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EDITORIAL

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Environmental Pollution

The «Summit Conference on the Earth» was celebrated in Brazil last June. At this summit, top-level representatives from almost every country in the world discussed environmental problems, their political, technical and social aspects, all of which are of vital importance for the future of Humanity. The «Rio Declaration» as conclusion and synthesis, calls for a world scale permanent cooperation in favour of the so-called sustainable development, emphasising the moral commitment of all nations, especially that of the most developed ones.

The problem of the climatic changes, the protection of the biological diversity and the necessary development of all the countries, as well as environmental issues and in particular forest protection, constituted the fundamental core of the afore mentionned «summit» whose principles should be clearly assumed by the responsible politicians and all kinds of organizations and employers. To this effect, the companies and in particular their Risk Managers should fully incorporate many of these recommendations in their field of action.

The idea behind sustainable development, as well as the mandate that those causing the pollution should provide for the costs incurred, eliminating or reducing unsustainable methods of production or those methods that emit polluting gases or exert a decisive influence on climatic change, should result in important changes in attitude during risk managemant planning leading to the incorporation of the new principles in the corporate culture or philosofhy, whose consecuenses are still unknown.

As for every new challenge, this challenge can be perceived as a competitive advantage and many companies that have incorporated the «green» concept in their culture have done so. Regardless of the foregoing, it is up to the Risk Manager to carry out the difficult task of analysing the polluting effects of industrial processes, the impact on the environment of the installation itself as well as the technical, legal and social risks that they may cause. The financing of risks of this nature can hardly be transferred to third parties and therefore it is necessary to intensify the enterprising organisation's prevention and awareness attempts.

The document presented «Rio Summit Conference» and the items treated in its various conventions, should give rise to reflexion on the part of those that assume this responsability in the companies.

Among the other articles that appear in this issue of Risk Management, specific mention should be made about the conclusions of the 5th International Seminar on Risk Management and Solvency of Insurers, that took place in Marbella during the past month of May. These companies do not analyse their own risks very often even though managers of industrial organizations do, and despite the fact that the risks they are faced with are many and complex.

In this regard, the ideas that can be deduced from the conference delivered by F. Settembrino, President of AEAI (Association Européenne des Assurés de l'Industrie) are of special interest. He describes the Risk Manager as the bridge between the company and the surrounding environment, a person with a global vision of the company organisation whose duty is close to that of coordinator and adviser of the top management in matter of risks. The foregoing is undoubtebly very suitable with respect to the comments of the first paragraphs concerning environmental contamination.

STUDY ON THE DANGEROUSNESS OF THE STRONG WINDS HAZARD IN SPAIN

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Introduction

In principle, we can state that Spain is not a very windy country, since it does not fall within the area of influence of tropical cyclones and, in general terms, it is not affected by the strong pressure gradients derived from the normal atmospheric situation throughout the year. Recording was made, however, of some exceptionally important speeds, like 116 miles per hour realized on the 15th of January 1975 in the observatory of Mount Igueldo, in San Sebastián (Guipuzcoa), and 122,5 miles per hour on the 25th of february 1947 in the observatory of Izaña (Tenerife), the highest velocity measured in the Spanish territory. The maximum peninsular speed was 118,7 miles per hour, a rate deducted in the observatory of Oviedo, where the instruments were swept away by the wind.

A particular occurence was reported on the 15th of February 1914. A strong wind gale ravaged the western part of the peninsula, though it was also realized by some observatories in the south and in the east. The lack of weatherometers properly scattered all over the territory made it impossible to measure the global effects of the gale.

In general terms, high winds in Spain accompany gales or local storms. They are gusty and rather inconstant. In the inland observatories, the maximum speeds are rated in summer; in those near the Cantabrian coast, such rates occur in winter; and in the Mediterranean coast, the maximum speeds come in spring and autumn.

Making up the strong winds dangerousness map of Spain

Weather Stations National Network

The Spanish Meteorological Institute **(Instituto Nacional de Meteorología, I.N.M.)** is the official body that controls and maintains the network of stations spread all over the Spanish territory. Each of them enters up the data concerning many weather variables. The available information about winds in particular refers to the following concepts:

- prevailing wind's direction
- wind's track in km
- average rate of movement in km per day
- longest track on a certain date
- peak gust of wind in km/h and date

Of all this information, it is the data concerning peak gusts of wind in km/h that has been chosen to measure the dangerousness of the wind.

Statistical processing of the data

The procedure used for processing all the information is the statistical analysis of extreme values, which is known as «Gumbel Distribution». Such distribution is a modified double exponential function that is generally used for studying the series of extreme data which quantify natural phenomena, such as temperature, precipitations or gusts of wind.

Assessment of results

After having determined the probability for the peak gust to occur within each of the velocity intervals previously fixed, the next step is to establish as objective an assessment cryterium as possible, so as to consider the damage potential of the wind, which shall logically be proportional to its speed.

Dangerousness coefficient

In order to assign a damage potential or dangerousness level to each weather station, a coefficient has been established, which is the addition of the product for each speed (mid-point of the interval), the probability for the peak gust to occur within that interval and the speed pressure value for the mid-point.

The phisical unit for the dangerousness coefficient is kg/m^2 (weight/area) because it refers to a pressure value. In short, it is the result of the mathematical expectation as to the speed pressure obtained for each of the weather stations examined.

Definition of dangerousness levels

In order to determine the dangerousness levels, the first step is to establish the thresholds beyond which the destructive effect of the wind can be deemed significant.

According to the Beaufort wind scale, material damage starts to be experienced at the so-called «HARD» of grade 8, with a wind speed between 39 and 46 miles per hour. In addition to this, in various studies D. G. Friedman talks about damages in buildings caused by winds whose speed was above 40,6 miles per hour.

In view of the foregoing, the limit beyond which material damage begins has been set at 40,6 miles per hour (65 km/h). Consequently, below that level, the probability for winds to cause significant damage is low.

In the same way, and according to the same scales, we can consider that beyond 46 miles per hour (75 km/h) material damages are already severe. Beaufort scale describes such damages as «damages in buildings; tiles and chimneys fall». For that reason, beyond that rate the probability for winds to cause damage is high. Finally, a band has been established between 40,6 and 46 miles per hour as corresponding to a hypothetical medium dangerousness.

Dangerousness levels assigned to each province

Once the dangerousness coefficients for each weather stations have been calculated, the next step is to establish some cryterium for the results to be identified with the Spanish provinces, the minimum geographical unit chosen.

In this respect, some provinces draw information from several observatories, while others can only obtain data about winds from one single station. In these latter cases, in which the lack of information is obvious, the choice was to assign the dangerousness coefficient estimated for the observatory to the whole province, since its measures are the only valid reference that we have for the winds of the province.

When information comes from several observatories in the same province, and when such results differ, the dangerousness level has been assigned according to the global trend derived from the coefficients of the stations; as a last resort, the values that prevailed were those corresponding to the most pessimistic hypotheses.

Return periods

Return periods have been complementarily studied, using also Gumbel Distribution. Since return period must refer to some certain speed, the average rate chosen, in accordance with the dangerousness levels, was 46 miles per hour (75 km/h).

Besides, return periods for a speed rate of 60 miles per hour (95 km/h) were included as historically significant, pursuant to the insurance legislation concerning extraordinary risks.

Conclusion

Wind cannot be considered as a significant peril in Spain, though there are aeolian basins where prevailing winds are being exploited for energetic purposes.

The highest prevailing winds are located in certain areas like the Gibraltar Strait, the northeastern coast of Galicia and the Catalonian coast. As for inland areas, we can spot out La Mancha, the Ebro valley and some part of the Sistema Central range.

Through the statistical analysis applied to the series of actual data, it is possible to calculate the probabilities for the peak gust to occur within each interval of the velocity range, as well as to determine the return period for the mid-points of each interval. In general terms, we can state that gusts have occasionally surpassed the speed rate of 60 miles per hour (100 km/h) in almost every spot, and that the return periods vary between 1 and 20 years depending on the dangerousness level obtained after the statistical adjustment.

The dangerousness coefficient of a province is either that of its only station or the global trend as derived from the coefficients of all the stations that exist in the province. Insofar as the anemocinemographs network spread over the Spanish territory becomes thicker, it will be possible to design a more real wind hazard map, and the introduction of new variables (i. e. topography) will be more justified, given the future accuracy of the basic data.

ROLE OF THE HEAD OF THE SAFETY DEPARTMENT IN RISK MANAGEMENT

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Introduction

To talk about risks and what they represent in the industrial sector is nothing new, but over the past few years, and particularly in the last five, there has been much talk about industrial risks with regard to Safety in its wider sense: Safety and Hygiene, Industrial Safety and Environment.

All this has become more relevant since Spains's accession to the European Community because, on the one hand, the different administrations must regulate the legislation so as to adjust it to the Community's rules and, on the other hand, industries must incorporate such changes in a very short time if we compare it with the time it took their counterparts in the other Member States, and must therefore divert an important part of their budget to those new expenses and investments.

It is for that reason that industrial Safety should no longer be merely understood as safety and hygiene: it should raise its standards through the incorporation and application of managerial means and techniques that make work more effective, and should spur, at the same time, to the application of new prevention techniques.

Regardless of the Safety concept itself, the levels of the industrial risk need to be measured, especially in the case

of the chemical industry, that should ascertain which prevention techniques are being applied, the structure of its risks area and whether it keeps abreast of what both the company and the society demand.

Thus it will extend its grounds, discover its strong and its weak points and know whether the road chosen is in accord with the sector or, on the contrary, runs above or below it.

In order to make out the picture, a survey has been carried out within the circle of companies that make up COASHIQ; its results may reveal the sensitivity of the industry in general and of the chemical sector in particular. COASHIQ is the Autonomous Committee of Safety and Industrial Hygiene in Chemical and Kindred Industries **(Comisión Autónoma de Seguridad e Higiene en el Trabajo de Industrias Químicas y Afines)**, in which 125 Spanish chemical firms are represented.

The survey

The first stage refers to the context and to the degree of reliability of the survey in the light of the data obtained. The population surveyed covers 125 undertakings with a total staff of 82.000 employees.

The answers received amounted to 54, which means 90% global reliability, statistically speaking.

The whole of the companies and their answers have been classified in ranks, so we can calculate de degree of reliability for each rank.

Analysis of the survey results

1. Organic dependence

The importance granted by the top management to the staff in charge of risks and prevention strategies is a sign of their being aware of the needs and opportunities that industrial Safety represents, establishing to what extent Safety is accepted by the direction in the rest of the areas.

This information reveals that 28% of the undertakings make Safety depend on the General Management, whereas most of the other delegate this task on the industrial and technical directions.

2. Organization

This section shows the structure of the Risk Department, as well as its main functions.

In this regard, the differences among companies are remarkable. For that reason, it seemed more appropriate to establish the maximum and minimum levels, as well as the modal value, so that any company that whishes to know its position within the sector may consult it as a reference pattern.

In an integrated sistem (MOS), it seems logical for a Risk Department to undertake only the management, while the executive actions are assumed by the corresponding department. In this way, the department is responsible for actions at each prevention stage, and in a hypothetical complete integration, the figure of the Safety Deparment would dissappear, being its functions totally immersed in those of the department.

However, this is not the real picture. In the first place, integration has not been so fully attained, as indicated by some of the surveyed undertakings, although most of them have incorporated the Integrated Safety system.

3. Functional areas of action

We analyse here the matters involved in risk management for the different areas of action, which are mainly three:

— Safety and Hygiene.
— Loss Control
— Risk Management

3.1. Safety and Hygiene

As one could expect, every company that answered the survey proceeded in this area through the Safety Department.

3.2. Integrated Safety

In the case of companies with more than 500 employees, the percentage that applies integrated Safety cryteria appears to amount to 90%, whereas among those with fewer employees, it was applied in no more than 70%.

3.3. Loss control

The fact that 63% of the companies with 500-1000 employees have adopted this managerial tool to support their organizational system is quite significant. In the case of companies with more than 1000 employees, only 38% applied it.

3.4. Environment

Again, the size of the company is relevant. In the case of smaller companies, Environment and Safety are managed together, while among those with 500-1000 employees, this occurs only in 38%. Undoubtedly, though these risks are different in concept, in most cases one type affects the other, and a pure risk management must consider every risk of the company without duplicity.

3.5. Safety against intrusion

Safety of Intrusion and Vigilance appears to be deeply rooted in the figure of the Safety team, as proved by the fact that 90% of the companies with more than 500 employees have introduced it, while the percentage is smaller - 50% - for those with fewer that 100 employees.

3.6. Insurance premiums

This section has little importance among undertakings with fewer than 500 employees, since their percentage is below 20%, while the others appear to be between 25 and 38%.

This is a weak point, since it indicates that the undertakings that have established this last level of Risk Management through the Safety Department are very few.

3.7. Risk Analysis

The fact that this concept is so attached to the Safety management, for 70 up to 100% of the companies attend to it, can be deemed a strong point. It would be convenient, however, to increase intervention in this field.

3.8. Training and Firemen

These can also be considered as strong points, since the degree of response is high in both cases: 68% as minimum percentage and 100% as maximum.

3.9. Medical Assistance

This factor has a feeble presence in undertakings with more than 500 employees, being the percentage higher - 50% - for companies with fewer than 100 employees.

Consequently, this point must be deemed weak and insufficient.

RISK MANAGEMENT AND SOLVENCY OF INSURERS

Miguel Angel Martínez
FUNDACION MAPFRE ESTUDIOS

Insurer's Risk

From the 18th to the 22nd of May past, the Fifth International Seminar on Risk Management and Solvency of Insurers **V Seminario Internacional de Gerencia de Riesgos y Solvencia de Entidades Aseguradoras)** was held at the Hotel Don Carlos in Marbella (Málaga). It was organized by the Fundación MAPFRE Estudios and sponsored by the Corporación Mapfre.

The Seminar dealt with the management of its specific risks and the handling of its solvency, in an attempt to propitiate the application of the mechanisms that insurance companies themselves recomend for the management of risks.

The development of this Seminar was not based upon theoretic or legal considerations, but on the long experience of top executives who have analysed the different risks encountered in their professional activity and the strategies used in order to reduce, prevent or transfer them.

The program had three main sections:

— Risks and strategies in the different classes of insurance.

— Internationalization of insurance.

— Management of an insurance company: operative and instrumental factors and challenges.

The Seminar analised the risks and strategies involved in motor, life, health and comprehensive (domestic and industrial) insurance as seen from a managerial point of view, as well as the fact that banking and insurance are coming closer together and the new channels for the distribution of insurance.

The second section dealt with the importance of the **internationalization of the insurance world**, and reference was made to the business growth as counterbalanced by the threat of markets when investing in Direct Insurance. This section included also a multinational perspective of REINSURANCE.

Finally, various papers insisted on pragmatic views of the managerial duties: the organization of insurance companies, the direction of human resources, the controlling cryteria, the data processing, the investing policy, etc... as relevant factors in the management of an insurance company, from both an intrinsic and an extrinsic viewpoint.

In the general sessions, as well as in the simultaneous talks, each exposition was followed by a debate, with a full participation of those present.

The Seminar gathered 20 rapporteurs, Spanish and foreign, and 50 people came from 17 different countries to attend it. Both the Spanish and the English language were used.

Business Game

An important novelty was an exercise of simulation in which five groups (with a president that had been previously appointed) pretended to be running as many nonlife insurance companies which interacted in the same market.

The decisions of each company were processed three times in order to offer new results, and the conclusions drawn were then presented and explained for the «controlling authority» to give its final version.

Other events

Aside from the program of sessions, the participants that chose to do so availed themselves of the opportunity to attend the presentation of the insurance managerial program called «Tronador», and could also witness the on-line connections with the data base of the documentation center of Fundación MAPFRE Estudios.

Close of the Seminar: solvency of insurance as a guarantee in society

The Seminar closed on the 21st of May at the Hotel Don Carlos with a panel that gathered D. José Manuel Martínez, Managing Director of Corporación MAPFRE, Mr Gerard M. Dickinson, Professor at the City University of Great Britain and D. Hugo Sebastián Lavados, Superintendent of Values and Insurance of Chile.

By the end of the session, D. Miguel Angel Martínez read the final conclusions, and this was followed by the interventions of D. Filomeno Mira, President of Fundación MAPFRE Estudios and D. Eduardo Aguilar Fernández-Hontoria, Head of the Spanish Insurance Department. The latter insisted on the risks derived from the solvency margin of insurers.

The social events of the Seminar ended on the 22nd of May with a visit to the Universal Exposition in Seville.

Conclusions

The following table lists some of the essential ideas that focused the debate in the expositions and working groups.

Some of them represent, in the manner of questions, suggestions for future meetings of so highly qualified professionals as these.

D. Filomeno Mira Candel proposed, as a reflection on this Seminar, a decalog of questions regarding risk management in the sector:

1. Does each insurer develop a pure risk management policy? Do insurance companies use the risk management methodology?
2. Have managers at each class and department analysed the fundamental risks in their work?
3. Is there a planned strategy for each class or department?
4. Is there any clear High Solvency Margin policy? Should it be different for each class or line of business?
5. Has the Management defined the strategies of the company for each class?
6. Has CEO defined the structure of the sector according to the management goals?
7. Does the company practise a clear policy, even in relation to ethics?
8. Does the company restructure its organization and human resources very often?
9. Is there a prompt and analytic system of information on the situation?
10. Has the Board considered the suitability of the CEO?

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