

 **FORESEC - Europe's evolving security: drivers, trends and scenarios**

**FORESEC Deliverable D 2.2
Country report on Spain**

16 June 2008

**Principal authors: Carlos Aguirre-Bastos. ARC/ systems research
Reviewed by: Bastian Giegerich (IISS), CMI**



Contents

1. Concept of Security

2. Current security related activities

2.1 Organisations

2.2 Strategies and doctrines

2.3 Private sector

2.4 Key technologies

2.5 Current research programs

3. Public opinion

4. Current foresight activities

4.1 National foresight activities

4.2 International foresight activities

4.3 Identified threats

5. European Collaboration

6. Conclusions

7. References

Appendix A Current security related activities

Appendix B Current foresight activities

Abbreviations

CEISE:	Centro Europeo de Investigación Social de Situaciones de Emergencia (European Social Research Centre for Emergency Situations)
CNI:	National Intelligence Centre
CNP:	National police
CSEDN:	Superior Centre for the Studies of National Defence
DGEI:	Directorate General for Immigration
DGPC:	Directorate General for Civil Protection
EECCCEL:	Spanish Strategy for Climate Change and Clean Energy
EU:	European Union
GEES:	Grupo de Estudios Estratégicos
GNSS:	Global Navigation Satellite System
INASMET:	Fundación – Asociación de Investigación Metalúrgica del País Vasco
IUGMM:	University Institute “General Gutierrez Mellardo”
IUISI:	University Research Institute on Internal Security
MdD:	Ministry of Defence
Mdl:	Ministry of Interior
NGO:	Non governmental organization
ONG:	Non governmental organization
OPTI:	Industrial Technology Prospective Observatory
PP:	Partido Popular (Popular Party)
PSOE:	Partido Socialista Obrero Español (Spanish Socialist Workers Party)
R&D:	Research and Development
UE:	European Union

Introduction

This country report on Spain represents one of the 12 country reports that have been compiled as part of the FORESEC project's State of the Art Scan on European Security (see further about the project at www.foresec.eu). The scan provides an overview of the security field in the 12 countries chosen. The countries have been selected to give a good overview of the different cultures, geographical locations, national strategies and societal challenges that face European security and shape the priorities and interest at then European level.¹

Section 1 of the report discusses the concept of security in Spain, section 2 looks at the current security related activities including organisations, strategies and doctrines, role of the private sector, key technologies and current research programs and projects. Section 3 discusses the public opinion in Spain vis-à-vis security threats and technologies. Section 4 gives an overview of current national and international foresight activities and section 5 highlights issues where European level collaboration is seen to have most added values. Further details concerning each section are provided in the Appendix.

The report highlights the large efforts that have been made in Spain during the past two decades in developing new strategies and institutional arrangements for security, the redefinition of the role of the Armed Forces and most important, the vision of Spain regarding the European common security concerns and the need to face challenges joining efforts among European countries.

1. Concept of Security

Introduction

This section will describe the concept of security in Spain, a concept that is still evolving as the country faces greater challenges, but at the same time, responds with definite resolve in finding answers and solutions to them.

The Spanish language uses a single word "seguridad" to express both security and safety so a distinction can only be made in the specific case being dealt with.

Concept of security

The concept of security needs to be seen under its different implications, of which at least five can be identified:

- National defence
- Citizen security or public security (which includes private security services)
- Industrial security
- Public health, particularly when dealing with security problems that have risen from the propagation of deceases such as the "bird flu" and others.
- Environmental problems caused by natural or man-made effects that involve civil protection issues to a large extent

The main basic legal instruments that establish the framework for security are:

- Organic Law 5/2005 of 17 November, on National Defence

¹ The FORESEC state of the art scan covers Austria, Bulgaria, Estonia, Finland, France, Germany, Italy, Poland, Slovenia, Spain, Sweden and United Kingdom

- Organic Law 1/1992, of 21 February of Protection of Citizen Security
- Organic Law 2/1986, 13 March on Security Forces and Corps
- Law 14/1986, 25 April, on Health
- Law 23/1992, 30 July on Private security
- Law 2/1985, 21 January on Civil Protection

The terrorist attacks of New York and Madrid, have broken the separation of the concepts of national defence and citizen security and thus in the discussion that follows, both might be intermingled. This situation has important judicial consequences, both from the point of view of the distribution of competences between the state and the Autonomous Communities, as well as from the point of view of the distribution of competences between organs inside the public administration itself.

The Organic Law of Protection of Citizen security establishes that the maintenance of citizen security corresponds to the Government through the Security Forces and Corps and is addressed to the protection of the free exercise of rights and liberties, maintaining the adequate conditions to that effect and removing obstacles, it also calls for the peaceful citizen co-existence, the eradication of violence and the peaceful use of public ways and spaces, as well as to prevent crime.

The Defence Law establishes that the defence policy has as its main goal the “protection of the whole of Spanish society, its Constitution and superior values, principles and institutions, the social and democratic state, the exercise of liberties and freedom, and the guarantee, independence and territorial integrity. It has also the objective to contribute to peace and security.”

In Spain, the concept and practice of security has evolved much since the return to democracy. Earlier studies, particularly at the time of the Franco regime, favoured the analysis of political or ideological contents that reinforced the intervening nature of the armed forces, that is, the militarization of internal security. Several authors have pointed out that such studies presented a set of weaknesses, due to the complexity of the issues themselves and an excessive generalization of security that applied to all levels of society and invited to concentrate efforts in the more superficial and easiest issues, scarce attention was given to the influence of culture and of the values over the strategy and an excessive emphasis was placed on the abstract theory of dissuasion applied to any type of conflict. Such reductionism structured public opinion which has slowly been changing, especially since the occurrence of dramatic events such as the March 11, 2004 terrorist attack in Madrid.

The Strategic Defence Review (MdD, 2003) states that as a sovereign nation, “Spain defends the interests that are vital to its survival”, these interests include sovereignty, independence, territorial integrity and constitutional order, along with ensuring the life, liberty and prosperity of the Spanish people” as established in the preamble to the Constitution. Further, the Review places a strong emphasis on the international and European character of peace, security and the respect of human rights.

The 2003 Spanish Military Strategy (CSEDN, 2006) provides the following concept:

“The transformation suffered in the past years in the concept of security amply transcends the simple defence of sovereignty spaces. This concept involves basically the defence of the Nation, the security of citizens and the stability of world order. The natural consequence is the difficulty to establish a strict separation between internal and external security, as both make part of a continuum. For the Armed Forces, particularly in the West, that has translated into the fact that these institutions are not limited to the defence of its territories, but also to the maintenance of stability areas to

avoid that the consequences of external conflict arrive into its borders. At the same time the Armed Forces have increasingly been involved in interior security missions and protection in face of natural catastrophes in cooperation with other organizations of the State to secure the well being of the country in general and the normal operation of institutions”.

This concept, together with more recent developments have led the CSEDN to make a proposal for up-dating the strategy and define a new model of security and defence, addressed principally to define the role of the Armed Forces in both activities.

In proposing a new Model for Security and Defence, the Superior Centre for Studies on National Defence defines national security as that situation in which the Nation is “considered sufficiently protected against risks, dangers, threats or damage, external or internal”.

The Strategic Defence Review of 2003 (MdD, 2003) points out the main external risks to Spanish security:

- The rise of the external terrorist phenomenon
- The proliferation of nuclear, biological, chemical and radiological weapons of mass destruction
- The geographical situation of the country, including its islands and rock formations and the cities of Ceuta and Melilla in North Africa
- The vulnerable geographical situation of the Gibraltar Strait that serves as a key line of communication for the supply of basic resources
- The limitation arising from the lack of sovereignty on Gibraltar

Additionally the Review points out other risks arising from:

- The negative effects of globalisation, which permits a rapid propagation of effects, such as environmental attacks and aggressions
- Extraordinary and uncontrolled migratory movements
- Cyber attacks

The September 11 attacks have shown that an unperceived threat is not any less dangerous, so that it is the government’s responsibility to encourage and insure basic defence measures aimed at avoiding “catastrophic surprises” Under this context, the Strategic Defence Review of 2003 defines a set of new functions for national defence and collective defence, which will be discussed further on.

Besides outside threats, terrorism (in particular ETA), immigration and common crime are considered the three more grave threats to security in Spain at present.

The National Defence Directive of 2004 (MdD, 2004), recognizes that since the transition to democracy, Spanish defence policy has evolved to reflect the changes in the international strategic situation, Spain’s increasingly important role in the world, the development of society and successive national governments. Further, in the past years not only the Ministries of Defence and Interior have been actors in security issues, but other government, autonomous and local governments as well as private organizations have been increasingly involved in security and in the study of national, European and international security issues.

In effect, the Directive recognizes that successive directives issued since 1980 have guided the country towards full participation in the western security and defence organizations, and have moved the country from a traditional concept linked to sovereignty seen in territorial terms – with

an almost exclusive focus on military aspects – to another, broader concept of shared security and collective defence with partners and allies, in which society as a whole should be involved.

Different researchers have also advanced concepts on security. Romero de Lara (2005), define the concept of security as ubiquitous and multidisciplinary, affecting all walks of the social life of a country, be in normal situations or in a state of exception; security involves all levels of the administration and the three constitutional powers are responsible for it, in the case of the executive, it is present in all ministries; further the concept is determined to a great extent by the guidelines and legislation at the European and international levels.

In the opinion of Olmeda (2001), Spain did not have until the early 2000's a tradition in the studies of peace and international security, in fact, he asserts that even today there is no culture for security in the country and the idea of defence is still deficient, and as a consequence there is no solid or well structured strategic thought.

In spite of questionings such as the above, it is important to note that the concept of security in Spain has evolved in the past years giving room for the definition of strategies and plans. Research activities undertaken by an increasing number of researchers have also contributed to better define the concept of security.

2. Current security related activities

An increasing number of security related activities have been taking place in Spain for a number of years in the way of research projects, institutional developments, education, definition and application of new legislation, both at the national as well as the regional or even local levels. This section will review some of the most prominent in the public sector.

2.1 Organisations

The Ministry of Defence is the institution in charge of the “preparation and execution of the Government’s policy in defence matters and the management of the Military Administration”.

The main organization in charge of internal - citizen security is the Ministry of Interior. Within the Ministry there are several units that deal with different aspects of security, among them two which are considered the largest threat to Spain, terrorism (external and internal, specially by ETA) and crime. The Secretary of State for Security, directly under the Minister is the responsible person for security. Under the Secretary operate both the National Police Corps and the Civil Guard, the latter under a joint command with the Ministry of Defence. A simplified structure of the Ministry is shown in figure 1.

Under the Ministry of Interior runs the General Directorate of Civil Protection and Emergencies (www.proteccioncivil.org/es/DGPCE/) whose functions have been determined by Article 10 of Royal Decree 991/2006, mainly the preparation of state plans for civil protection, the preparation and management of practical exercises, the execution of studies relatives to risk analysis and others, as shown in Table 1. Belonging to the Directorate is the CEISE – European Centre for Social research in Emergency Situations, which is in charge of conducting research and study on the sociological, legal and economic issues relevant to civil protection.

Under the tuition of the Ministry operates the National Commission for Civil Protection (www.proteccioncivil.org/es/CNPC/) regulated by Royal decree 967/2002, which is an inter-ministerial organ that also involves representatives of the Autonomous Communities and Local

Entities. The Commission constitutes the Spanish Committee for the International Strategy for the Reduction of Disasters.

Created in 1995, another instance for dealing with security issues is the National Council for Citizen Security composed of the national government, the Federation of Municipalities and Provinces, the General Council of the Judicial Power, the Prosecutor's Office, the General Council of Lawyers, the Youth Council, the Foundation for Support against Drug use and different associations of neighbours, parents, consumers, women elder persons and NGO.

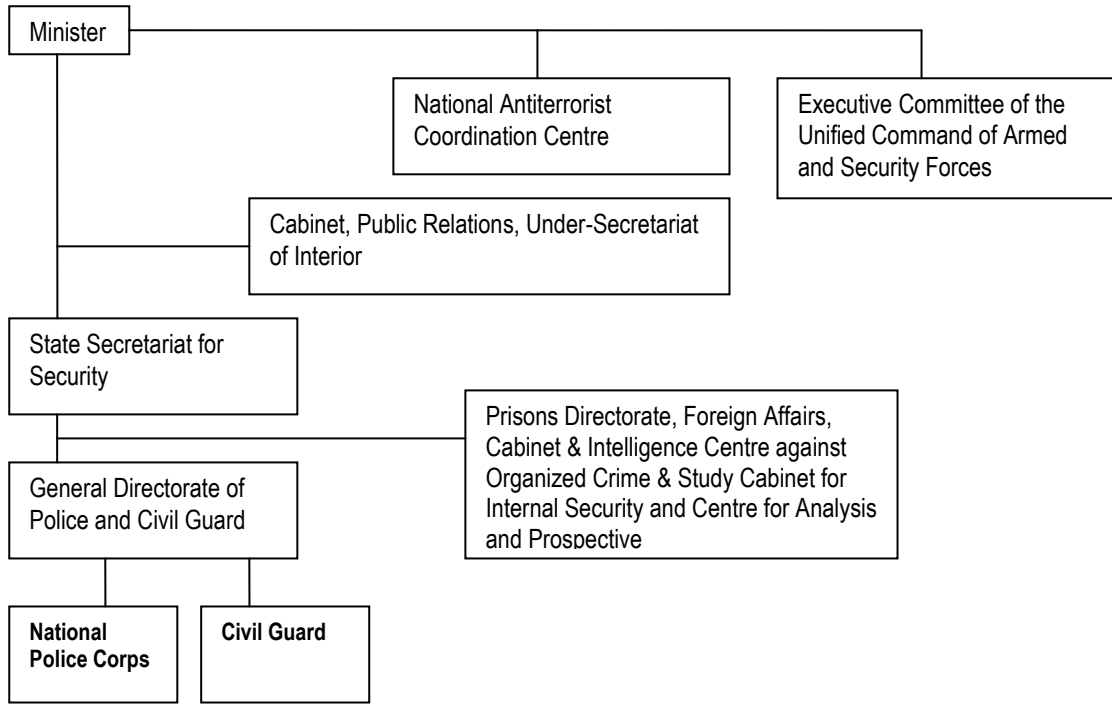
Four Autonomous Communities (Catalunha, Pais Vasco, Navarra and Canarias) have created an internal policy organization. Other Communities also have plans to do so. These forces have had an uneven development, and in Catalunha and Pais Vasco their objective is to displace, except for certain functions, the Civil Guard and National Police. There are also Local and Municipal police forces in place.

Among other government offices which deal with related security issues is the Ministry of Environment (www.mma.es) which among others has the functions of management and control of the land – marine dominium, and thus is directly related to the fight and control of natural catastrophes in coordination with the responsible bodies.

Also at the government level, the Ministry of Industry, Tourism and Commerce (www.mityc.es) through its General secretariat for Quality and Industrial Safety conducts extensive work and administers a vast body of legislation related to industrial safety. Through the web page: www.seguridadindustrial.org, this legislation and several other norms related to all industrial safety can be found. The Ministry of Health and Consumption is also important in matters of public health and food security issues.

Involved in security related matters is the “Reina Sofia” Centre for the Study of Violence, which as one of its lines of work, dedicates efforts to the study of the ideological basis of terrorism, and in particular, the personality of the terrorist (www.centroreinasofia.es). A large number of efforts of several government and NGO are concentrated in the support of victims of terrorism. Further, the Real Instituto Elcano (www.realinstitutoelcano.org) has carried out extensive work on the international issues of security and defence.

Figure 1: Simplified Structure of the Ministry of the Interior



Resumed from: www.mir.es/MIR/estorganica/estructura/organigrama.pdf

It is also possible to identify the structure of the Spanish Intelligence Community as follows:

<p>Presidency of the Government</p> <ul style="list-style-type: none">➤ Delegated Commission for Intelligence Affairs <p>Ministry of the Interior</p> <ul style="list-style-type: none">➤ Antiterrorist Coordination National Centre➤ Executive Committee for the Unified Command of Security Forces• Secretary of State for security• Civil Guard Information Service<ul style="list-style-type: none">➤ Internal terrorists threats➤ International terrorism and illegal immigration➤ National defence, counterintelligence and security, cyberterrorism➤ Sects and racist movements, xenophobes and anti-system <p>Services of Crime Research</p> <ul style="list-style-type: none">• General Commissariat of the Judicial Police in the National Police Corps<ul style="list-style-type: none">➤ Criminal intelligence➤ Drug and organized crime➤ Specialized and violent delinquency➤ Coordination with Interpol and Europol• Central Operative Unit of the Judicial Police in the Civil Guard<ul style="list-style-type: none">➤ Criminal research➤ Organized crime➤ Arms traffic, drug traffic etc➤ Similar functions in its competence sphere to the general commissaries of the Judicial Police
<p>Military Intelligence</p> <ul style="list-style-type: none">• Armed Forces Intelligence centre<ul style="list-style-type: none">➤ Intelligence production➤ Direction of the cycle of intelligence➤ Systems management• Divisions and sections of Intelligence in the three armies<ul style="list-style-type: none">➤ Obtention➤ Elaboration➤ Diffusion

Together with terrorism and crime, immigration constitutes a concern of the Spanish society for several years, but only more recently it has become a major issue having inroads into security matters. To face the different challenges posed by immigration, including security related issues, Royal Decree 553/2004 of 17 April 2004 which restructured several ministries, created under the Ministry of Labour and Social Affairs, the Secretariat of State for Immigration and Emigration, in substitution of a lower body of the past called the Delegation. The Secretariat is the foremost public institution in charge of immigration issues.

By Royal Decree 344/2001 of 4 April 2001, the Superior Council of Immigration Policy was created to secure an adequate coordination of all the activities undertaken by the national, autonomous and local public administrations which had competences with the integration of immigrants and the development of a global policy on this matter. Three groups of institutions are present in the Council: the ministerial departments with competences in foreign issues, immigration and asylum; the Autonomous Communities; the local administration represented by the association of local Entities.

In other security related issues, Law 15/1980 created the Council for Nuclear Safety to monitor and control nuclear and radioactive installations in the country, none of which can operate without its

permit. The Council is the highest authority in charge of assessing the security conditions in all installations. In 1999 the Council was charged with new competences: to control and monitor the radiological quality of the environment; the adoption of measures in exceptional emergency situations in installations not regulated by the nuclear legislation; coordination of the necessary means to provide responses to radiological emergencies. Further, on 18 October, 2007 Law 33/2007 was approved reforming the Council. Table 1 shows the main functions of the Council. It is interesting to note that the Council has been structured as an institution outside the mainstream of the State administration and is directly responsible to the Chamber of Representatives; this institutional figure is drawn from the anglosaxon law, denominated "independent administrative authorities"

On the other hand, the Nuclear Forum provides training and education through national meetings, courses, interventions in educational centres and organizing visits to its member organizations (formacion@foronuclear.org, www.foronuclear.org)

The educational area has been a subject of attention in security related matters. On the 18 of December 2006, the Ministry of the Interior and the Ministry of Education and Science signed a comprehensive agreement to promote actions at the school level for the improvement of personal and citizen security in children and the youth, improve their knowledge on the forces and institutions of security and cooperate in the prevention and eradication of violent conduct that may show up at the school level.

In several universities, there are efforts to render education on security (and defence) matters at the Master and Doctoral levels. One example is the IUGGM which hopes to contribute to the progress towards the development of a "culture for strategy" and to promote a conscience of defence. It should also allow integrating the dispersed research efforts of different higher education institutions. Besides the national situation, particular attention is paid in these programmes to the Mediterranean, Europe and Ibero-America, all regions of Spain's geopolitical interests.

One other example of education at the post graduate level is that of the Universidad Complutense de Madrid which together with the Superior Centre of Studies of National Defence offers a master level course which is in its fourth year. Also, the Universidad Carlos III of Madrid offers a Master level course, which is in its 10th edition on the management of security. The Universidad Politecnica de Madrid has recently created a Chair of "New Technologies for Security and Defence"

Further in the area of education, there are institutions such as the "Centre for Training and Security Studies", authorized by the Ministry of the Interior for the professional training and up-date of private security personnel. This institution has field offices in three Latin American countries and is associated to the Latin American Security Association and the International Police Association. Also the International Association of Police Tactics has designated the Centre as its European centre for training.

2.2 Strategies and doctrines

The Strategic Defence Review of 2003 defined several lines of strategic actions to be pursued to face internal and external threats, and thus contribute to national and international peace and security. The proposed national security policy was based on a set of "instruments":

- Deterrence, built upon the exercise of power through the maintenance of a national military capability and its readiness and availability
- Cooperation, through the reinforcement of links with other countries that share common interests, in order to find multilateral solutions

- Prevention, intended to avoid the tensions, instabilities and crises that lead to conflict
- Stability projection to exert influence on other regions
- Response to react, in an adequate fashion, in the face of any possible aggression against national interests or those of allies and friendly countries

The Review defined the general missions of the Armed Forces along three lines: defensive missions, missions related to international cooperation, and missions to support the State's civil administration for the preservation of citizen security and well being. In the latter strategic line, it is stated that the Armed Forces play an important role in civil emergency situation caused by natural or human catastrophes.

For the period 2000 – 2004, the government adopted a security strategy which was born out of the consideration of at least seven factors (Romero de Lara, 2005), all still present today:

- Adoption of different norms born out of regional or international treaties, in particular of EU
- The development of security policies which were offered during political campaigns or programmatic declarations of political parties
- Structural changes in the conditions of security
- Unexpected changes in security conditions
- Adaptations to judicial sentences
- Public opinion and influence of pressure groups
- Evolution of techniques and reality of present crimes

After the change in government in 2004, the newly installed government (PSOE) initiated the implementation of a new security strategy based on seven compromises were assumed during the electoral campaign (Gonzales, 2005): creation of commissaries in each municipality with more than 30,000 inhabitants; increase in the number of member in the Police and Civil Guard; improved coordination between the Police and Civil Guard and the creation of a unified command; integration of police records; improvement in the motivation and working conditions of members of the security forces; more balanced retribution; introduction of more democracy in the National Guard. As shown in Table 2 such electoral promises have been fulfilled. Four broad strategic lines compose today the national security policy of government:

- Efficient fight against all types of terrorism
- Improvement of the efficiency against organized crime, specially against drugs, money laundering, and the networks and fluxes of illegal immigration
- Improvement the levels of citizen security
- Provide the security forces of the state with human, financial and technical resources as well as the budget necessary to reach high efficiency levels,

It should be mentioned that in application of the early stages of the strategy, the Government initiated a strategy of dialogue with the terrorist organization ETA, generating an intense political debate and had consequences, which in the opinion of researchers might have served to strengthen the terrorist group, and failed at the end.

In matters related to Citizen Security some more recent strategies have been developed, among them the "Proximity Police" intended to a major presence of police in the street, nearer to the citizen

In the later years, considering that public opinion has strongly emphasized immigration as a security concern the Government has also taken a strategic approach to handle it. The present Government's policy on immigration is based on several general guidelines, the first that

immigration is considered an essential “chapter” of the political development and that it should be strongly concerted among all political parties, as well as with the Autonomous communities and Municipalities, citizens and productive associations and organizations. A second element is to face challenges without ignoring them, under this view it is considered that immigration contributes to development and the maintenance of the social model. A third element is transparency, so as to keep society informed, all political groups and citizens must understand the difficulties that are faced to value the nature of the adopted policies.

Lamo de Espinosa (2008) has pointed out that in reality there is no migratory policy in Spain, and what exists is a patch work of regulations and norms, even in the view of the existing Strategic Plan of Citizenship and Integration 2007 - 2010. In his view the integration of immigrants to the Spanish society is being done in a spontaneous way by society.

There are some proposals to improve this situation, emerging from many different organizations, for example the CSEDN (2005) has pointed out that a policy and strategy must consider several conditions that need to be recognized:

- The existence of employment that is not covered by legally established workers
- The existing legal norms by which an illegal immigrant can easily regularize his/her situation
- Gaps in the Schengen agreements, which for example do not regulate properly the traffic in airports or terrestrial frontiers
- The existence of networks or mafias specialized in the illegal transport of people
- There exists legislation that needs to be reviewed or complemented to incentivate regular – legal immigration
- The need to create a European policy on immigration issues

The Nuclear Security Council (www.csn.es) adopted a “Strategic Plan 2005 – 2010” as compromise of the organization with society. In 2006 a large effort was dedicated in application of the Plan to the preparatory self-evaluation for the mission of the Integrated Regulatory Review Service requested by Spain to the International Atomic Energy Agency; the implementation of the Integrated Central Supervision System; the application of lessons learned from the incident at the nuclear plant Vandellos II (25 August 2004) to all other nuclear plants. Table 2 provides a resume of the main security related contents of the Strategic Plan.

Further to the above strategies, the Ministry of Environment has defined a set of strategies, of which the Spanish Sustainable Development Strategy (MMA, 2007), the Spanish Strategy for the Urban Environment (MMA, 2007) and the Spanish Strategy for Climate Change and Clean Energy 2007 – 2012 -2020 (MMA, 2007), all have elements of citizen security.

The “Strategy for Sustainable Development” adopted in 2007 which was framed under the EU Sustainable Development Strategy, renewed at the Brussels Council of 2006 with the general principle of “determining and elaborating measures that allows the continuous improvement of the quality of life, to take advantage of the potential for ecological and social innovation offered by the economy, and at the same time, ensuring prosperity, environment *protection* and social cohesion. The Strategy includes seven high-priority areas: climate change and clean energies; sustainable transport; sustainable production and consumption; public health challenges; management of natural resources; social inclusion, demography and migration; and the fight against world-wide poverty.

In line with the European Sustainable Development strategy, the governing principles of the Spanish Strategy include among its objectives“... to increase the education and public awareness in matters of sustainable development, to improve the social dialogue, to increase the social

responsibility of companies and to foster associations between the public and the private sector to obtain a more sustainable consumption and production". In matters of social sustainability the Strategy calls action lines to guarantee the integration of the immigrant population.

The Strategy for Climate Change and Clean Energy" is addressed to comply with the obligations derived from the Kyoto Protocol and to promote clean energies, while at the same time improve social wellbeing, economic growth and environmental protection. Some of the main "operational" objectives of the Strategy are:

- Secure the reduction of the emission of greenhouse gases, in particular in the energy sector that accounts for 78.8% of such emissions.
- Improve public conscience relative to climate change and clean energy
- Promote R&D and innovation
- Guarantee energy supplies promoting the use of clean energies
- Promote the rational use of energy.

2.3 Private Sector

The private sector participates in different in security related work by the development of technology and production of goods and services or the import of foreign technology. There are also associations that congregate different security firms, some specialized such is the case of security services, and others congregating firms covering different areas.

Examples of specialized firms are:

- Izar Shipyards (www.izar.es): is the leading ship repair and conversion firm, serving the defence and security establishment.
- INDRA (www.indra.es): is a leading ICT company with markets in 82 countries, implementing contracts for security and defence as a major activity.
- Safelayer Communications (www.safelayer.com): Market leader in the field of security in the area of applications of ICT.
- Plus-Quam (www.plus-quam.net): Consulting firm in all areas of security and provider of training as well as of outsourcing, with growing national presence and one subsidiary in Venezuela
- NEDAP Iberia SA (www.nepad.es): Specialized in information security, has three business groups: anti-robbery electronic systems and associated services; Access control technology; Informatics solutions for library management

The private sector, together with public institutions, has ample activity in the defence industry, which is important, although smaller than that of larger European countries. In 2003 sales amounted to 6,908.48 million Euros

(www.justiciaipau.org/centredelas/index.php?module=htmlpages&func=display). The National Defence Directive of 2004, among the guidelines for the development of the Defence policy, addressed to reform the Armed Forces establishes that R&D and innovation will be encouraged so as to maintain a high level of technology, thereby improving the operational capabilities of the Armed Forces and promoting the competitiveness of the national defence industry.

In the particular case of energy, including nuclear power, the private sector is congregated around specialized associations. In the latter case, the "Foro Nuclear" (Nuclear Forum – www.foronuclear.org) was established in 1962 to bring together Spanish companies involved in the peaceful use of nuclear power "ensuring that their interests are integrated and coordinated at the very highest levels of safety and reliability in plant operation". At present there are 48 firms that belong to the Forum.

The private sector actively participates in specific security concerns. One important example is the Spanish Society of Security Law (www.derecho-seguridad.org) that groups law professionals that are involved in public and private security. The main activities of the Society are training courses for members or open to the public, preparation of reports to both official and private organizations, the organization of meetings and publications of proceedings and the operation of an electronic mail network on Law which is promoted by the Spanish Security Federation, which groups private security firms.

Other key security institutions in the private sector are the following associations:

- Spanish Security Entrepreneurial Federation – FES
- Association of security Media, Professionals and Enterprises – AMPES
- Association of Security Enterprises – AES
- Professional Association of Private Security Services Enterprises - APROSER

Also in the private domain, an important educational and service institution is the “Foundation for the Promotion of Industrial Innovation” (www.ffii.nova.es) created in 1993 by the Madrid Polytechnic University and registered as a teaching foundation. Its main objective is to provide technical services to allow enterprises and organizations to comply with industrial safety regulations and quality standards. Table 3 provides further information on the private sector activities in security issues.

Finally, in the private sector, it is worth noting the publication of the monthly “Seguritecnia” Magazine dedicated exclusively to security issues, edited by the Borrrmat SA Editorial House.

2.4 Key technologies

The advent and accelerated growth of the Internet Protocol (IP) and wireless-based communications and the convergence of ICT technologies has been the key to globalisation and will continue to be a driver of development. However, as fixed mobile convergence merges wireless and Voice over Internet Protocol communications and permits to move to a model of “one-phone, one number”, wireless faces a world of increasing quality and reliability demands (IBM, 2006). The advances that have taken place occurred at the expense of security, which was not built into IP or wireless communications protocols. A survey conducted by IBM to managers and executives from some of the world’s largest carriers showed (IBM, 2006):

- 55% said that security issues were impeding rollout of Triple-and Quad- Play service bundles
- 78% said that VoIP services will fail without strong security
- 78% said in-the-cloud security services will become a major revenue generator within five years
- 49% said they do not have the core competency to deliver the above services today.

Under such a context, one of the main efforts of Spanish companies in the development of security (and defence) related technologies, has been in the ICT sector, as shown in Table 4 of the Appendix.

The technologies which have been developed follow two lines, first those technologies that are important to the citizen as is the case of digital-base security and second those technologies, mainly developed for military applications, which are important for industry. In the first case, market forces define the supply-demand and in the second strategic concerns lead the way.

2.5 Current Research programs and research projects

There are several public and private research institutions dedicated to security studies. At the public level the CEISE

(www.proteccioncivil.org/es/DGPCE/Informacion_y_documentacion/catalogo), which makes part of the European Network, is a dependence of the Directorate General of the Civil Guard, and is in charge of conducting research and studies on sociological, legal and economic issues, relevant to civil protection. CEISE has worked often in cooperation with some universities, but in general its work has had scarce diffusion outside the Directorate. For this reason, the Directorship of the institution has decided to present all studies undertaken on the Internet.

Besides formal research programs, many connected to training and education, there are many research activities carried out by the initiative of individual researchers located in universities or non – university research centres.

Research has been undertaken in different areas of knowledge. One particular area of attention has been the legal issues regarding public and private security (Aguado i Cudola, 2006 and 2007 and Izquierdo, 2002); industrial safety (Izquierdo, 2000); food security, immigration, terrorism and drugs (for example money laundering), airport security, and others. Much of this research is addressed to the understanding of the definition of functions between organizations in charge of security issues, or the distribution of competences of these issues among the State and the Autonomous communities, or an analysis of the security issues on economic principles, for example, freedom of services.

Among the more structured programs is that of the Nuclear Security Council: “R&D Plan 2008 – 2011. The Plan has as its main mission to create capacities in the Spanish nuclear energy sector, in particular, to make sure that its security standards are knowledge based, maintain technical competences, to locate the Council in a favourable position to deal with security issues, and allow it to emit reasoned and scientific criteria.

In the university environment there are several ongoing programmes, for example, in the Universidad Rey Juan Carlos, issues of terrorism and immigration have been extensively studied. The Universidad Carlos III has carried out research along different security lines and has developed models for the prevention, management and evaluation of catastrophes, and conducted research on the training issues involved in security.

The Instituto Universitario General Gutiérrez Mellado [IUGGM] of the Universidad Nacional de Educación a Distancia (University Institute General Gutierrez Mellado of the National Distance University), deals with peace, security, defence and military affairs; an important institution of research is the “Instituto Universitario de Investigación sobre Seguridad Interior” IUISI (Research University Institute on Internal Security), created in 2002 under an agreement between the Ministry of Interior, the Directorate of the Civil Guard and the National Distance University. The Institute has conducted research and training activities dealing with a very broad spectrum of security or security related issues:

- Financing of terrorism
- Human rights
- Environmental contamination
- Traffic control in highways
- Cooperation between the Civil Guard and the Autonomous Communities
- Immigration
- Gender Violence

In the private sector, there is an extensive research program at Safelayer Secure Communications S.A., it includes at present and in the past year:

- CENIT Project (2007 – 2010). Definition of ontological models for the different security mechanisms, concentrating its research in a new generation of digital signature
- Security 2020 (2006 – 2008). Definition and securing digital territories in intelligent environments
- Onom@topic (2005 – 2007): (European Smart Card Platform for Citizenship and Mobile Multimedia Applications), development of new software and hardware platform to allow massive introduction of new services in the citizen and mobile multimedia sectors
- SAT2 (2007): Search of semantic methods for the definition and governance of global security policies, preparation of ontology for environmental trust and privacy of networks and prototype development
- Advance technology for data integrity (2007): Protection of critical data bases. Improvement of algorithms of electronic signature on large data volumes

Other examples are provided in Tables 4 and 5 of Annex 1.

3. Public Opinion

Introduction

The number of public consultations on security in Spain has been limited, in spite of the growing importance that Spanish society gives to security and security related issues.

Findings

The main security (and other) concerns of Spanish society as expressed by public opinion are (Eurobarometer, 2007):

	Spain		Europe - 27
Terrorism	47%	Unemployment	34%
Immigration	36%	Crime	24%
Housing	19%	Immigration	15%
Unemployment	19%	Terrorism	12%
Crime	17%	Housing	8%

The issue of immigration has acquired greater importance than in the past, as fluxes of illegal immigrants have increased greatly only recently or the issue has come to public debate alerting citizens of its importance.

Of the two main security concerns, the national opinion is that government and primarily joint EU decisions, at different corresponding levels of the integration processes, should be taken as shown below

	Decisions	
	By Government	Jointly within EU
Fight against terrorism	29%	41%
Immigration	31%	66%

The above mentioned survey shows that environmental issues as well as social issues are high in the opinion of citizens and that solidarity with poorer regions and scientific research are also of importance.

A security issue that has emerged again in the public is related to nuclear energy. The energy dependence of Spain is very large and rising and it is its dependence from nuclear energy, 25% of the electricity produced in the country comes from that source as well as 75% of the electricity imported from France.

A recent debate on the nuclear energy issue (Moratilla, Rodriguez and Fernandez, 2006) has concluded that it is necessary to have a “mix” of sources to solve the country’s energy problems and that nuclear energy has an important role, as it has several advantages, although is not free from inconveniences. To overcome the later, it is necessary a social pact that will create the necessary stability so that the large investment that is necessary can be made. On the other hand, technological advances are necessary to increase fuel efficiency and solve in a secure way the problem of wastes. The debate also concluded that international cooperation was not only desirable but essential for this source to be safe.

At the country’s level, and in the short term, the life time of the present plants should be enlarged, from the planned 40 years to 60 years, integrate into other European projects so that the new plants include Spanish technology. As is the case of other countries it is necessary a pact with society so that it accepts nuclear energy as a needed and secure source.

Greenpeace, on the other hand (www.greenpeace.org/espana/news/el-gran-potencial-de-las-energ), and the NGO “Ecologistas en Accion” (Ecologists in Action) have concluded from the debate on the future of nuclear energy, that the present energy system is inefficient and unsustainable, both in environmental and economic terms, and it is possible to rely on a “mix” based on renewable sources without participation of nuclear energy. As a consequence of their analysis both institutions requested government to initiate a plan to progressively but urgently close down nuclear plants.

In general, the opinion of the public in Spain is that state or autonomous government institutions have a major role to play in security issues and the private sector should be involved as a support to these.

4. Current foresight activities

National foresight activities

Introduction

National foresight activities have been limited. This section will discuss three studies that have been undertaken by OPTI, Spain’s foremost institutions conducting foresight studies.

Findings

The first existing study is that on the “Observation and Control Technologies of the Marine Environment” (Morato and Narvaez, 2005), conducted by the Prospective Observatory of Industrial Technology and the Technological Centre for Marine Sciences of the Canary Institute of Marine Sciences. A short description of this study can be found in Appendix 2.

A second foresight study of relevance to security and safety issues has also been conducted by OPTI in the transport sector (de la Cruz et al, 2003): "Transport: Technological trends in the medium and long term". The study was conducted in cooperation with the Ministry of Science and Technology, the Centre of Industrial Technology Development, the INASMET Foundation (of the Basque country). A short description of the relevant safety and security issues can also be found in Appendix 2.

A third study also carried out by OPTI has been in the area of nuclear energy (OPTI, 2005), which has been centred in all areas of this energy source. The study was conducted together with the national energy authority, considering the importance of nuclear energy as a source of energy in Spain. Some of the results of this study can be found in Appendix 2.

5. European collaboration

An important political and societal trend in Spain is to link security concerns firmly to Europe. In fact, in matters of security and defence, Spain considers that Europe is the area of priority interest (MdD, 2004), as its security is "inextricably linked to that of the continent". Further, the transatlantic relationship is also considered key, as is the Mediterranean and Ibero-America. Under such context, Spain supports a united Europe with the capability for autonomous decision-making and action in the military arena, and in consequence, advocates the goal of endowing the European Union with military capabilities to meet contingencies and crises of varying extent and intensity. Moreover, Spain also supports an enlarged and transformed NATO.

The National Defence Directive of 2004 provides an important guideline for European collaboration, establishing that in the international sphere:

"Resolutely support the common security and defence policy of the European Union through our commitment to the Helsinki 2010 global objective, our contribution to the development of Battle Groups, and our participation in the European Capabilities Action Plan and the European Defence Agency"

On the other hand, several of the governmental, and non-governmental, academic, private organizations that have been described in this Report are partners to the different European initiatives on security, examples are:

- The CEISE in the Directorate of Civil Protection and Emergencies makes part of the European Networks, established by the "Agreement on the Prevention of major risks" of the Council of Europe, to which it belongs since 1998.
- In the Project OnomQtopic (European Smart Card Platform for Citizenship and Mobile Multimedia Applications), in which 27 organizations of 11 countries participate, a new hardware and software platform is being developed to allow a massive introduction of new services in the citizen and mobile multimedia sectors.

6. Conclusions

Spain has given security concerns a high priority in the political agenda and has taken important steps throughout the past two decades to respond to security concerns at the local and national levels, as well as the European and world levels, in fact, there exists a very visible trend in the desire of the country to make part and contribute to the improvement and strengthening of the European security agenda.

On the basis of a wider concept of security, it is necessary to single out a problem that is becoming increasingly important and deals with the security functions that must be preserved for the public forces and those that can be attributed to private security firms. This issue has an important ideological base and well as economic and as a consequence existing conflicting interests. In the opinion of Izquierdo Carrasco (2008) the answer to this problem has to do with the model of the state itself.

One other problem that needs to be pointed out is the weak coordination among the different security forces, existing at the national, Autonomous regions, municipalities and local levels, and further the fact that the Autonomous Communities have also competences in civil protection and industrial safety.

Public consultations to identify citizen concerns should be increased as well as foresight studies conducted on specific and general security issues. The practice of foresight should be increased and deepened in order to guide policy and strategy

As is the case of all countries, security concerns permeate a large variety of sectors, topics, issues and thus it is necessary to better define concepts and practices in order to lead to effective policies and strategies, FORESEC can greatly contribute to this end.

7. References

- Aguado I Cudola, Vincenc. 2007. Derecho de la Seguridad Pública y Privada. Thomson-Aranzadi, Cizur Menor
- Aguado i Cudola, Vicenc. 2006. (Coordinador) Revista Catalana de Seguretat Publica No. 17: "Seguridad Publica y Privada: El nuevo modelo de protección de la ciudadanía"
- Aguadi i Cudola, Vicenc. (in press) Seguridad publica, convivencia ciudadana y protección civil. En: A. Betancor (Coordinador): Comentarios al régimen especial de la ciudad de Barcelona, Ed. Thomson - Civitas
- Aviles-Farre, Juan. 2005. "AL-QAEDA en España: Antecedentes y Conexión del 11." www.uned.es/investigacion/publicaciones/Cuadernillo No. 20
- Centro Superior de Estudios de la Defensa Nacional. 2005. El Control de los flujos Migratorios Hacia España: Situación Actual y Propuestas de Actuación. Documentos de Seguridad y Defensa No. 6
- Centro Superior de Estudios de la Defensa Nacional. 2006. Modelo Español de Seguridad y Defensa. Documentos de Seguridad y Defensa No. 8, Madrid.
- Cosido, Ignacio. 1999. La Reforma de la Comunidad de Inteligencia de España. GEES. 12-11-99
- CSEDN. 2007. Modelo Español de Seguridad y Defensa. Centro Superior de Estudios de la Defensa Nacional. Documentos de Seguridad y Defensa. Ministerio de defensa, Madrid.
- De la Cruz, Carlos; Azcarate, Gotzon; Rodríguez-Cortezo, Jesús. 2003. Transporte: Tendencias tecnológicas a medio y largo plazo. Ministerio de Ciencia y Tecnología y OPTI. Madrid.
- Eurobarometer. 2007. Eurobarometro 67: National Report: Spain. Spring 2007
- Gonzáles, Carlos. 2005. Intervención en las Jornadas sobre Seguridad Ciudadana: Más seguridad ciudadana en España.
- IBM. 2006. Internet security systems. 2006 Survey: The State of Security in Carrier Service Delivery.
- Izquierdo-Carrasco, Manuel. 2000. La seguridad de los productos industriales: Régimen jurídico – administrativo" (a monograph), Madrid. 559 pag.
- Izquierdo-Carrasco, Manuel. 2002. Seguridad privada: régimen jurídico administrativo (a monograph). Madrid.
- Izquierdo- Carrasco, Manuel. 2008. Comments to the Draft of the Country Report
- Lamo de Espinosa, Emilio. 2008. Presentation to the International Seminar on Immigration and Socio-labour Integration. University of Granada, March
- MdD - Ministerio de Defensa. 2003. Strategic Defence Review (English version). Madrid.
- MdD - Ministerio de Defensa. 2004. Nacional Defence Directive 1/2004 (English version). Madrid, December 30
- MMA - Ministerio del Medio Ambiente. 2007. Estrategia Española de Cambio Climático y Energía Limpia Horizonte 2007 – 2012 – 2020. Madrid.
- MMA - Ministerio del Medio Ambiente. 2007. Spanish Sustainable Development Strategy. Madrid, November
- MMA - Ministerio del Medio Ambiente. 2007. Estrategia española de Medio Ambiente Urbano (draft). Madrid, 5 November
- Moratilla S.Y. Beatriz, Rodríguez H. Patricia, Fernández T. David. 2006. Posicionamiento político en la planificación energética nacional. La cuestión nuclear. Anales de mecánica y electricidad UPC /marzo – abril, 2006, pp 32 - 35
- Morato, Ana and Narvaez, Isabel. 2005. Tecnologías del Mar: Tecnologías de Observación y Control del Medio Marino: Tendencias tecnológicas a medio y largo plazo. Fundación OPTI, Madrid, March.
- Olmeda, José A. 2001. Los Estudios de Seguridad y Defensa en España: Un parto largo y doloroso. Centre for Hemispheric Defence Studies, REDES 2001, Research and

Education in Defence and Security Studies, May 22-25, 2001, Panel on Distance Education, Washington DC

OPTI. 2005. La Energia Nuclear. Fundacion OPTI, Madrid.

Romero de Lara, Luis. 2005. Las políticas de prevención y seguridad desarrolladas durante la VII Legislatura (2000 – 2004). Working paper of IUISI, Madrid

Appendix A Current security related activities

Table 1: Organizations

Organisation	Short Description	Mission	Collaboration	Contact Information
Ministry of Defence & Armed Forces	Charge of the national defence against external and internal threats	“Preparation and execution of Government policy in defence issues and management of the Military Administration”	Participates in European Defence initiatives and represents the country in NATO	www.mde.es P. de la Castellana, 109 28071 Madrid Phone: 913 955 000
Ministry of Defence: National Intelligence Centre	Directorate of the Ministry and its Director has the rank of a Secretary of State	To facilitate the President and Government, information, analysis, studies and proposals that will prevent or anticipate any danger, threat or aggression against the independence or territorial integrity of Spain, national interests and the stability of the rule of law and its institutions		www.cni.es Padre Huidobro Crta Nacional Radial VI km 8,5 28071 Madrid Phone: 913 725 000
Ministry of the Interior: Civil Guard	Armed Institute of military nature. Under the joint command with the Ministry of Defence	To protect the free exercise of rights and liberties and guarantee citizens security	Participates in European security programs	www.guardiacivil.org C/ Guzmán el Bueno 110 28003, Madrid Tel. 91 514 6000
Ministry of the Interior: National Police Corps-	It provides security fro the free exercise of citizens rights and puts into justice hands those that violate them	Guarantee public welfare and security	Participates in European security programs	www.policia.es
Ministry of the Interior: Directorate General for Civil Protection and Emergencies	In charge of the definition of plans to fight natural disasters and emergencies	Carry out different functions in order to protect society against natural or man-made emergencies.	In charge of establishing technical relations with regional and international organizations and makes part of working groups in the EU	www.proteccioncivil.org dgpc@proteccioncivil.org Calle Quintiliano, 21 28002 – Madrid (34 91) 537 31 00 Fax: 34 91 562 89 41
Ministry of the Interior: National Commission for Civil Protection	Inter-ministerial organization, headed by the Ministry of Interior, that coordinates public and autonomous administrations in civil protection matters	Guarantee an efficient activity of the public sector, through the study and prevention of grave collective risk, catastrophes and calamity situations and the protection and assistance of people and goods in case such situations arise	The Commission has the character of the Spanish Committee of the International Risk Reduction Strategy	www.proteccioncivil.org/es/CNPC
Ministry of Labour and Social Affairs: State Secretariat for Immigration and Emigration	The Secretariat is of recent creation responding to the increasing priority of the issue in both political and citizen level.	To define policies, in particular to promote the integration of immigrants into society.	Close collaboration with security related organizations	
Nuclear Security Council	The national regulatory body for nuclear and radioactive installations	Protect workers, population and the environment from ionizing radiations, guaranteeing that nuclear and radioactive installations be operated in a secure way, and establishing the prevention and corrective measures to face radiological emergencies, independent of its origin.	It is active in different working groups in international organizations or regional and international agreements	www.csn.es

Table 2: Strategies and doctrines

Document	Short Description	Objectives	Actions	Contact Information
Ministry of Defence; National Defence Directive 2004	Based on previous Directives. Addressed to guide Spain into full participation in the western security and defence organizations, moving from a traditional concept linked to sovereignty seen in territorial terms, with an almost exclusive focus on the military aspects, to another broader concept of shared security and collective defence with partners and allies, in which all society is involved	Establish the guidelines for defence policy and for its development, with the purpose of ensuring the defence of the homeland, contributing to the security of the Spanish people and promoting international peace, security and stability	<ol style="list-style-type: none"> 1. Strengthening of the role of the Armed Forces in the external actions 2. Reform of the Armed Forces to adapt them to the circumstances and needs arising from a given strategic situation 3. Implementation, in cooperation with allies and partners, of the commitments in the area of shared security and collective defence 4. Firm and resolute support for an effective multilateral system for resolution of conflicts 5. Active participation of Parliament in the discussion of major issues of defence policies and seeking support for government decisions for involving the Armed Forces in missions abroad 	www.mde.es P. de la Castellana, 109 28071 Madrid Phones: 913 955 000
Ministry of Defence: Armed Forces			<p>Guidelines for co-operation with other organizations:</p> <ol style="list-style-type: none"> 1. Develop a new national system for crisis management and replace the existing preventive defence system 2. Achieve effective co-operation between civilian and military personnel participating in operations of humanitarian assistance, crisis management and support for civilian authorities 3. Collaborate in the civil defence system and, together with other State institutions, in particular the security forces and agencies, contribute to maintaining security and welfare on the part of the citizens 4. Raise the level of security and defence culture in Spanish society 	
Ministry of the Interior (2004 – 2008)	New strategic approach, centred on the improvement of security, specially the fight against terrorism, through utilising all legal means of a democratic state and without restrictions to the freedom system. In the later years a strategy dealing with immigration has also been adopted.	<ol style="list-style-type: none"> 1. Fight against terrorism 2. Reform and modernize the security system 3. Fight against crime 	<ol style="list-style-type: none"> 1. Creation of the National Anti-terrorist Centre and of anti-crime units 2. Increase human and technical resources of the central units of the Police and National Guard 3. Strengthening of shared information services 4. Creation of new Commissaries in municipalities over 30,000 inhabitants 5. Improvement of the social-labour conditions of members of police and National Guard 6. Increase of international cooperation 7. Increase of budgets 	www.mir.es

Document	Short Description	Objectives	Actions	Contact Information
National Council of Citizen Security	A multi stakeholder body in which all public administration at national, autonomous and local level are represented	<ol style="list-style-type: none"> 1. Favour the participation of stake holders and citizens in the definition of security policies and monitoring 2. Favour an improved cooperation between state security organizations and associative and representative citizen's movements 3. Allow a closer linkage of the administration of public security to the citizen and allow its improved operation 		www.mir.es
State Secretariat for Immigration and Emigration	Secretariat created recently to deal with the growing concern around immigration and the security risks that illegal immigration is creating to Spanish society	A strongly politically oriented strategy, dealing with the fight against irregular immigration; to improve the conditions of legal immigrants and integrate them into the Spanish society. Also The strategy also looks to better define the contingent of foreign workers to adjust it to the market demands so that migratory fluxes can be regulated and negotiated with the country of origin of immigrants. The creation of dialogues with syndicates and entrepreneurs is also part of the strategy.		www.dgei.mir.es
Nuclear Security Council	As part of its regulatory functions, the Council drew a Strategic Plan 2005 2010 to improve the management of the nuclear energy sector	<ol style="list-style-type: none"> 1. Adjust existing legislation - norms. 2. Contribute to the preparation of emergency plans 3. Develop models for licensing and control, including the treatment of the plants at the end of their useful life. 4. Maintain public information services Implement; up-date security management techniques 5. Provide education and training and promote R&D 6. Improve physical infrastructure 	1. Implementation of the Integrated System for the Supervision of Nuclear Plants	www.csn.es

Table 3: Private Sector

Name	Short Description	Main activities	Clients/ Impacts	Contact
INDRA	A leading ICT company. Revenues over 2,000 million € in 2007. 1/3 of sales from abroad in 82 countries. 30 % in business in Defence and security	Protection, control and defence of the air space; coastal vigilance; airports and other key installations. It supports international missions and supports also crisis management at all levels.	Ministry of Defence and Ministry of the Interior for the defence and security areas	www.indra.es tel: 91 480 50 00 fax: 91 480 50 80
IZAR Shipyards	Leading firm in repair and conversion facilities.	Ship repairs with particular emphasis in submarines, in the case of defence	Ministry of Defence	www.izar.es Velasquez, 32 28006 Madrid inperez@izar.es tel: 91 335 8400 fax: 91 335 8632
Safelayer Secure Communications	Spain's market leader in the field of security in the area of applications of ICT, and reference point in projects focusing on technology for the authentication, authorization, integrity and confidentiality of citizen's identity. Founded in 1999.	Sustains three major certification and digital identification projects in Spain: The Spanish Royal Mint, the Digital ID and the Digital Passport. Supplier of PKI technology for electronic identification and signature. Together with the international company Datacard Group, it produces standardized products whose operability allows information to be stored on the RFID chip, cryptographic chip and magnetic strip and enables a photograph or other data to be printed for visual inspection.	Several public administration organizations: Among them; Generalitat Autonomous Government of Catalonia, the Basque Government, the Andalusia Autonomous Government, the Central Bank of Spain and Madrid's public water supply company.	Safelayer Secure Communications c/ Basauri 17 Edif B., 28023 Madrid Phone: 34 91 708 0480 / Fax: 34 91 307 6652 www.safelayer.com
PLUS-QUAM	Consulting and services in all security areas	Risk analysis; security diagnosis; training; catastrophe planning in hospitals; emergency plans; technical security projects	Supermarkets; Al-Pi Telecom (Group France Telecom); AM Business, Peru; AMIRT SL; ATISA; Caja Rural de Toledo; CEPESA; CITRESA; Ministry of Defence; Diputacion Foral de Alava, EROSKI; Forum Filatelico; Madrid Military Government	www.plus-quam.net c/ Recoletos, 5 28001 Madrid Phone: 91 435 3192 Fax: 91 426 2840
NEDAP-Iberia	Electronics systems producer and distributor adapted to a particular; prevention of risks and protection of actives			www.nedap.es
Foro Nuclear (Nuclear Forum)	Integration and coordination of interest of companies involved in the peaceful use of nuclear energy.	Promotion of public image, providing timely information. Foster education and training. Identification of business opportunities. Liaison in the nuclear industry to promote the sector's position in national and international legislative proposals	Suppliers of the nuclear energy sector	www.foronuclear.org ofh@foronuclear.org

Table 4: Key technologies

Name of the Technology	Short Description	Applications
INDRA technologies	<ul style="list-style-type: none"> - Artificial intelligence, simulation architectures, modelling of Computer generated Forces, human representation - Solid-state transmitters and receptors, digital signal processing and phase-array flat antennas - Digital reception - Knowledge engineering and intelligent inter-phases - Thermal visions and Focal Plane Arrays - Laser telemetry 	Security systems
Sistema DIRCM MANTA	MANTA – MANPADS Threat Avoidance) is a Directional Infrared Countermeasure for airplane protection against all infrared missiles. It operates in a closed-loop	Airplane protection
LANZA	Long range polyvalent radar operating on bandwidth D of NATO	Detection of intruders
ARIES	High resolution Low Probability Interception radar is a high resolution remote sensor	Detection of intruders
C ⁴ I	Aerial defence and planning and control of air operations	Airplane protection
SEO	Electro-optics observation sensor for long range vigilance and observation, based on a thermal camera, a laser telemeter and a visible camera at low light level	Detection of intruders
EDItran	Set of products for advanced communications facilitating the direct connectivity between informatics applications of different enterprises, organizations and public or private institutions.	Communications
Datacard SP%% Card Printer and Key One	Storage of information on a RFID chip, cryptographic chip and magnetic strip and enables a photograph or other data to be printed for visual inspection	Information security

Table 5: Current Research Programs

Name	Short Description	Main activities	Contact information
Internal security	Under the IUISI there are several on-going research initiatives	Research program on: Private security and Immigration	Instituto Universitario de Investigacion sobre Seguridad Interior (IUISI) – University Institute of Research on Internal Security of the National Distance Education University
Security and Defence	Research under an inter and pluri Disciplinary perspective, rendering of post graduate education, the creation of a dialogue framework and the diffusion of scientific works dealing with peace, security, defence and military affairs.	Research program on International security issues National de defence	IUGGM (created by Royal Decree 1643/1997 of October, 1997) under an agreement with the Ministry of Defence.
R&D Plan of the Nuclear Security Council	The Plan, adopted in 2007, covers the period 2008 – 2011. It is addressed to provide Spain with further independence in nuclear energy technology, particularly: to attain: security standards; maintain basic competences; face security challenges; emit expert opinion	The Plan is structured in eight programs: 1.Nuclear fuels and reactor physics 2. Security analysis methods and modelling 3. Materials behaviour 4. New technologies, new generations of nuclear power plants 5. Radioactive wastes 6. Control to the exposure of radiations 7.Dosimetry and radiobiology Emergency management and incident analysis	www.csn.es

Appendix 2: Current foresight Activities

1. Observation and Control Technologies of the Marine Environment”

Short Description: The main objective of the Project was to identify and evaluate research trends and technological developments. Further, the study covered the issues of waste management and the prevention and contingency of natural disasters. The time horizon of this foresight study was 15 years (2020). The methodology that was followed consisted in the collection of documents; identification of an expert panel; preparation of a hypothesis later discussed during the first meeting of the expert panel; the preparation of a questionnaire for a single survey; the processing of the survey and review during the second meeting of the panel; the preparation of a final report.

Main actors: The Observatory OPTI conducted the study. The Expert Panel was composed of 11 members. The questionnaire was sent to 160 experts of whom 57 responded.

Main findings: The questionnaire was composed of 36 topics, 15 of them were situated in the time horizon 2004 – 2009; while 20 were in the timeframe 2010-2015 and only one between 2016 –2020. Such result shows the special importance attached to the materialization of given technologies, given their proximity in time. Of the 36 topics, the expert Panel selected 11 as key for the sector development and these were grouped into four great trends:

- Development of new sensors
- Measuring systems and simulation models
- Observation and control of the environment
- Information management systems

Of relevance to this report, under the third trend, the following hypothesis and materialization dates were identified:

1. There will be a development of new technologies for the treatment and monitoring of ballast waters (2004 – 2009)
2. The development and establishment of impact indicators of human activities on the marine environment, which will improve the activities of monitoring and management (2004 – 2009)
3. The improvement in the contention, collect, suction, chemical dispersion and bio-remediation, will increase the capacity to fight against hydrocarbon spill-over (2010 – 2015)
4. The use of specific ships and platforms or technological adaptation of the present ones for the remediation of the environment in the case of catastrophes (2010 – 2015)

In all cases, industry – research cooperation and the adoption by governments of promotional measures are needed to support reaching the defined developments; the creation of networks (both national and international), training and mobility, in that order are the other measures that need to be adopted.

2. “Transport: Technological trends in the medium and long terms”

Short Description: The complexity of the transport sector, due to the large number of factors involved in its development and evolution, presents a large number of uncertainties on solutions to its problems. For this reason, a foresight study was conducted by OPTI, the Ministry of Science and Technology, the INASMET Foundation and the Centre of Industrial Technology Development, in order to reduce such levels of uncertainty, identifying from the Spanish perspective relevant issues that will be materializing in the next 15 years and further determine the key technologies that are necessary to develop to facilitate the established visions. An important part of the study was dedicated to safety and security issues.

The methodology of the study consisted in the identification of key technologies derived from previous studies of industrial technology foresight of the aeronautics, rail, naval and automobile sectors, and the execution by INASMET of the transport study following a given set of criteria (based on “Technologies Cles 2005, www.industrie.gouv.fr).

Main actors: A working group composed of representatives of the four institutions was in charge of the study.

Main findings: Six mega-tendencies were identified:

- Security
- Sustainability
- Inter-modality
- Inter-operationality
- High speed
- Efficiency in the manufacture and exploitation

In the more particular case of the first mega-tendency, security is one of the foremost preoccupations of users as well as of all stakeholders in the sector. Table 6 shows the key technologies associated to security and expected periods of concretion.

Table 6: Key technologies associated to security

Issue	Design	Systems	ITC - Electronics	Materials
Practical use under any weather condition of automatic guiding systems for the take-off, landing and taxing of airplanes (2004 – 2008)			Advanced systems of control and management – Airport Surface Movement Guidance and Control System (A-SMGCS) Development and application of navigation techniques by satellite (GALILEO, GNSS)	
Generalized use of security systems that guarantee the integrity of occupiers in front of head-on or lateral collisions at 80 Km/h. (2006 – 2010)	Advanced vehicle and simulation taking care of the biomechanical criteria and security of passengers architectural design	Advances systems of protection and retention	Reliable and strong electronic security systems	Structured materials of elevated capacity of energy absorption and coatings of low personal threat

3. Study on Nuclear Energy

Short Description: Nuclear energy is an important component of the energy mix in Spain, today 24% of electricity is locally produced by this source (599.44 MWe) and the imported electricity from France also has a large nuclear component. As noted previously there is an important debate, as is the case of other European nations, on the need to continue its use or close down even the existing plants. In order to assess the future of nuclear energy, OPTI together with the national energy authority advanced a foresight study with a vision of the year 2030, and covering all activities in the utilization of nuclear energy as a source.

The study consisted in the identification of a panel of experts to whom a questionnaire was forwarded in December 2003. A total of 210 questionnaires were sent and 108 answers were received. The final version of this document contained 40 topics structured along the following lines:

- General topics
- Design
- Reactor construction and operation
- Dismantling and waste management
- Security and protection
- Other applications and thermonuclear fission

Main findings: The main findings of the study are resumed in Table 7

Table 7: Final Results of the Nuclear Energy Foresight Study

	Until 2010	2011 - 2020	2021 - 2030	> 2030
General		Public acceptance of the nuclear waste storage technologies and systems		
	Debate activities on nuclear energy	Nuclear energy is considered an option to decrease CO ₂ emissions		
		Nuclear energy represents more than 35% of electricity production		
	Maintenance and strengthening of technological and formative capacities, support services, and creation of the necessary infrastructure for improving nuclear energy utilization	Application of economic instruments and emissions rights contribute to the economic competitiveness of nuclear energy		
Design, construction and operation of reactors	Development of technological and normative conditions that facilitate the long term operation of present plants			
		Construction and commercial exploitation of an advanced light water evolutive reactor (ABWR, EPR)		
	Development of technologies and tools that will permit to evaluate the mechanisms of degradation and materials age control			
		Construction and commercial exploitation of an advanced light water passive reactor (AP1000, ESBWR, SWR)		
Security and protection	Standardization of the regulatory and administrative processes to reduce the licensing periods of plants and other nuclear installations			
	Harmonization of legislation and present international norms for the transport and storage of residues			
Waste management and dismantling		Practical utilization of deep geological technologies for waste storage		
		General acceptance in the scientific and technical spheres of the security evaluation methodologies of the underground storage of residues		
Other applications	Development of accelerators for isotope production with high value added for medicine and industry	Practical utilization of high temperature nuclear reactors for the production of hydrogen from water sources		
Fusion			Operation of a fusion artefact with Q > 10	Operation of a commercial fusion reactor
		Development of plasma heat sources to reach fusion reactor regimes		
				Fusion by magnetic confinement satisfies a significant share of the energy demand
			Development of low active materials	