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The Accounts Auditing Act (José Manuel Muries).

Risk Assessment in Life and Health Insurance (Ana Luisa Villanueva).

Arturo Semerari: "Credit and insurance to foster rural development".

Ricardo García: "Meteorological Offices as public services".

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MAPFRE RE ATHENS 473, Mesogion Av. Agia Paraskevi 15343 Athens Greece

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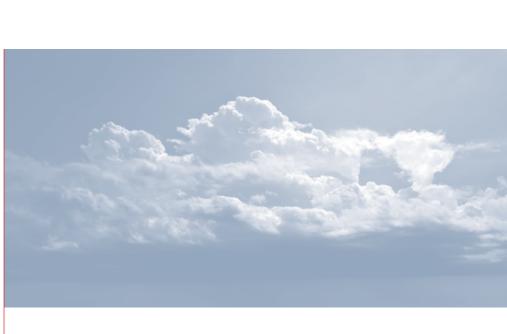
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editorial

A few years ago, deregulation of the financial markets was a byword for modernity. Today, however, it is considered to be the main cause of the global crisis. As a contribution to the new European order, Act 12/2010 amending the Accounts Auditing Act, the Securities Market Act and the revised text of the Spanish Public Limited Companies Act was published last summer in Spain. To comment on the new framework created by these Acts, TRÉBOL has Mr. José Manuel Muries, the Internal Audit General Manager of MAPFRE, S.A., who describes in his article how it affects insurers and insurance groups listed on the stock exchange.

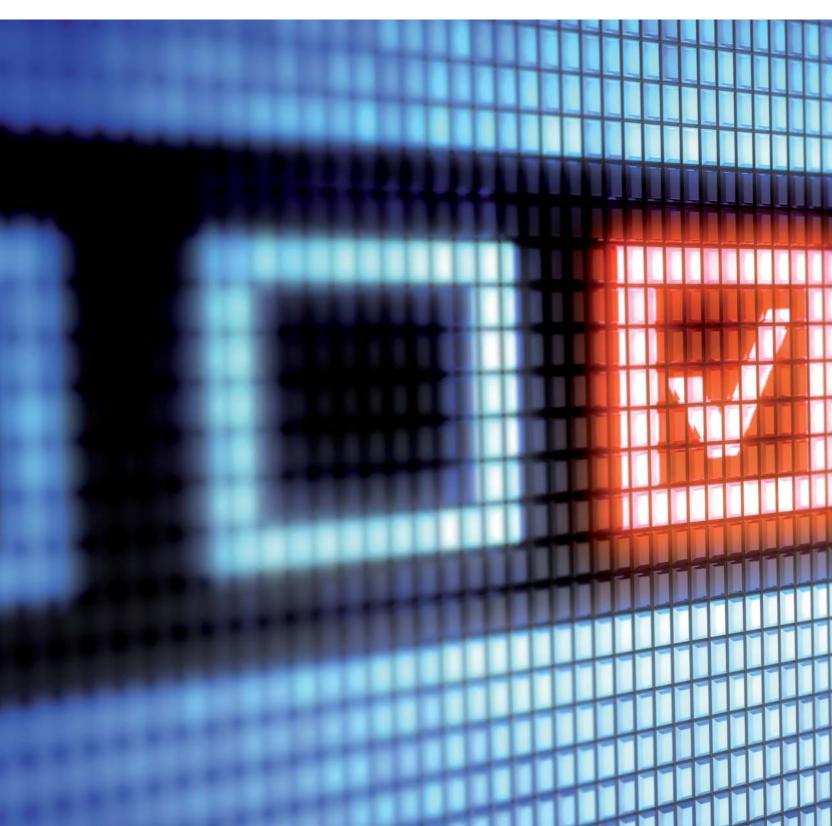
In the same issue, Ana Luisa Villanueva, the Medical Director of Life, Health and Personal Accident business at MAPFRE RE, reanalyses the role of risk selection in this sector. New advances in medicine, diagnostics and genetics are opening up new possibilities for achieving a more appropriate assessment of insureds' life expectancy and level of health. The advantages of greater clarity in questionnaires and in the reasons for the acceptance or refusal of risks are also set out.

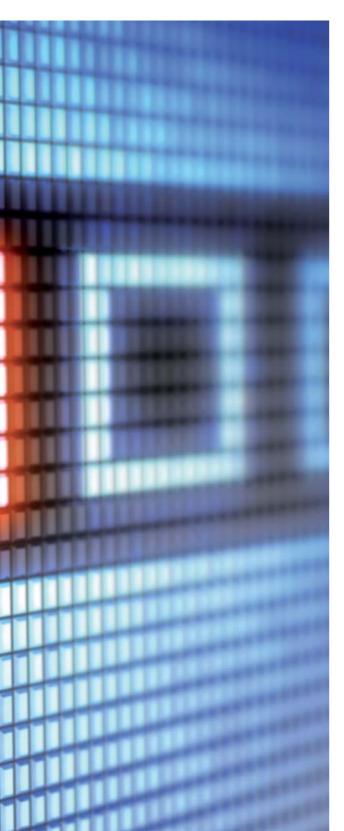
European agriculture and its profitability are reviewed by Arturo Semerari, President of ISMEA, the Italian Institute for Services to the Agricultural and Food Markets, in the interview included in this issue. The role of agricultural insurance and protection of the environment complete the equation for a difficult but fundamental activity from the European social and employment perspective.

Public-service weather information and climate forecasting are the maxims that Ricardo García, President of the Spanish State Meteorological Agency AEMET, bears in mind each day. His target is the user of this product for various purposes who is increasingly demanding more numerous, updated and precise data, as he explains in the interesting interview that we publish. New technologies are contributing to the commitment of this institution, which will soon be celebrating its 125th anniversary. Congratulations!

The Accounts Auditing Act, the Audit Committee and internal control in listed companies

José Manuel Muries Internal Audit General Manager MAPFRE S.A. Madrid - Spain





Background

On 1 July 2010, the Spanish Official State Gazette¹ published Act 12/2010, of 30 June, amending the Accounts Auditing Act², the Securities Market Act³ and the revised text of the Spanish Public Limited Companies Act⁴, in order to bring them into line with Community regulations.

The main reason for that Act was to adapt to Directive 2006/43/EC, which regulates aspects relating to external auditing, such as:

- the authorisation and registration of auditors and audit firms, including ones in other Member States of the European Union and third countries;
- ongoing training, professional ethics standards, independence and objectivity, and the confidentiality and professional secrecy that auditors and audit firms must observe;
- the performance of audits in accordance with the international auditing standards adopted by the European Union;
- the full responsibility of the auditor who carries out the audit of consolidated financial statements;
- the quality control of auditors and audit firms;
- effective investigation and penalty systems;
- the appointment and dismissal of auditors and audit firms;

On 1 July 2010, the Spanish Official State Gazette published Act 12/2010, amending the Accounts Auditing Act in order to bring them into line with Community regulations

 ¹ Boletín Oficial del Estado de España.
 ² Ley de Auditoría de Cuentas.
 ³ Ley del Mercado de Valores.
 ⁴ Ley de Sociedades Anónimas.

- the compulsory entry of auditors and audit firms in a public register, and
- cooperation with the competent authorities of Member States of the European Union and of third countries.

At the same time, the reform is being used to modify certain aspects of the regulations contained in the Act, which have to be adapted to the changes in commercial legislation that have occurred, and to incorporate the technical improvements recommended by experience and the practice developed since it entered into force.

Following this introduction, I am going to focus my briefing on the aspects of the Act that most affect insurance companies listed on the stock exchange, like MAPFRE for example, and in particular on the changes which the Act introduces to the functions of the Audit Committee and Internal Control.

Main changes to the Accounts Auditing Act

The auditor's responsibility

Article 4. Auditing of Consolidated Accounts, of the Accounts Auditing Act, paragraph 2 of which is now worded as follows:

"The auditor who carries out the audit of the accounts or consolidated accounting documents assumes **full responsibility** for the audit report issued, even where the auditing of affiliated companies' annual accounts has been carried out by other auditors."

This is a significant change compared with the previous provision, in which the auditor of the consolidated accounts could limit his liability by excluding affiliated companies audited by other firms.

The annual transparency report

Another relevant aspect is the inclusion in the provision for the first time of the **Annual Transparency Report**, which is included in Article 14B and lays down the following:

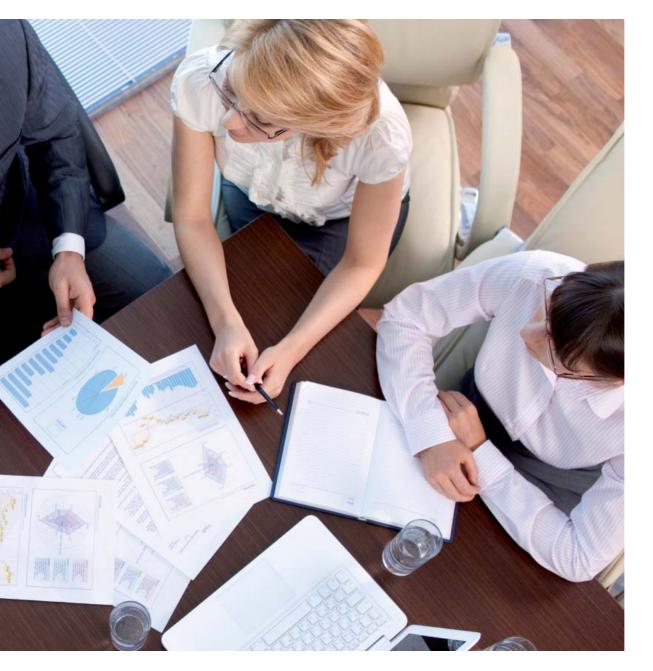
- "Auditors and audit firms which audit the accounts of public interest entities⁵, and also audit firms in third countries, shall in the three months following the end of the financial year make public through their Internet pages an Annual Transparency Report containing at least the following information:
 - a. Description of the entity's legal form and owners where the entity is an audit firm.
 - b. Where the audit firm or the auditor are linked to the entities or persons referred to in Article 8 c) and d) of that Act⁶, a description of those entities and persons and also of the



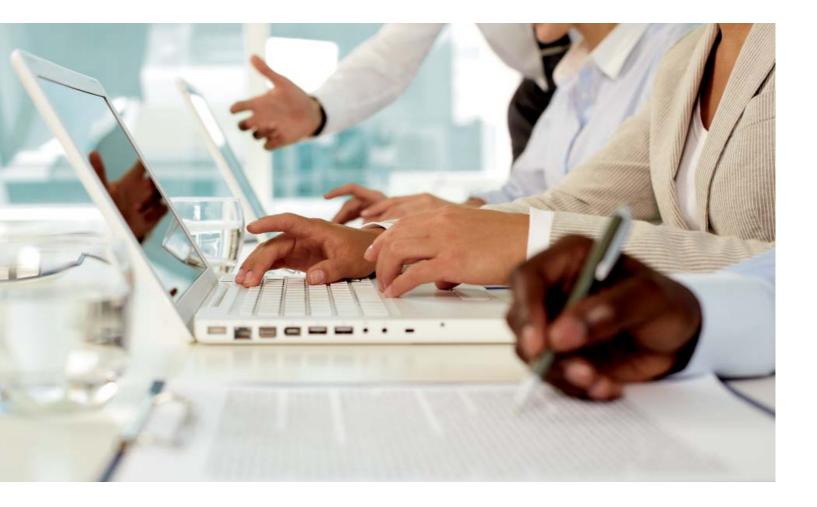
⁵ For the purposes of this Act, public interest entities shall mean entities (and the groups of companies in which they are integrated) which issue securities admitted to trading in official secondary securities markets credit institutions and insurance undertakings subject to the system of supervision and control attributed to the Bank of Spain, the Spanish Securities and Exchange Commission, the Spanish Insurance and Pensions Supervisory Authority, and also to the autonomous bodies with powers to organise and supervise insurance entities. Entities (and the groups of companies in which they are integrated) which are established in due form in view of their significant public importance due to the nature of their activity, their size or their number of employees, shall also be deemed to be public interest entities. agreements or Articles of Association which regulate that link.

- c. Description of the audit firm's governing bodies.
- d. Description of the auditor's or audit firm's internal quality control system, and a declaration from the administrative or management body on the effectiveness of its operation, indicating when the last quality control took place.
- e. List of public interest entities for which they have carried out auditing work in the last financial year.
- f. Information about procedures or action plans followed by the auditor or audit firm in order to guarantee their independence, and mention of internal reviews carried out in order to comply with the duty of independence.
- g. Information on the policy followed with respect to the ongoing training of auditors.
- h. Information on the total volume of business, with a breakdown of income according to whether it comes from auditing activity or from the performance of other non-auditing services.

The reform is being used to modify certain aspects of the regulations contained in the Act, which have to be adapted to the changes in commercial legislation that have occurred, and to incorporate the technical improvements recommended by experience



⁶Entities or persons in which the circumstances provided for in this or other laws come together and lead to the auditor or audit firm being deemed not to enjoy sufficient independence in the performance of their duties with respect to an audited entity.



The new regulation replaces the word "Know" with "Monitor". considerably increasing the Audit Committee's responsibility as regards matters relating to Internal Control. Risk Management and the process of preparing and presenting regulated financial information

> ⁷ Comisión Nacional del Mercado de Valores.

- *i.* Information on the bases for members' remuneration.
- 2. The transparency report shall be signed by the auditor or, in the case of audit firms, by those to whom representation has been assigned."

The Securities Market

The fourth Final Provision of Act 12/2010 changes Act 24/1988, of 28 July, on the Securities Market in the following aspects:

A. A new paragraph is added to paragraph 2 of Article 117 of the Securities Market Act:

"On the company's webpage an **Electronic Shareholder Forum** shall be enabled, to which both individual shareholders and any voluntary associations they may set up shall be able to have access, with the proper guarantees, in order to facilitate their communication prior to the holding of Annual General Meetings. In the Forum they shall be able to publish proposals that they intend to present as a complement to the agenda announced in the AGM notification, requests for support for such proposals, initiatives for reaching the percentage sufficient to exercise a minority right as provided for in the Act, as well as offers or requests for voluntary representation."

B. A new fourth paragraph is added to Article 117 of the Securities Market Act:

"The shareholders of each listed company shall be able to set up specific voluntary Associations in order to exercise their rights and better defend their common interests. **Shareholders' Associations** shall be entered in a special Register for that purpose at the Spanish Securities and Exchange Commission (CNMV⁷). The legal system of Shareholders' Associations shall be developed in due form and comprise at least the requirements and limits for their constitution, the bases of their organic structure, rules for their operation and the relevant rights and obligations, especially in relation to the company listed."

The Audit Committee

The role of supervisor

As far as the **Audit Committee** is concerned, certain aspects are being changed. In the table below, the provisions of the previous Securities Market Act (*Column A*) can be compared with the Audit Committee's new authorities (*Column B*) under the current Act.

At the same time, Column C includes the broad outlines of the Audit Committee included at MAPFRE's Good Governance Code, which coincide with the Good Governance Unified Code on the same aspects.

Among the Audit Committee's new authorities, the regulation clearly establishes that the Audit Committee must MONITOR:

- the effectiveness of the company's Internal Control, the internal audit and risk management systems;
- the process of preparing and presenting regulated financial information.

It should be noted that the new regulation replaces the word "Know" with "Monitor", considerably increasing the Audit Committee's responsibility as regards matters relating to:

- ▶ Internal Control,
- Risk Management and
- the process of preparing and presenting regulated financial information.

What does the CNMV's Working Party recommend?

As regards this new monitoring role which Act 12/2010 confers on the Audit Committee, both in the process of preparing and presenting the regulated financial information and in the process of monitoring the effectiveness of the internal control system, it is appropriate to mention the recommendations that the Working Party created by the Spanish Securities and Exchange Commission (CNMV) issued in June 2010, the main results of which were as follows:

Authorities of the Audit Committee

A Securities Market Act (former) 18 th Additional Regulation	B Securities Market Act (new) 18 th Additional Regulation	C MAPFRE Good Governance Code 18 th Article
1. – Inform the General Meeting.	1. – Inform the General Meeting.	
2. – Supervision of internal audit services.	2. – MONITOR the effectiveness of the company's internal control, the internal audit and risk management systems.	1º b - Periodically review the internal control and risk management systems.
3. – Knowledge of the financial information process and internal control systems.	3 . – MONITOR the process of preparing and presenting regulated financial information.	1ºa - Monitor the process of preparing and the integrity of financial information.
 4 Propose the appointment of the auditors. 5 Establish relations with the auditors in order to receive information on matters that may put their independence at risk. 	 4 Propose the appointment of the auditors. 5 Establish relations with the auditors in order to receive information on matters that may put their independence at risk. Each year they must receive from the auditors written confirmation of their independence, as well as information on additional services performed. 6 Issue each year a report in which an opinion is given on the independence of the auditors. 	 2°a - Submit to the Board proposals for the selection, appointment, re-election and replacement of the external auditor. 2°b - Regularly receive information from the external auditor. 2°c - Ensure the independence of the external auditor.
		 1°c - Ensure the independence and effectiveness of the Internal Audit function. 1°d - Establish and monitor a mechanism that allows employees to report irregularities.
	ces at columns A and B are	

Note: Numerical references at columns A and B are sections that belong to the 18th Additional regulation included at the Securities Market Act (former and new, respectively).

In Column C, numbers correspond to sections within the $18^{\rm th}$ article at MAPFRE's Good Governance Code.

The company shall draw up a report on the effectiveness of its internal control procedures, stressing any significant deficiencies identified and their implications and proposing the measures considered appropriate for their correction A. Submit a policy development proposal on the subject.

- B. Establish a frame of reference which includes a set of general principles and good practice from the Financial Information Internal Control System (FIICS), in order to help listed companies with the design, implementation, operation and monitoring of their FIICSs, thereby strengthening the reliability of the financial information. This framework took the COSO (Committee of Sponsoring Organizations of the Treadway Commission) report as its reference.
- C. Propose a guide for the preparation of information on their FIICS which is to be disseminated in the markets.
- D. Provide some guidelines for carrying out the Audit Committees' monitoring work with respect to the FIICS.

E. Issue a glossary of terms.

For these recommendations to be normative in nature, the CNMV must submit a Circular containing the recommendations of the aforementioned Working Party. And for that, it must approve two laws which have in fact already been approved by the Spanish Parliament:

- 1. The Auditing Act which –as has already been mentioned– affects the powers of the Audit Committee.
- 2. Act 2/2011 of 4 March on Sustainable Economy, which includes the minimum content of the Corporate Governance Annual Report.

The internal control of insurance companies

For its part, Royal Decree 239/2007, which modifies the Private Insurance Organisation and Supervision Code⁸, regulates in its Article 110 the internal control of insurance companies, establishing amongst other things the following aspects:



- 1. The Board of Directors shall have the ultimate responsibility for establishing, maintaining and improving internal control procedures appropriate to the organisation.
- 2. The internal control procedures shall in any case include:
 - a. the development of an appropriate review function, which shall be exercised by skilled and experienced staff with guaranteed full independence with respect to the different areas of the company, being the company's Board of Directors committed to ensure the appropriate performance of the functions entrusted;
 - b. and the establishment of risk management systems appropriate to their organisation, allowing them to regularly identify and assess the internal and external risks to which the companies are exposed.
- 3. Each year, the company shall draw up a report on the effectiveness of its internal control procedures, stressing any significant deficiencies identified and their implications and, where necessary, proposing the measures considered appropriate for their correction. This report shall be signed by the Board of Directors and sent

⁸ Reglamento de Ordenación y Supervisión de los Seguros Privados.



to the Spanish Insurance and Pensions Supervisory Authority⁹, along with the annual accounts statistical documentation.

4. The Board of Directors of the company obliged to submit the consolidated accounts statistical documentation shall be responsible for establishing the internal control procedures that prove to be necessary in order to ensure compliance with the provisions in the preceding paragraphs with reference to the Group.

Practical implementation of the new regulations

An insurance group operating internationally, like MAPFRE, therefore has the following obligations as regards Internal Control – obligations which fall to the Audit Committee, as this is the body entrusted with the supervision:

- A. In accordance with Article 110 of the Insurance Regulations.
 - Subsidiaries with their headquarters in their country of origin. These must send a report on the effectiveness of their Internal Control System to the supervisory body (in Spain, the Insurance and Pensions Supervisory Authority).

- Subsidiaries abroad. Article 110 does not apply but, in most countries in which the Group is present with a permanent establishment, local regulations require a report on the effectiveness of the company's internal control system to be submitted, and some countries also require this report to be reviewed by the external auditor.
- The parent company must send to the Supervisory Body (in Spain, the Insurance and Pensions Supervisory Authority) a report on the effectiveness of the internal control system of the Group, in other words on a consolidated basis.

B. In accordance with the Financial Information Internal Control System (FIICS).

This affects exclusively the parent company, as this is the company that issues and publishes information in the markets and has to issue a document, integrated into the Corporate Governance Annual Report, in which the company's Internal Control System is explained in relation to the regulated financial information that is made known to the markets.

In both cases, directly or indirectly, the internal control obligations of the holding company affect all the subsidiaries, which means that all the companies in the Group have to have high standards of internal control in order to adequately comply with internal control requirements.

Future authorities of the internal audit in the context of Solvency II

Within the scope of supervision, the Internal Audit's role will constitute a valuable help for both the Group's top management and subsidiaries and the Audit Committee. When the Solvency II Directive enters into force, the role of the Internal Audit as a supervisory body will increase considerably, as that Directive lays down that, in addition to Internal Control, the Internal Audit will also supervise the Governance System and the Own Risk Solvency Assessment (ORSA), which is no less than an internal assessment of the Risk Management System. When the Solvency II Directive enters into force, the role of the Internal Audit as a supervisory body will increase considerably, as it will also supervise the Governance System and the Own Risk Solvency Assessment (ORSA)

⁹ Dirección General de Seguros y Fondos de Pensiones (DGSFP).

What is changing in risk assessment in Life and Health insurance?

Ana Luisa Villanueva Chief Medical Officer MAPFRE RE Madrid - Spain



Risk assessment refers to the process that allows us to assess and properly classify any adverse situation or risk to be insured to set a fair price for such coverage.

We must emphasize that, in most cases, Life and Health insurance is a long term commitment. Therefore, to avoid any imbalance, it is necessary to set homogeneous criteria to provide same solutions for similar situations and accept others that might have not been considered before.

This way we can offer a fairer and a better adjusted price to the demanded coverage.

Current market environment

The time we are going through is forcing us to reconsider consumption leading to:

- Product analysis to make them more competitive both in Price and coverage.
- A much more customized selling, paying special attention to clients' needs and features.

In addition, we are suffering an increase in the insurance market regulations that is hitting all fields: data protection, genetic testing results and screening test for drugs and HIV, among others. The use of the equal opportunities policy to avoid discrimination has struck hard on insurance since it will not let us use certain criteria, such as sex, to differentiate risks. Age will soon be added.

All these make us look back on risk assessment and reconsider its role.

The process of risk assessment should always be aimed at meeting the actuarial balRisk assessment refers to the process that allows us to assess and properly classify any adverse situation or risk to be insured to set a fair price for such coverage



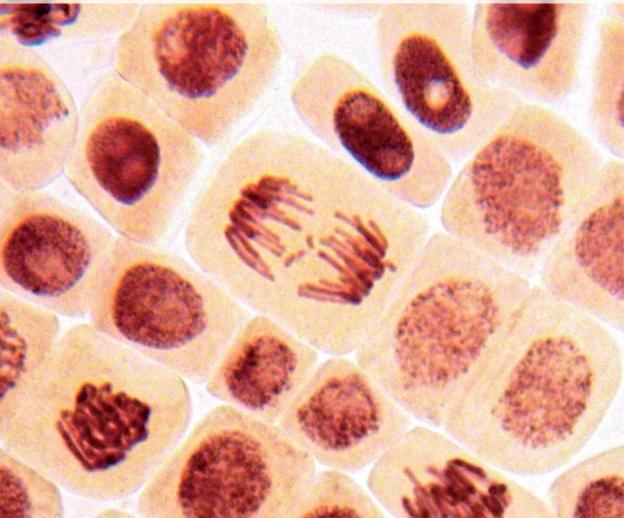
ance, allowing premiums to face any possible incoming claims. To accomplish this task, premiums must best as accurate as possible through a thorough analysis of the quality of the risks.

Advances in computer technology and the introduction of telephone service and the internet as new distribution channels have generated:

- Products with smaller face amounts. Allowing boost sales and encouraging immediate purchase.
- Quick response. Both telephone and internet require a quick decision making to close sales as soon as possible. To take advantage of the purchase drive of this type of products, we need a sharp, easy, quick and an inexpensive process. The use of over-the-phone questionnaires with key questions for imme-

diate decisions is more often found. In case the applicant does not have any disorder or impairments, the system forwards the medical information as soon as the tele-interview is finished, thus drastically reducing the response time.

- Incorporation of Computer technology. New advances in computer technology render:
 - High speed data transmission fulfilling the strict regulation on confidentiality, meanly when it comes to information related to health status.
 - The use of expert systems for immediate decision making.
 - Process Management by providing real time case tracking while facilitating cost management.



It is very common to find conditions that years ago were considered severe and disabling and nowadays are well diagnosed, treated and controlled, meaning no handicap to lead a normal life

The traditional Risk assessment model based on a health questionnaire and some medical tests is facing new challenges resulting from scientific and technological advances and changes in life style.

Risk Assessment today

We live in a society with a wide range of services with a health policy that provides easy access to health care. It is very common to find conditions that years ago were considered severe and disabling and nowadays are well diagnosed, treated and controlled, meaning no handicap to lead a normal life in good health. In addition, our lifestyle has experienced a great change. Environment concern, changes in daily leaving habits and widespread access to health care have made life expectancy longer and improved quality of life. New technologies are also applied to the medical field. The emergence of new diagnostic test and non-invasive tests make gathering of medical information not only easier but with a higher predictive value.

All of this has encouraged the development of **new concepts in health assessment**:

- New discoveries in genetics are helping to redefine individual predisposition to certain conditions.
- The integration of evidence-based medicine brings in new experience on certain impairments resulting in a much more precise rating.

The impact of all these new concepts will soon be seen in risk assessment, both in the health questionnaire as well as in the type of medical tests.

"Are you in good health?"

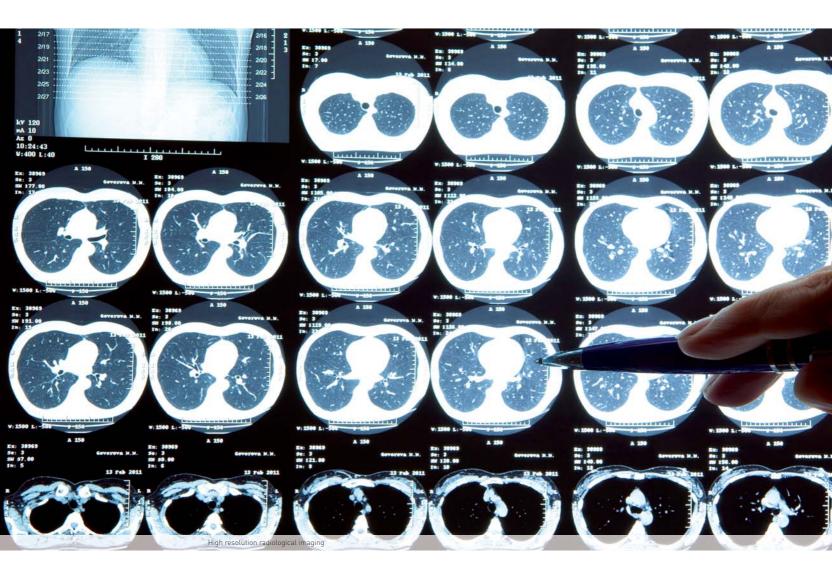
The health questionnaire has lately undergone all kinds of critics and comments based on its complexity in understanding, length, completion and handling. The wording of some of the questions has generated a duality in their understanding leading to acceptance or decline of certain risks that could have had a better consideration. Even today we can still find questions such as "Are you in good health?

Such questions invite anyone suffering from a condition or therapy successfully resolved to answer positively without thinking of the cause or development of such disorder. We must not forget that as the process simplifies and eliminates important questions, the impact on price and claims rate is quite significant. The development of Bancassurance helped process simplification and changed the traditional age / sum assured criteria. This turned into cutting down the number of questions and required medical tests. However, we do not know the real impact on claims in the upcoming years.

The widespread concern on the increase of certain disorders involving the health status of the population and the generation of more specific needs has boosted medical research both in diagnostic and therapeutic fields thus providing greater access to prognostic and diagnostic tests.

The dilemma of medical tests

The analysis of the health questionnaire takes us to work on a more efficient way to



gather the information without asking for an excessive number of tests.

Asking for attending physician's reports may often avoid the prescription of further testing that will do nothing but increase cost. Therefore, we must develop new methods to get information either by a new more concrete and specific set of questions or through expert systems that let us choose the depth level of the information. Lab testing let us be even stricter on criteria selection. The choice of proper parameters will result in optimizing the results. The introduction of predictive, such as markers, will lead to a far more complete assessment. Glycosylated haemoglobin, for example, is an excellent parameter to control diabetes and glucose intolerance. The rating of such conditions may vary according to the results. Diabetes with an HbA1c (glycosylated



haemoglobin) within normal range indicates condition under good control and will allow us giving credits to loading.

Why asking for haemostasis or clotting tests if applicant does not have any blood or liver disorder? Would it not be better to order them only when there is such a disorder? If we apply these criteria in selecting blood parameters for blood testing, we will not only decrease cost but get much more precise information resulting in setting different levels of tests according to the real health state of the applicant.

Something similar happens to the rest of the tests in risk assessment. The development in imaging is taking us to re-evaluate certain diagnostic tests, meanly in the field of cardiology. Doppler ultrasound of the heart is a non-invasive test that provides great information. It is easy to perform and inexpensive for all the information in return and yet not as popular as the stress testing, which is more expensive, uncomfortable for those undertaking the test. It may even have some contraindications depending on applicant's underlying impairment. Heart scanning is the latest novelty. The precision of the resulting information along with the lack of contraindications represents a revolution in ischaemic heart disease. It is true that the current price of the test is out of the established cost limits but once it becomes popular, the decrease in price will give way to a more widespread use.

Prognostic tests are causing a lot of controversy these days. Advances in the field of genetics are bringing a lot of information to light on the cause of certain diseases.

What about genetics?

Knowledge of the human genome and cost reduction in genetic testing is going to let us know in advance the presence of genes causing certain disorders. The possibility of knowing such predisposition is leading to mistrust since this information is personal and could be misused in certain situations, such as risk assessment in insurance. Even today we can still find questions such as "Are you in good health?, inside the health insurance questionnaires

For this reason, regulations do not authorize to include direct questions on genetic testing. However, in the event of a present disease already declared in the health questionnaire. genetic testing may have some relevance to accept or decline the risk. The information has an important prognostic value, as in the case of the presence of genes BRCA 1 and BRCA 2 in breast cancers. Fortunately, some of these tests are prescribed on regular basis as part of the treatment protocol, giving a more real assessment of the true situation of the applicant. Note that each country may have different criteria when using the information. Further progress should be made both in science research and regulations to find a common path. Their interpretation may well be that of tumour markers, excellent for follow-up and response to treatment.

Despite the importance of genetic code, we must not forget that our life expectancy approximately accounts 30% for genetic background, 60% for our life style and 10% for environment.

The interrelationship of these concepts is scientifically supported by epigenetic or the part of science dedicated to studying modifications in gene expressions. Epigenetic is the interface of the environment and genetic, it is what explains the effect of lifestyle on genes. Cardiovascular disease is an easy example to understand. The formation of the atheromatous plaque results from a genetic sensitivity to a high-fat diet and an epigenetic pattern of gene expression that let fat become harmful. A change in our lifestyle can modify this pattern. Tobacco may cause mutations in the genes that could lead to cancer in a person with no genetic predisposition. Excessive consumption of alcohol causes a deficit in methyl groups helping gene mutation. Therefore, one of the largest sources of gene modifications lies within our lifestyle and our relationship with the environment.

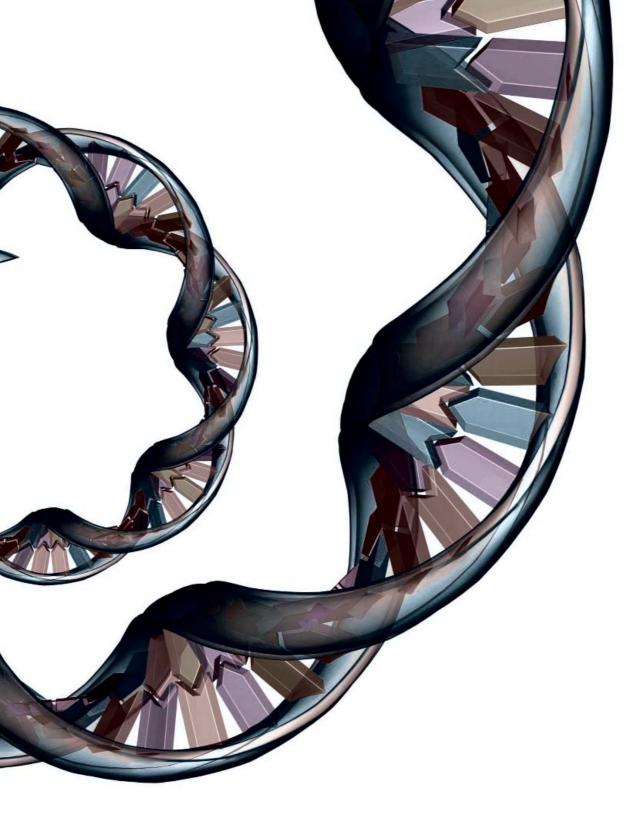
We will soon have predictive markers or biomarkers to evaluate predisposition to certain disorders, which should never be read alone but in conjunction with the rest of the personal features.



Wrap-up

So, risk assessment is in a changing process where:

We will start paying more attention to individual assessment based not only on their health but on other factors such as lifestyle, physical activity, type of work and preventive actions to take care of their health.



Despite the importance of the genetic code, we must not forget that our life expectancy approximately accounts 30% for genetic background, 60% for our life style and 10% for environment

- The introduction of new diagnostic and prognostic methods will provide us with new criteria to re-evaluate life expectancy and so the risks for rating.
- The use of expert systems will not only let us classify the different risk levels but give more intensity to the process, giving consistency to a faster and less expensive search for information.
- There is a need for more transparency from insurers in assessment criteria and reasons to decline risk to generate trust and facilitate understanding with the insured.

Risk assessment remains an essential part of the underwriting process and helps maintaining a price adjusted to the real risk of each insured. Moreover, it is closely linked to advances in medical research to keep rating updated.



interview with Arturo Semerari

President of ISMEA The Italian Institute for Services to the Agricultural and Food Markets Rome - Italy

Farming land close to the city of Asis. Italy



Arturo Semerari was born on 21 October 1959 in Taranto, in the Puglia region of southeast Italy. Coming from a farmers' family, he had been concerned about the ups and downs of the agricultural sector from an early age. He graduated in Agricultural Engineering from the University of Padua, specialising in Agricultural Economics at the University of Milan. He held several posts in both the public and private sectors, in this case in the consultancy sector, before becoming President of ISMEA in 2002.

"Europe is the world's biggest importer of agricultural products, surpassing even the United States"

⁴⁴ It is important that money for agriculture should not be subsidising speculative activities, and one way of doing this is through agricultural insurance^{PP}. This is the view of the President of ISMEA¹ who in this interview, tells us about the Italian system for protecting agricultural income and gives us an overview of the trends emerging in this field in the European Union.

Where are we right now in Europe as regards agricultural insurance?

We are working on reforming the Common Agricultural Policy, the CAP. This means that we have to know what systems exist in the various European countries, because right now, besides having national laws, it is important that we achieve a consensus for Europe and common legislation for all the countries.

How far can we compare what Europe is doing in relation to the movement of agricultural products with other countries or areas of the world?

Generally speaking, you have protectionist countries like Japan, Switzerland and Norway. In the European Union we also have a reputation for protectionism, but in fact, this is not true. Europe is the world's biggest importer of agricultural products, surpassing even the United States. We import from Africa and Latin America with the prices differential. However, the products involved are not controlled in their countries of oriVineyards at Piedmont Region. Italy



In Italy, land is very expensive because we have very little space and a large population. With these determining factors, farming is not noted for its profitability

¹ Istituto di Servizi per il Mercato Agricolo Alimentare. gin but by the multinationals, so ultimately, they are the ones benefiting most from the business.

What proportion of Italy's gross domestic product -GDP- does Italian agriculture make up? Around 2%. But the food sector accounts for 16% of GDP and after engineering, it is the second largest industrial sector.

Are agricultural multinationals interested in investing in this field?

Not in Italy. One of the problems is that farm-

77% 85% 94. 90% 60% 30% 0% 2003 2004 2005 2006 2007 2008 2009 2010 Monorischio / Hail Pluririschio / Hail and additional Multirischio / Multirisk Insured value. EUR Thousands 2003 2004 2005 2006 2007 2008 2009 2010 3,810,222 3.333.901 3,710,212 3,789,132 4,379,809 5,436,140 5,131,045 5,312,829 Rural multirisk policies included

Subsidised agricultural insurance. Evolution of the market share by type of insurance product

Subsidised agricultural insurance. Average market rate (crops)





ISMEA

The Italian Institute for Services to the Agricultural and Food Markets, ISMEA, is a public body created when the Institute for Studies, Research and Information on the Agricultural Market² was merged with the Fund for the Promotion of Peasant Property³, under the Legislative Decree of 29 October 1999.

Through the companies that it controls, ISMEA offers information and research services and provides insurance and financial capacity, as well as guarantees, to agricultural enterprises. It also facilitates their relations with the insurance and banking sector, promoting competitiveness and reducing the risks inherent in their production and market activities.

ISMEA supports the consolidation of regions and their land through the expansion of farmland ownership and generational renewal in agriculture, based on specific aid approved by the European Commission.



² Istituto per Studi, Ricerche e Informazioni sul Mercato Agricolo.

³ Cassa per la Formazione della Proprietà Contadina.

lands are being abandoned. In Italy, plots of land are very expensive because we have very little space and a large population – bigger than Spain's. We have many hills and mountains, areas where nothing can be grown. With these determining factors and the price of land, farming is not noted for its profitability.

Third presidential term with ISMEA

How did you get into insurance? And how did you become the President of ISMEA?

Before the year 2000, ISMEA had embarked on a series of reforms. The then Minister, who is now Chairman of the European Commission on Agriculture, appointed a Commissioner to unite the various institutions that were to shape the new ISMEA. Through my knowledge as a farmer, I could see that the Italian agricultural insurance system was not good – it was inefficient. In 1998 I worked as a consultant to the Ministry of Public Administration, which was in charge of several economic reforms, including agrarian reform. I was the one responsible for drafting the report on the reform of ISMEA, in which I included the reasons for having agricultural insurance and also the need to reform credit. One consequence of all this was that I was appointed President of ISMEA in 2002, a position that I have held ever since. I am now its President again for the third and final time.

What were ISMEA's functions before and after the reform?

Before the reform, ISMEA was an institution devoted to performing studies for the Ministry of Agriculture on agricultural, market, development and shopping-basket issues amongst institution devoted to performing studies for the Ministry of Agriculture on agricultural and market issues. After the reform, it began working on agricultural insurance and credit

ISMEA was an

The problem in Italy and Spain is that farmers face many difficulties when seeking finance from banks which do not understand their working conditions and the risks involved in their activity other things. After the reform, it began working on agricultural insurance and credit. In the insurance field, it acts as a public reinsurer in Italy. It carries out studies for the Ministry and defines the performance parameters, statistics and various forms of insurance. In the credit field it manages two guarantee funds, one for banks working in the agricultural sector and another for peasants and farmers wanting guarantees.

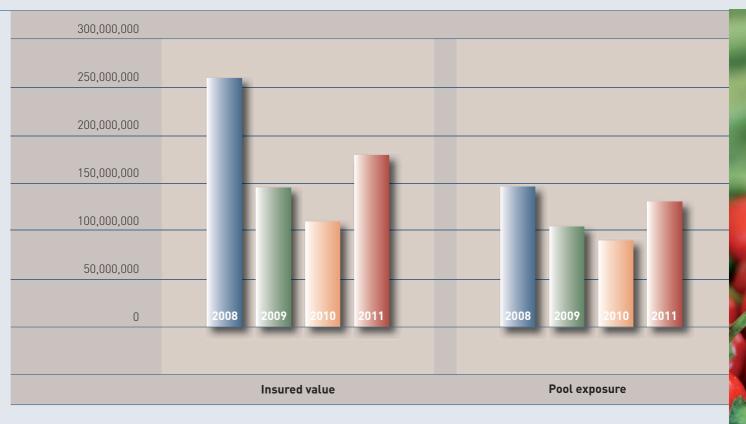
Are there any other functions besides these?

Yes, we manage a purchasing fund. We pay for farms and then, the farmers make repayments over a period of fifteen to thirty years.

Is the Common Agricultural Policy, the CAP, well orchestrated in Europe?

The situation in Europe has been complicated for many years. Apart from Spain, Italy or France, politicians do not consider agriculture to be economically useful for Europe, and this is a problem, because we have a very powerful agriculture, which also keeps people in rural areas. It is a strategic sector, because agricultural development provides raw materials, something Europe has too little of to meet demand. The reform we now have is not the right one for Europe. After 2013, it may be possible to carry out major reforms with a different vision. Now is the time to consolidate the agricultural budget beyond 2013. It is very important that we should work for farmers who create business, not for ones who speculate and have no farms. How do we do that? With insurance that protects farmers' incomes and ensures certain conditions for carrying out the activity. The problem in Italy and Spain and elsewhere is that farmers face many difficulties when seeking finance from banks which do not understand their working conditions and the risks involved in their activity.





Year	2008	2009	2010	2011
Capacity	207,300,000	197,300,000	185,000,000	168,500,000
Insured value	263,797,398	147,186,907	113,713,321	183,534,526
Pool exposure	149,441,455	108,040,274	93,672,869	134,681,254

Even so, France has major financial institutions linked to the agricultural sector, and Spain has its rural savings banks.

Yes, that helps. France has *Crédit Agricole*, and in Italy there are also some organisations that support farmers, like the ones in Spain.

A fringe benefit

Do Italian farmers value the benefits of ISMEA's work? Or do they demand more?

We do work for farmers' benefits, but we do not do so directly, because we work through insurance companies and banks. We are reinsurers and we offer guarantees to banks. ISMEA's work is known and recognised by farmers, and in fact, we have granted many guarantees in respect of loans to farmers – to the tune of over 10 billion euros.



In Italy, is there any pool of insurers that makes use of your financing and protection capacity as a reinsurer?

Not in Italy. Insurance pools are prohibited as they are understood in Spain. There is only one insurance pool, or rather, a reinsurance pool, which is of both a public (represented by ISMEA) and private nature. It is licensed by the competition supervisory authority and works with nine types of insurance.

Could you explain a little more how it works?

Our pool is the reinsurer for agricultural insurances. In 2004 it began working with ISMEA's insurance fund, and in 2008 that fund began working with private insurers who know the market. All this led to a new type of insurance, tailored to the needs of the target groups – that is to say, farmers. The first two years' results were not good. There were many losses due to weather problems. 2009 and 2010 were not good years either, due to the problem with financing the solidarity fund. The premium subsidy budget suffered permanent delays due to the impact of the crisis. 2011 is about to be closed.

Does ISMEA have any environmental protection aspect, given that European subsidies are pointing in that direction?

Not for the time being, although the trend in Europe is indeed to support environmental protection. It is important that money for agriculture should not subsidise other –sometimes speculative– activities, and one way of achieving this is through agricultural insurance. The role that farmers play is very important for a sustainable environment. But we must help farmers to work on farms and, indirectly, on the environment. Even so, the tendency is to think only about the environment, without appreciating the role of the farmer.

How often do you have to deal with catastrophic events, and which ones are most frequent?

Disasters happen every year. The effects of climate change are huge. Hail, ice and rain are the ones that affect us most.

How do you see Spain as far as agricultural insurance is concerned?

Agroseguro is a fantastic system for covering agricultural risks but, due to the nature of our legislation, it is not possible to work that way in Italy.

It is important that money for agriculture should not subsidise other -sometimes speculativeactivities, and one way of achieving this is through agricultural insurance



interview with Ricardo García Herrera

President of the Spanish State Meteorological Agency, AEMET Madrid - Spain



Ricardo García Herrera was born in Valladolid in 1958 and holds a Doctorate in Physics from the Complutense University of Madrid, where he is also a Professor. He is a graduate of the IESE Management Programme as well. He considers himself to be a climatologist -an expert on climate- with extensive experience in the analysis of climatic variability and its impact on public health. His career has been a mixture of university life and the field of management and public institutions. He started working at the age of 22 as an assistant at the Complutense University and took advantage of those early years to write his doctoral thesis on air pollution models. In addition, he also specialised in the environment and public health, which led him to leave his work mark on various bodies in the Autonomous Regions of Castile and Leon, Navarre, the Basque Country and Madrid. He went on to become the Director of Public Health for the Basque Government and Director-General for Prevention and Health Promotion of the Regional Government of Madrid.

Ricardo García Herrera is the author of more than 80 scientific and research articles published in international journals and he has also written various books. He has coordinated numerous national and international research projects and also the Master's Degree course in Geophysics and Meteorology at the Complutense University. He has been a contributing author to the IPCC's Fourth Report and represents Spain on different international programmes. He was appointed President of the Spanish State Meteorological Agency, AEMET, at the suggestion of the Ministry for the Environment and Rural and Marine Affairs on 12 February 2010.



"The future depends on improving weather forecasting and offering more climate information"

Concerns about weather and climate have become two constants in our lives, supported by ever more precise and accurate forecasting models. Learning first hand about the objectives and daily work of Spain's State Meteorological Agency, as well as its most pressing challenges, from the words of its President is a real treat on account of both the information provided and the simplicity with which its development over 125 years is explained.

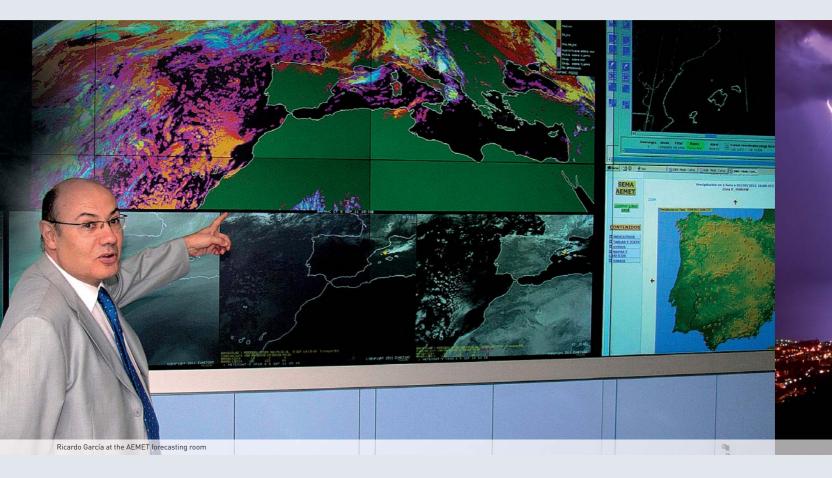
Broadly speaking, how was the historical development of meteorological services in Spain up to the establishment of the State Meteorological Agency?

AEMET is the continuation of an organisation which in 2012 will formally be 125 years old, although its origin is even older. It became a State Agency at the beginning of 2008, and so we are a bit like a Directorate-General, but with more competence; for example, we have some degree of freedom as regards the management of resources, be they budgets or personnel.

In Spain, meteorology arose from astronomers who, depending on weather events, like the presence or lack of clouds, could observe the sky. The beginnings were in



Our functions are to protect people and property by forecasting the weather and supporting environmental and climate change policies



AEMET is not an organisation dedicated to R&D -Research and Development- but it needs to be up to date, as we use very advanced technologies such as space- and ground-based remote sensing some facilities at El Retiro Park in Madrid, and for a long time a strong statistical approach involving tables of meteorological data prevailed, but this offered little forecasting capability. This led to a delay of about 40 years in the creation of Spain's Meteorological Service compared with those set up in the UK, Germany or France, a lag further aggravated by problems relating to the competencies and capacities of local bodies and bureaucracies. Finally, the Central Meteorological Institute was merged with the Retiro Observatory. These facilities still exist and now belong to AEMET. Until 1976, the organisation was called the National Meteorological Service and was dependent on the Air Ministry. It was then run by the Transport Ministry and was called the National Meteorological Institute. Finally, it depended on the Ministry for the Environment and Rural and Marine Affairs and, through the Secretary of State for Climate Change, became the State Meteorological Agency (AEMET) and assumed all the competencies of the former National Institute of Meteorology (INM).

What are AEMET's mission and roles?

We are an atypical agency because although the main mission of meteorological agencies and services is to help protect people and property by forecasting the weather, we combine other functions, like supporting environmental and climate change policies. This means that, besides making short- and medium-term forecasts, we produce climate scenarios which can be accessed on our website. We support environmental quality policies by, for example, designing air-quality forecasting models. We also manage the Spanish background pollution monitoring network. This means that we have about twelve sensors installed outside cities which are not disturbed by the emissions from any big city and help us to measure the background pollution and also the transboundary transport of air pollutants. AEMET is not an organisation dedicated to R&D -research and developmentbut it needs to be up to date, as we use very advanced technologies such as space- and ground-based remote sensing.

We are also the government body for mat-



ters of international cooperation on the subject of meteorology and climate. We maintain two very active programmes, one in Latin America and the other in Western Africa.

What resources do you have?

We have about ninety workplaces and a staff of 1,300 highly-skilled people who fit three types of profiles: meteorologists, who carry out development and management tasks; graduates, most of whom are in charge of weather forecasts; and then observers, who take care of operating and maintaining the observation network. A third of the staff are located at our headquarters in Madrid. The rest are integrated into seventeen territorial delegations, one for each Autonomous Region, and we also have eleven forecasting and monitoring groups. These groups manage warnings and forecasts from the regional point of view. There are also personnel in all observatories, air bases and airports.

What weather hazards can threaten a territory like Spain?

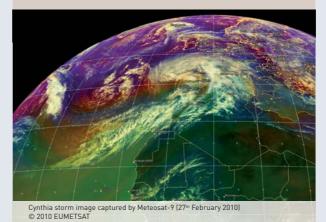
The use of satellites

Do you have your own satellites?

No country in Europe owns satellites. In 1986 the European countries decided to create a consortium known as EUMETSAT, with its headquarters in Germany, to operate weather satellites at European level. It combines various types of programmes: the Meteosat programme, a set of geostationary satellites which capture images of Europe every 15 minutes; the polar satellite programme, offering images of different strips of the Earth on each pass; and then there are others, like the Jason programme, dedicated to monitoring ocean variations. The satellites are launched from French Guyana. Our participation is the fifth largest in this consortium through Spain's financial contribution of eight per cent. This contribution is made on the basis of gross domestic product.

What has the use of satellites meant for weather forecasting, and how long have they been used?

The satellite images that we see on television each day are the input data for obtaining the weather diagnosis and forecast. In fact, we could not make the planned jump to a kilometre-scale forecast without the help of satellites. Last year at EUMETSAT they approved the construction of the thirdgeneration Meteosat, which will probably be operational in 2017. This will allow a higher resolution and offer more variables, thereby improving the forecasting quality.



trébol 59 / 2011 / 29

The 'gota fria' is an atmospheric structure in which cloud systems develop which are small in size and short-lived but cause very intense precipitation. With these characteristics, it is very difficult for a forecasting model to give a sufficiently accurate warning Given our characteristics, what worries us now is a phenomenon which is very difficult to predict: storms and what is commonly known as "gota fría" (literally: "cold drop"), which is actually an atmospheric structure in which cloud systems that are small in size and short-lived develop but cause very intense precipitation. With these characteristics, it is very difficult for a forecasting model to give a sufficiently accurate warning. We are making efforts to downscale our predictions.

How is your forecasting system organised?

Thirty-five years ago, various European meteorological services decided to combine forces and create a centre of excellence for making very good medium- and long-term forecasts: the European Centre for Medium-Range Weather Forecasts (ECMWF) in Reading in the United Kingdom, which is rated the best in the world. The ECMWF provides two daily forecasts on a hemispheric scale, at midnight and midday, with a resolution of about 15 kilometres. We then use this information to run our own high-resolution model for two areas – one centred on the Iberian Peninsula and the other on the Canary Islands – to release four daily forecasts. All AEMET products such as warnings and different types of forecasts are produced from these models. What we are now working on is to increase the ten- or fifteen-kilometre resolution of the current models to a one-kilometre resolution, which will be available in 2013 or 2014.

Does a weather forecast accurate to a kilometre not seem very ambitious?

Yes, it does. The strategic plan approved last June for the ECMWF includes the aim of getting down to the one-kilometre scale, but

Comparable services

Is Spain an advanced country when it comes to weather services? I would support that. The quality of our forecasts is essentially the same as in the rest of the advanced countries of Europe.

And from the point of view of your available resources?

We have what is necessary to become members of various European consortia. Meteorology has been a global science since the invention of the telegraph and the first weather maps were produced from the meteorological data that were transmitted, with observations being transferred in this way to forecasting maps. At AEMET we also have antennas to receive images and data from the US satellites operated by the National Oceanic and Atmospheric Administration (NOAA), which means that we do not have any problems in terms of lack of technical equipment.

It is said that in 2012 there will be problems with solar winds that will impact on communications. Will they be affected?

There are certain concerns. At the last meeting of the American Meteorological Association, NOAA put forward a proposal on the need to do more in-depth work on this. The subject is not exactly meteorological but about the impact on satellites and communications.



whereas the Centre proposes achieving this by 2020, we want to get ahead of that date with our model at the Agency. To do this, we are going to get a new supercomputer which is going to entail considerable expenditure but will allow us to optimise the complexity of the calculations that need to be made. One of the specific features of meteorology is that it presents situations which are very difficult to predict, such as storms and fogs, which have a very local effect and greatly affect aviation. The movements of fronts, however, are much more predictable.

What work are you developing in relation to climate change?

We are concerned with how the climate is evolving. As part of a programme coordinated by the World Meteorological Organization (WMO), normal climatic conditions (see pp. 34) have been being measured since about 1970. For this, climate periods of 30 years are used and we see how all the variables develop, but especially temperature and precipitation. We have twenty-seven topquality meteorological stations devoted to this, and these will support climate change data in the medium and long term. Precipitation patterns have not changed since 1970, but temperature has. Whereas between the periods 1961-1990 and 1971-2000 the average temperature in Spain increased by 0.22°C, it increased by 0.46°C between 1971-2000 and 1981-2010, doubling the observed variation between the previous two reference periods. Serious attention needs to be paid to this question. It is not a prediction but a fact. This will certainly trigger changes to the water cycle. When it rains, the rainfall will be very intense, and then there will be long periods of drought.

Whereas between the periods 1961-1990 and 1971-2000 the average temperature in Spain increased by 0.22° C, it increased by 0.46° C between 1971-2000 and 1981-2010





Worrying for the climate

What is being observed on climate change?

There are two aspects concerning climate-change support policies. One is monitoring, which is not only for forecasting but is also used for climatology and for observing changing trends. Our main task is to take note of what is happening and to communicate it. Our other role is related to scenario modelling. Climate scenarios up to the year 2100 can be downloaded from AEMET's website for each Autonomous Region, something that has been done at the request of the sectors involved. The public feel that climate activity may have some impact on their lives and their activities. These models and the agreed scientific evidence say that by the end of this century, we will suffer temperature increases of between 3 and 5 degrees. Right now, there is no scientific tool better than climate models. They conclude what would happen if the rate of emission of greenhouse gases does not change, and this is not a prediction but a projection.

According to environmentalists, if we do not reduce greenhouse emissions, climate change may become irreversible. Once greenhouse gases are released into the atmosphere, they remain there for hundreds of years. Some of them remain for a longer time whereas others stay for less. Any solutions adopted now will be felt within 30 or 40 years. We do not have scientific evidence that might lead us to think that this is not being caused by human action; in fact, if we try to explain how the climate has developed in recent decades with our best models, the

Do all meteorologists use your services? Is it a driver for your marketing?

Some meteorologists use our services, others don't. AEMET's priority is to be an efficient public service. For example, we have a new data policy. Until a year ago, you had to pay to get the data. Now we have decided that it is better for them to be freely available on our website, where there is a lot of information which is not shown only in the form of graphs but also by means of data files that can be used by professionals. When you consider that citizens pay for the content produced by AEMET through their taxes, it is logical for that information to go back to them. Secondly, we have learnt that, by making it freely available, we are helping the meteorological industry, which is immersed in a process of improvement. In the 1960s, forecasting was an art that depended on the way the meteorologist on duty had been trained. Currently, meteorology basically depends on the interpretation of models, making it much more systematic

and scientific. As there are many small users with specific requirements, our role focuses on the one hand on laying the foundations so that anyone can obtain this information and, on the other, on taking care of large institutional users: civil defence, aviation and the armed forces, for example. In the months that this policy of transparency has been in operation, users have downloaded around a hundred thousand files per day from us. We are the most-visited Spanish institutional website, with around 3.5 million visits each day, and the usage profile is growing. This is the best quality control we can have.

In what way are you collaborating in the programmes in West Africa and Latin America? We are the World Meteorological Organization's foremost contributor for the areas of cooperation, our contribution being channelled through conferences in which the directors of hydrometeorological services take part. We are very keen in knowing their needs and try to meet them. On this basis, change is not adequately reflected, and we only succeed if we simulate the effect of greenhouse gases increase. It is therefore irresponsible to ignore this, which means that we must try to reduce emissions. But the problem is quite complex. It requires political decisions affecting development and life quality, which must be adopted by all countries, and, as we all know, there are some countries that are not willing to do this for the time being.

What is the value of climate forecasting?

Climate projections, and particularly those of a regional scale, constitute one of the essential starting points for assessing impact, vulnerability and future needs to adapt to climate change. For AEMET, this is therefore a key priority in its objective of providing the most effective weather and climate information for citizens. The first regionalised projections of climate change were presented by the Agency in 2007 and the information generated was immediately uploaded on to the Website and made available to users. In July 2010 the second phase of updating these regionalised scenarios was carried out using new data from the global models. It resulted in the basis of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), approved in Valencia in 2007. And when this interview is published, the Agency will already have more detailed results from various statistical dynamic models available and freely accessible on its website. All this demonstrates the Agency's desire to always offer the best available information on the probable development of the climate in Spain.



a plan of action is set in motion using the resources available to us at any time. We offer training and exchange programmes and courses, as well as access to some technologies, like handling the output from the ECMWF's models; we also make Meteosat images available. In the area of Africa extending from Mauritania to Guinea, we are carrying out three programmes: a meteorological one to support fishermen; another one dealing with meteorology and health; and another focused on agriculture. Four hundred metereological stations have been set up, spread across various zones, in order to help them take decisions on sowing or watering. In addition, and more generally, they are given forecasts for sand and dust storms, which is something truly novel and useful for this entire region.

What is your most immediate challenge?

Our main challenge is to get the new Climate Services Site up and running as part of the Agency's new data policy. It is possible to give a lot of very useful climate information not only through lists of data but also through threshold values, projections, forecasts or normal values, amongst other things, so that each user can use the information as required. This is so important that at the WMO's last congress in June, it was suggested that an extraordinary congress be held. Generally speaking, the European meteorological services are going to continue improving smaller-scale weather forecasts and are going to provide more climate information. This is an important development for the whole world and we are very well positioned for offering these services.

How do you interrelate with insurance?

Our experience is basically linked to the *Consorcio de Compensación de Seguros* (Insurance Compensation Pool), to which we supply the data they request on certain climatic events that have a major claims impact, such as windstorms or tempests.

Our main task is to take note of what is happening with regard to climate change and to communicate it.

Variation in average temperature in Spain between the 1971-2000 and 1981-2010 reference periods

[Source: AEMET "Note on the average variation in temperature and precipitation in Spain between the 1971-2000 and 1981-2010 reference periods"]

Reference period	Annual average temperature in Spain	Difference between two consecutive periods
1961-1990	14.43 °C	
1971-2000	14.63 °C	+ 0.20 °C
1981-2010	15.09 °C	+ 0.46 °C



Normal values

In climatology, the normal value of a climatic factor is the average value over a period of time that is long enough to allow short-term fluctuations, i.e. such as interannual variation. In order for climate data to be compatible and comparable in the various regions of the planet, the World Meteorological Organization (WMO) has defined a time interval of 30 consecutive years to calculate these normal climatological values, this period being known as the "reference period".

Source: AEMET "Note on the average variation in temperature and precipitation in Spain between the 1971-2000 and 1981-2010 reference periods". For more information, please look up:

AEMET www.aemet.es

ECMWF: European Centre for Medium-Range Weather Forecasts www.ecmwf.int

WMO: World Meteorological Organization www.wmo.int

EUMETSAT

www.eumetsat.int

NOAA

www.noaa.gov

IPCC Intergovernmental Panel on Climate Change www.ipcc.ch

agenda

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