It could be said that Hurricane Mitch marked a turning point. Hurricane measurement and forecasting techniques will in the future be influenced by the particular characteristics of this event. From a scientific point of view, new features included the high level of rainfall which accompanied the hurricane, its unpredictable and changeable trajectory and the fact that the areas which were most affected were those which had been deforested and converted into farms. The news section of this publication is necessarily affected by these facts, and we would like to beg forgiveness in advance for the large number of catastrophe related news items; but we believe that they are justified.

During the reinsurance program renewal campaign which has recently come to an end, most insurance and reinsurance professionals have had opportunity to feel the impact of the Y2K problem on treaties. In the article published in this issue, the author gives a summary of a document produced by MAPFRE RE on the behaviour of information technology systems with the arrival of the year 2000, and also some solutions to the problem which arises. The document may be accessed through the MAPFRE RE web site, whose address given in the article. We hope that these pages will thus be able to contribute towards dealing with this problem.
As an introduction, and before dealing with the present state of occupational hazards in Latin America, it is helpful to mention two premises concerning these hazards which constitute the basic principles and primary framework for any country anywhere in the world, independently of whether the administration of these risks is carried out by public or private institutions:

- There should be a differentiated handling from other types of social insurance. Countries which deal with the causes of occupational accidents and their consequences achieve better development and more positive results. Whatever attitude is adopted, it should be remembered that this social risk is different from others - it is characterised by being avoidable, is linked to business activity and arises from business liability.

- Occupational accident insurance should be structured around the worker, if possible to avoid the possibility of an accident, and in the case that an accident does occur, then to provide the best possible medical and rehabilitation assistance. To make this possible it is necessary to use specialised service providers which give a full range of services, in close collaboration with the insurance companies, within a legislative framework which facilitates the achievement of these objectives.

At present in Latin America there is a generalised tendency towards the liberalisation of social insurances, amongst them occupational hazards. There are however significant differences between one country and another.

In chronological order, Chile, Colombia, Argentina and Peru make up the block of countries which, to a greater or lesser degree of maturity, have already evolved in this sense.

The mutual system which exists in Chile is based on Act 16,744 of 1968, although the three mutuals which administer it were set up at the end of the 50s and the beginning of the 60s. This is the Latin American country which has most matured in the overall handling of occupational hazards, with an appropriate co-ordinated application of techniques aimed at prevention, assistance, repair, rehabilitation and recovery. This was made possible thanks to the concurrence of the two basic principles given above. The existence of regulated rates, with a minimum contribution of 0.9% of salaries plus an additional variable contribution depending on the risk category of the activity and a contribution depending on the risk experience of each company (days lost/workersx100) has had a double beneficial effect: competition is based on service and not on price; and companies which invest most in prevention are rewarded by a decrease in the rate they have to pay. The result of both effects is reflected in the decrease in average rates from 3.5% in 1971 to a percentage of less than 2% at present.

Act 100 which was passed in Colombia in December 1993 brought about the liberalisation of the three types of social insurance, occupational hazards insurance for private sector workers being the last one to come into force on August 1, 1994. Professional risk administrators compete with the Instituto de la Seguridad Social which continues to cover around 60% of the workers. It coincides with the Chilean system, although with different calculation methods, in that the rates are regulated and are variable depending on the intrinsic risk of the activity and...
the results which have been obtained by the prevention measures taken by each company. Again, competition resides in the level of service, which is aimed almost exclusively at improving company safety and hygiene. Despite its relative youth, this market has advanced significantly in the handling of occupational hazards, although in order to reach the desired level there is still one aspect of great importance pending: decentralisation and specialisation of assistance and rehabilitation techniques.

Although the principle of employers’ liability existed in Argentina for occupational hazards, the state did not cover them, therefore some employers turned to voluntary private insurance. This situation brought about the so-called “court case industry” due to the large number of civil lawsuits. Act 24,557 which was passed in October 1995 and came into force in July 1996 better protected working conditions in terms of safety and guaranteeing economic and assistance benefits to those involved in accidents, in addition to ending the “court case industry”. Despite the fact that this new system was a great advance over the previous one, the goals which were set have not been reached. To a great extent this is because the high level of competition between entities working in occupational hazards has caused average rates to be brought to very low levels - 1.3% - in addition to which the majority of these companies are not providing service with the desired quality, neither in prevention nor in assistance nor in rehabilitation. The reform of the system is the subject of political debate which aims to increase economic cover, and monitor and punish employers and insurers who do not comply with prevention regulations.

In Peru, Act 26,790 on the modernisation of health social security was enacted in May 1997 and the complementary insurance technical regulations for high-risk jobs were passed in April 1998. This reform signals clear progress in the handling of occupational hazards, but there are still advances to be made in order to achieve the two basic principles, firstly, it is only compulsory to take out this insurance for companies which carry out high-risk activities, hence the term “complementary”, when in fact other activities, although they pose a lower level of risk, also produce occupational accidents which should be treated differently from other social insurances by analysing the origin and consequences. Secondly, the administration of all the processes is not concentrated in one single company, since occupational health advice, medical assistance, rehabilitation and re-adaptation can freely be contracted with the Instituto Peruano de la Seguridad Social or with a health care company; whilst economic benefits for pensions arising from permanent disability or death and burial expenses may be contracted with the Oficina de Normalizacíon Previsional or with an authorised insurance company, who also handle the subsidy for temporary disability once the maximum period covered by the social security system has expired.

With regard to the countries in which the state continues to handle occupational hazards, Brazil, Mexico and Venezuela are of special note due to their economic importance; although the first tentative steps towards liberalisation are being taken in all of them.

In Brazil, the “Ministério da Previdência e Assistência Social” in November 1997 published an alternative legal proposal for occupational accidents insurance, in which the creation of not for profit private mutuals was considered. A working party has been formed within the Federacion Nacional de Seguradoras in order to follow up on the official projects and provide technical comments.

In Mexico, retirement fund administrators have managed pensions since July 1997. The latest reforms of the Social Insurance Act with respect to occupational hazards includes the possibility that some economic benefits may be insured with the private sector. The Asociación Mexicana de Instituciones de Seguros has created an occupational hazards committee with the aim of carrying out comparative studies of different countries and analysing future liberalisation.

In Venezuela, the Ministrio de Trabajo y Seguridad Social has drafted a Bill for the reform of the health sub-system in December 1997. Changes made to this Bill in 1998 make a provision for the existence of occupational hazards administrators to provide benefits for occupational accidents and occupational disease and sickness.
Some lessons learned from the effects of hurricane Georges in the Dominican Republic

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MAPFRE RE has always been characterised by its emphasis on service, both towards its clients and towards society as a whole. Following on from this principle, confronted by the impact of Hurricane Georges in the Dominican Republic, and after expressing MAPFRE RE’s complete readiness to meet its responsibilities as a reinsurer, it was decided to carry out an on the spot analysis of the event, its evolution and its consequences from a technical and insurance point of view.

The purpose of the visit was to collect information on the damage which had been caused in the country in order to be able to draw technical and insurance conclusions. The ultimate aim would be to improve technical criteria in order to be better equipped, from an insurance and social point of view, to deal with natural phenomena such as Hurricane Georges.

This article will give some relevant data and initial conclusions; showing this experience to have been very positive. At the time of writing, the information which was collected is continuing to be analysed, and more information on the event is still awaited from the Dominican market, without whose valuable collaboration this study would not be possible.

SPECIFIC DATA ON HURRICANE GEORGES ON ITS JOURNEY THROUGH THE DOMINICAN REPUBLIC

Already situated on the Canal de la Mona after crossing the island of Puerto Rico on 21 September 1998, as a category 2 hurricane, it was forecast to move towards the northern coast of the Dominican Republic.

Despite the predictions, it veered to the south-east and its eye crossed the Dominican Republic from its most eastern southern extreme, coming in from the island of Saona and the Parque Nacional del Este. This circumstance was decisive in avoiding that the storm surge would not penetrate the southern coasts of the island. Again over the sea, across from San Pedro de Macoris and La Romana, it temporarily increased to a category 3 hurricane with winds of 190 km/h in the afternoon of the 22nd. The eye travelled over approximately 350 kilometres of the country in some 12 hours. In contrast to what happened in Puerto Rico, Georges left the country for Haiti as a category 1 hurricane. The central ridge of mountains to the north-east of the country reduced the intensity of Georges and altered its course by channelling it through the San Juan valley.

TECHNICAL ASPECTS

Some of the main technical aspects collected from the fieldwork are given below:
- The assets which suffered the most generalised damage were secondary elements of considerable height, such as traffic lights, electricity distribution towers, advertising hoardings, posts, fences, antennas and awnings. In many cases these elements produced additional damage by collapsing onto adjoining property (fences, motor vehicles, housing, etc.), which gave rise to third party liability claims.
- It has been seen that adequate self-protection against the hurricane...
were located outside industrial complexes or on their fringes. In these cases the PML could increase to 25 to 30%.

• Sports complexes. In the majority of cases there was considerable damage, caused due to the structure of the installations themselves: normally not compartmentalised and of great volume, with annexed elements of relatively large height and necessarily located in open areas.

CONCLUSIONS

Losses of US $380 million are expected for the insurance sector in the Dominican Republic. The PML is estimated at 3.5%.

The visit, which was made in order to experience the effects of Hurricane Georges in the Dominican Republic, has shown that considerable damage can result from the failure of small structural elements (e.g. anchoring points in roofs). In addition to this, age and state of conservation have been confirmed as factors which alter the resistance of those structural elements. It is also important to note that adequate self protections reduce the destructive effects of hurricanes on structural elements.

Although it was not exceptionally intense, Hurricane Georges affected a vast number of countries with considerable tenacity and strength, due principally to the fact that it was able to regenerate itself in favourable oceanic and atmospheric conditions which allowed it to survive and recover after crossing significant expanses of land.

Events such as hurricane Georges demonstrate that catastrophe prices should not solely be left to the fluctuations of the world market nor exclusively determined by the domestic sector. The Caribbean area, per se, has historically exhibited hazard levels which are aggravated by human pressure on the environment, risk levels are therefore reached whose prices must, at the very least, be constant, and it would also be desirable if the prices were tailored to the area’s ever growing vulnerability.

Abbreviation of the term probable maximum loss. Although this expression is used prior to the actual occurrence of the accident, in the insurance jargon it is used semantically incorrectly to contemplate the analysis of damage incurred as a result of the accident actually having happened. Thusly taking into account this irregularity, from here on we will refer to the percentage of damage in relation to the insured sums as PML.
Recommendations on the Y2K problem

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Computer hardware is based on processors, and these have a micro-program written in machine language or “firmware” which is saved in non-erasable (it is not erased after switching off the computer) internal memory. This micro-program is called the BIOS, and carries out a number of routines involving dates. It is possible that these routines will not be able to handle dates AFTER 1999, and therefore after December 31, 1999 the BIOS will cause the processor either not to work at all, to malfunction or simply to assume that the date is 1900.

It is important to note that not only processors have a BIOS; many other computer components may have their own BIOS in order to allow them to work in a specific manner (disk controller cards, modems, network cards, etc.).

The following steps should be carried out with regard to the hardware and the operating system:

1. Make an inventory of existing computers — remember that not all computers have the physical shape of a computer. The first recommendation with respect to this inventory is to replace all computers manufactured earlier than 1995 with new equipment. Independently of this, the supplier of each piece of equipment should be asked to provide a certificate stating that it is year 2000 compliant.

2. The following actions should be carried out in each piece of hardware on the inventory, first at setup level and then at operating system level (if the piece of hardware does not have setup, then the action should only be carried out on an operating system level):

   a) First change the date, verifying that it will accept dates higher than 2000 (that it will allow this number to be entered in the date option of setup), and then that the equipment will boot with the new date and that it works correctly.

   b) At setup level, change the date and time to 31-12-1999, 23:55, boot the machine and wait to see if the date and time changes to 01-01-2000, 00:01, verify that this change has also occurred correctly at setup level.

   c) At setup level, change the date and time to 31-12-1999, 23:55, switch off the machine, wait, and then boot the computer again. Verify that the change has been accepted correctly and that on booting the system the time and date is 01-1-2000, 00:01 or greater, also at setup level.

   d) Change the date to check that it will accept 29-02-2000 (that it will allow this figure to be entered into the date option of setup), and then check that the hardware boots with the new date, and that it works correctly.

   e) Change the date and time at setup level to 28-02-2000, 23:55, reboot the computer and wait to see that the date and time changes correctly to 29-02-2000, 00:01, check that this change has also occurred at setup level.

   f) Change the date and time at setup level to 28-02-2000, 23:55, switch off the computer, wait, and then reboot, check that the change has occurred correctly and that on booting the system the date is 29-02-2000, 00:01 or greater, also at setup level.

3. Carry out an inventory of each computer’s peripherals and ancillary equipment and determine

The Y2K problem is already showing itself in many companies, and this is only just the beginning. The aim of this article is to offer a number of technical recommendations in order to try to avoid, or at least minimise, the effects of the change in millennium. In reality this article is a summary of part of a document entitled “The Behaviour of Computer Systems with the Arrival of the Year 2000: The Y2K Problem and its Solutions” which is available on MAPFRE RE’s web site at: http://www.mapfre.com/2000.
whether their behaviour depends on the date (paying special attention to those components which have their own BIOS, as these may have their own setup). Knowing the functioning of each component at the present date, the equipment’s date is changed (setup). It is then rebooted. Checks are made to ensure that each of the components on the inventory functions in exactly the same way as previously.

4. If there have been any failures when carrying out the above steps, then the manufacturer or supplier of components which have not functioned correctly should be contacted in order to request a new BIOS. If, for some reason, it is foreseen that an updated BIOS will not be available before 31-12-1999, then, depending on the criticality of the system, the equipment may have to be replaced.

The supplier of new purchases should give a written guarantee that the system is year 2000 compliant, and in each case this should be independently verified before accepting delivery of equipment.

With regard to programs, these may either be “off the shelf” or “tailor made”.

For off the shelf programs, the best solution is to acquire an updated version, or to replace it with another program with similar functionality which is year 2000 compliant. In general, the supplier will already have solved the problem in an updated version and the cost of upgrading the program is always lower than the costs which are incurred whilst trying to solve the problem.

“Tailor made” programs usually cause the greatest problems, as there tend to be many of them, they may be very large and they may be used in different systems etc. The solution depends on the computing and time resources which are available (in general, assets which are in scarce supply).

There are however various ways of solving the problem:

3. Replacing tailor made applications with off the shelf packages.
4. Increasing the date to four digits.
5. Interpretation of dates.
6. Windows techniques.
7. Compression systems.

There is no one perfect solution, and which one is adopted depends on the environment, programs, quantity of data, human resources etc. In many cases it is necessary to adopt a hybrid solution.

Greater details on these techniques are available at: http://www.mapfrere.com/2000.

With respect to the data, whether their behaviour depends on the date (paying special attention to those components which have their own BIOS, as these may have their own setup). Knowing the functioning of each component at the present date, the equipment’s date is changed (setup). It is then rebooted. Checks are made to ensure that each of the components on the inventory functions in exactly the same way as previously.

Lastly, with regard to communications, apart from the hardware which has already been examined, it is possible that the system under study communicates electronically with other companies (via EDI or similar) and may therefore send and/or receive data to/from other external applications. In these cases, it is necessary above all to reach an agreement with these other companies so that the solution which is adopted for the format of the data is the same. It is of little use if one company uses a compression system, another an interpretation system another a windows system etc.

It is true that to achieve agreement amongst various companies with the different I. T. systems can be a rather difficult task, the best solution would be for the exchange of data to be done using an established format (preferably data expansion), for each company to use the techniques which it wishes and to construct routines which isolate the applications from the data to be exchanged, which would in turn be converted in both directions according to need.
CENTRAL AMERICA. Hurricane Mitch, which battered Central America towards the end of October, 1998, left its mark in Honduras, Guatemala, Nicaragua and El Salvador - the most affected countries. Leaving a balance of some 10,000 deaths, it is amongst the five most devastating hurricanes on record in the Atlantic Basin, an area controlled by the Miami Hurricane Center. Mitch has been something more than just a natural disaster, it has also underline the extreme vulnerability of settlements situated in areas which have been cleared by deforestation and agricultural practices. These factors, together with uncertainties concerning the prediction of its track and the extraordinary volume of water which it left behind, have led scientists to again consider defining a new hurricane measurement scale which would include, in addition to wind thresholds, the hazard level in terms of foreseeable precipitation and potential impact on human lives. Total economic losses for the whole region are estimated at USD 5,200,000, and are broken down as follows: 3,000 in Honduras, 1,500 in Nicaragua, 550 in Guatemala, 133 in El Salvador and 50 in Costa Rica.

ARGENTINA. Through a resolution of the insurance regulatory body, as from October 1 the register for the creation of new insurance companies in the country was reopened. New minimum capital requirements were set for companies already in operation, with higher values for new companies. As an example of one of the greatest changes, the minimum capital requirements for a company operating in all business lines (motor, property and casualty and life), which previously had been required to have a minimum capital of USD 550,000 would now be required to have a minimum capital of USD 3,000,000; a period of eight (8) quarters is permitted in order to make up the difference.

In the case of new companies which wish to operate in all business lines, the minimum capital requirement is USD 10,000,000, & USD 5,000,000 for life business, as this is treated as a line separate from the rest.

Minimum capital requirements have been set by groups of business lines:

<table>
<thead>
<tr>
<th>Existing Companies</th>
<th>New Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Business</td>
<td>2,250,000</td>
</tr>
<tr>
<td>10,000,000</td>
<td></td>
</tr>
<tr>
<td>All other Lines</td>
<td>750,000</td>
</tr>
<tr>
<td>5,000,000</td>
<td></td>
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</tbody>
</table>

Data in USD.

News

BRAZIL. One of the important points in this reinsurance contracts renewal campaign on an international level will be the way that different markets deal with the matter of the millennium bug.

In Brazil, the insurance companies, through FENASEG, drafted an endorsement with the corresponding exclusions which was authorised by the Superintendencia de Seguros Privados (the regulatory body for insurance). The IRB also informed the market that new insurances and renewals, with the exception of life, health and occupational accident would be subject to that clause.

BRAZIL. In the recent accord which Brazil signed with the IMF in order to receive a loan of USD 40,000,000, in the section entitled «Economic Programme of the Government», it was stated that the Instituto de Reaseguros do Brasil would be one of the companies to be privatised during the coming year.

GREECE. The financial result for motor businesses in 1997 worsened in relation to that of 1996. The economic loss rose from GRD 9.7 bn in 1996 (or 6% of motor premiums) to GRD 35.1 billion in 1997 (or 19,2% of premiums).

In 1997, claims paid for motor business from all insurance companies increased by 32% compared to the previous year, and rose to GRD 168.7 billion.

In the same period, the average net third party liability premium increased by only 5,4%.

We should also mention that the estimated average cost of the claims for bodily injuries increased by 85% as a result, mostly, of the steep growth in the cover limits for cases of bodily injuries, from GRD 70 million to GRD 150 million in 1996.

THE PHILIPPINES. On October 14, 1998, the Super-Typhoon Zeb (local name: Iliang) swept into Philippine territory from the north-east of the island of Luzon, with sustained winds of 280 km/h and gusts of 300 km/h. The most affected sector was agriculture, and the northern provinces - where rice cultivation is the principal activity - were the ones to suffer most. There was no significant damage in the rest of the country. On October 15 Zeb moved over the island of Taiwan, battering the east coast with sustained winds of 155 km/h and peak gusts of 191 km/h, resulting in the deaths of 28 people and paralysing the country. Lastly, and already weaker, Zeb reached the Japanese archipelago on October 16, starting with the island of Kyushu, the most southern. After running the length of Japan it left a dozen fatalities in its wake.

On October 21, 1998, the Super-Typhoon Babs (local name: Loleng) entered through the Catanduanes region with winds of 235 km/h, and then crossed the island of Luzon from east to west. The Bicol region was the most affected, and the capital, Manila, was practically paralysed and kept on alert for 48 hours under threat of a direct impact. Finally the eye of Babs passed 80 km to the north of Manila, leaving behind more than 160 deaths. It later re-emerged on the Sea of China on October 24, threatening Hong Kong, although in the end it passed through the Taiwan Strait on October 27 with sustained winds of 81 km/h and gusts of 100 km/h, hitting Taiwan and various Chinese coastal provinces such as Guangdong and Fujian with the strong winds and rain as a tropical storm.

The passage of typhoons Babs and Zeb through the Philippines left an aftermath of agricultural losses of PHI4,000,000, which may affect the growth figures for the domestic economy in 1998.

SPAIN. On November 25, 1998 the Boletín Oficial del Estado published the new regulation and supervision of insurance ordi- nance, this will come into force on January 1, 1999. This important regulation, approved with a delay of three years over the initially fore- seen period, was announced as an adjunct to the precepts of Act 30/1995 of November 8, 1995.

The aim of this regulation, which is exten- sive and complex (the regulation is divided into 140 articles, seven additional regulations and 10 transitory regulation(s)) is to provide the Spanish insurance market with a stable and complete regulatory framework to aid the insurance sector and also to protect policyholders.

To this end, the new text pays special at- tention to the solvency requirements of insurance companies, principally through the supervision by the Directorate General for Insurance of adequate levels of premiums and technical reserves, together with the new reserve for unearned premiums.

This regulation is only the first of other regulations affecting the insurance sector which will be passed in the near future, such as the Third Party Liability Regulation for Mo- tor Vehicles, the regulation concerning social welfare companies, regulations concerning pension plans and concerning the rate of in- terest applicable to life insurance.