use of public over private transport.

116. To promote the use of cleaner fuels and technologies, rewarding non-motorized means of transport.

117. To promote the use of more silent means of travel (bicycles, public transport, walking, etc.) and also the use of technologies aimed at reducing noise emission.

118. To encourage local councils to declare “Acoustic Saturated Areas” wherever necessary.

119. To promote the inclusion of acoustic criteria in town planning in order to prevent further acoustic trouble spots, to identify the existing ones and create measures to combat them.

120. To promote investments in infrastructure and installations which reduce the emission of industry-generated air pollutants.

121. To encourage a reduction of the use of dangerous chemical products

and to replace them with other safer alternatives, both in the sphere of professional pest control and in the population in general.

122. To encourage reporting to the municipal risk installation registries the existence of installations at risk of legionnaires' disease.

ANNEX III

ANDALUSIAN HEALTH AND ENVIRONMENTAL OBSERVATORY (OSMAN)

In recent years there has been a significant increase in demand, both from the general public and from healthcare and other professionals, for improved knowledge of exposure to different environmental agents and their health effects and for the implementation of measures to reduce and prevent environmental risks.

If the authorities are to respond effectively to this demand they will need new tools which enable them to gather and publish qualified, updated and specific information designed for different end-users; to monitor the health-environment situation in Andalusia and publish the results; and to promote research and manage environmental risk perception effectively.

OSMAN aims to become a reference centre for Andalusia, gathering and disseminating with the utmost rigour existing information on the environment and health and furthering research into environmental health.

OBJETIVOS

1. To produce scientific evidence about environmental health aimed at the environmental health professionals of the Andalusian Public Health System (SSPA).
   - To gather scientific evidence-based information on environmental health and make this available to environmental health professionals.
   - To produce useful information for decision making on environmental risk management, health monitoring and health services.

2. To promote information and basic knowledge of environmental health aimed at the health professionals of the Andalusian Public Health System (primary care professionals, specialists, etc.).
   - To help to inform healthcare professionals of the activities of the environmental health services in their area.
   - To encourage healthcare professionals to give true and evidence-based information and to contribute to the management of environmental risk perception in their area.

3. To generate useful information for other professionals (in the environmental, educations sectors, etc.) interest groups (the media, industrial management, social agents, etc.) and the general public which helps improve their knowledge and comprehension of environmental health and which makes a decisive contribution to the management of environmental risk perception and helps inform and educate the inhabitants of Andalusia about the health impact of environmental risks.
   - To generate relevant, qualified and confirmed information which can be compared with information coming from other regions or countries.
   - To create thematic guidebooks on specific environmental risks which disseminate basic knowledge and make recommendations for prevention.
   - To take part in conferences, seminars and courses for specific professional groups and for the general public.

4. To monitor the general public's concerns and expectations in particularly sensitive areas.
   - To hold periodic meetings with various social and economic agents in a particular area, gathering their opinions and proposals (Citizens' Participation Committee).
   - To propose steps aimed at minimising any possible impact the economic activity of the area may have on health.

5. To promote research into the environment and health in Andalucía.
   - To help identify environmental health research needs in Andalusia.
   - To encourage meetings between institutions and research groups as a means of exchanging experiences and stimulating collaboration in research projects.
   - To gather and disseminate existing information on grants for projects on health and the environment.

INSTRUMENTS

In order to achieve its objective, the OSMAM will use, at least, the following instruments:

- A web page, as a means of disseminating information on health and the environment. This will be the main showcase for the Observatory's activities and the main tool for providing the general public with access to information.

- An on-demand consultation system

- Public access electronic bulletins published periodically with a summary of news on health and the environment drawn from leading media sources, recent scientific publications, research aids, activity programmes, seminars and conferences, etc.

- An annual report on the most relevant information concerning health and the environment in Europe with special reference to Spain and Andalusia.

- Thematic reports drawn up to satisfy specific regional government interests or specific needs for information about certain environmental risks.

- Thematic mini-guidebooks, published as flyers, with clear and simple information mainly aimed at the general public. The aim is to disseminate information about specific environmental risks and put forward recommendations to prevent and minimise exposure to the same.

ORGANISATIONAL STRUCTURE

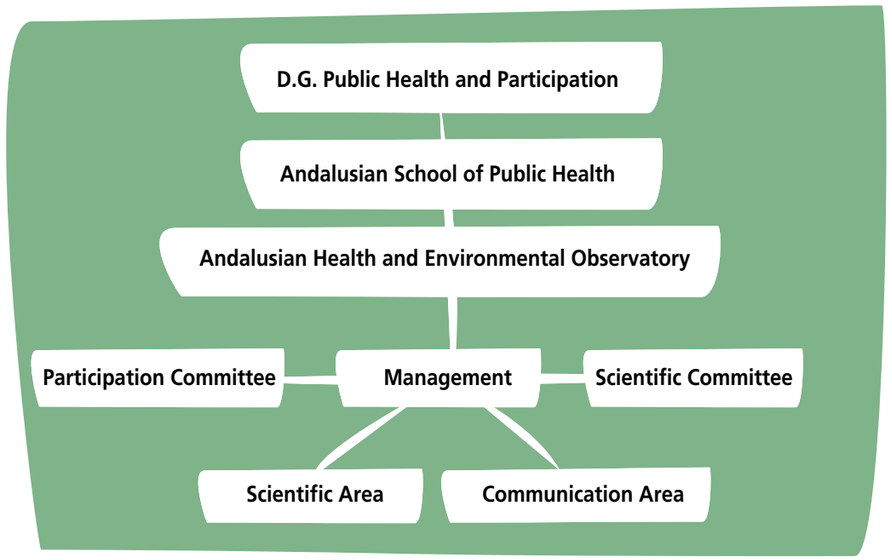
The OSMAN will be managed from the Andalusian School of Public Health (EASP) as an independent project reporting to the Directorate-General for Public Health and Participation of the Regional Ministry of Health. The technical headquarters will be situated in the Campo de Gibraltar. The professional staff will consist of a director, a technical unit and administrative personnel.

The Observatory will also have:

A Participation Committee consisting of representatives from the civil society. Its function will be to help express and specify specific demands to be included in the OSMAN's annual programme of activities.

A Scientific Committee to act as an advisory body for the Observatory. It will consist of scientists and professionals from universities, healthcare institutions and scientific organisations whose will contribute to the OSMAN's activities from a scientific perspective.

Organisational chart



ANNEX IV

OTHER ANDALUSIAN PLANS IN OPERATION WHICH HAVE A BEARING ON THE IMPROVEMENT OF ENVIRONMENTAL HEALTH

III Andalusian Health Plan 2003 – 2008. Regional Ministry of Health. Andalusian Regional Government

II Andalusian Public Health System Quality Plan 2005-2008. Regional Ministry of Health. Andalusian Regional Government

Integrated Andalusian Oncology Plan 2002-2006. Regional Ministry of Health. Andalusian Regional Government

Comprehensive Tobacco Action Plan for Andalusia 2005-2010: Andalusian Public Health System. Regional Ministry of Health. Andalusian Regional Government

Andalusian Environment Plan 2004-2010. Regional Ministry of Health. Andalusian Regional Government

Andalusian Strategy for Sustainable Development: Andalusian Agenda 21. Regional Ministry of Health. Andalusian Regional Government

Andalusian Strategy in the Face of Climate Change. Coordinated by: Regional Ministry of the Environment. Andalusian Regional Government. (Acuerdo de 3 de septiembre de 2002, del Consejo de Gobierno, por el que se aprueba la adopción de una estrategia autonómica ante el cambio climático. BOJA num. 113 de 26/09/2002)

Plan Andaluz de Acción por el Clima 2007-2012. Andalusian Regional Government. (Acuerdo de 5 de junio de 2007, del Consejo de Gobierno, por el que se aprueba el Plan Andaluz de Acción por el clima 2007-2012: Programa de Mitigación. BOJA num. 125, de 26/06/2007)

City 21 Environmental Sustainability Programme. Regional Ministry of the Environment. Andalusian Regional Government

Plan de Acción Medioambiental del Campo de Gibraltar. (Orden de 15 de septiembre de 2005, por la que se aprueba el plan de acción medioambiental para el Campo de Gibraltar. BOJA num. 187, de 23/09/2005)

Plan de Mejora de la Calidad del Aire en el Municipio de Bailén. (Decreto 31/2006, de 14 de febrero, por el que se aprueba el Plan de Mejora de la Calidad del Aire en el Municipio de Bailén. BOJA num. 56 de 23/03/2006)

Plan Andaluz de Sostenibilidad Energética 2007-2013. (Acuerdo de 13 de junio de 2006, del Consejo de Gobierno, por el que se aprueba la formulación del Plan Andaluz de Sostenibilidad Energética 2007-2013, PASENER 2007-2013. BOJA num. 117 de 20/06/2006).

Plan de Ordenación del Territorio de Andalucía. (Decreto 206/2006, de 28 de noviembre, por el que se adapta el Plan de Ordenación del Territorio de Andalucía a las Resoluciones aprobadas por el Parlamento de Andalucía en sesión celebrada los días 25 y 26 de octubre de 2006 y se acuerda su publicación. BOJA num. 250 29/12/2006)

Andalusian Plan for Research, Development and Innovation 2007-2013 (PAIDI). Regional Ministry of Education, Science and Enterprise. Andalusian Regional Government (Decreto 86/2007, de 27 de marzo, por el que se aprueba el Plan Andaluz de Investigación, Desarrollo e Innovación (2007-2013). BOJA num. 72, de 12/04/2007)

Plan Estadístico de Andalucía 2007-2010. (Ley 4/2007, de 4 de abril, por la que se modifica la Ley 4/1989, de 12 de diciembre, de Estadística de la Comunidad Autónoma de Andalucía, y se aprueba el Plan Estadístico de Andalucía 2007-2010 BOJA num. 82 de 26/04/2007)

Plan de Desarrollo de la Sociedad de la Información en Andalucía 2007-2010. (Acuerdo de 26 de diciembre de 2006, del Consejo de Gobierno, por el que se aprueba el Plan de Desarrollo de la Sociedad de la Información en Andalucía 2007-2010. BOJA num. 88, de 05/05/2007)

Andalusian Environmental Health Plan 2008-2012

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