

Climate Change and the Global Insurance Industry: Impacts and Problems in Latin America

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Latin America is particularly susceptible to the consequences of climate change and has low insurance penetration. Urgent solutions are needed to establish a better socioeconomic framework to cope with ordinary and extraordinary losses following climate-related events. Developed countries have a role to play in mitigating these losses by sharing with developing countries their long experience in scientific research and more advanced weather and climate monitoring and forecasting.

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Colon Declaration

The Spanish Ministry of the Environment and the Spanish Office for Climate Change backed the report *Preliminary Assessment of the Impacts of Climate Change in Spain* that was published in 2005. The ACACIA project (“A Concerted Action Towards A Comprehensive Climate Impact and Adaptation Assessment for the European Union”) was published in 2000 and was the European predecessor of the Spanish one. The Spanish Ministry of the Environment thus shares Spain’s and Europe’s experience on the assessment of the impact of climatic change with the countries of Latin America. With respect to this, the Latin American ministers of the environment, meeting in September 2005 in Colon, Panama, made the following formal declaration, which in essence states:

- (a) Climatic change constitutes a pressing problem for Latin America, and a growing threat to the environment, sustainable development and vulnerable populations. It is necessary to have appropriate prevention, adaptation and mitigation strategies to deal with this reality. Within this framework, it should be stressed that the region, although having less than one-sixth of the land area of the planet and 6 per cent of the world’s population, has more than one quarter of the world’s total surface water run-off, 40 per cent of its animal and plant species and a quarter of the planet’s forests; two of the region’s countries are among the three most vulnerable in the world.
- (b) A severe water crisis is imminent, and the region’s population will be exposed to it – especially where this resource is most needed.
- (c) Special emphasis should be made on the region’s social, economic and environmental vulnerability to the adverse effects of climatic change, particularly in the Caribbean and island development areas. Mention should also be made of

- the effects on mountain and coastal marine ecosystems, glaciers and tropical forests.
- (d) The important role of the natural forests with regard to, among other things, climate stability should be remembered, together with the need to increase efforts to avoid the growing deforestation and degradation of the earth.
 - (e) The role of the Latin American Network of offices for Climate Change (RIOCC) for the strengthening of the national and regional processes aiming to urgently incorporate adaptation to climatic change into development policies is confirmed.
 - (f) The development of a Latin American meteorology and climate study cooperation programme is given support.

Zones vulnerable to climate change

The countries considered within Latin America are located in latitudes from the Northern hemisphere at 32°N to 55°S in the Southern hemisphere, meaning that a full range of mild, tropical and equatorial climates can be enjoyed or suffered.

From a practical point of view, the areas most vulnerable to climate change, by type of phenomenon are:

Hurricanes: Both coasts of Mexico, the Pacific and the Caribbean, but mainly the coastal margins. Also whole islands in the Caribbean and all countries in Central America are threatened by higher levels of tropical cyclone activity.

Floods: The combination of steep slopes, saturated soils, variations in precipitation patterns, unsuitable infrastructure and occupation of riverbeds, together with persistent rainfall and glacier melting will lead to an even worse situation if there are more intense rains due to climate change.

Droughts: The South American *grain heart*, that is southern Brazil, northern Uruguay, Paraguay and northern Argentina, suffers from the prolonged lack of water. There are good opportunities for crop insurance, but better water management is recommended.

“El Niño”: A variation of El Niño – Southern Oscillation (ENSO) occurrence pattern will bring climatic changes to Ecuador, Peru, Chile and the Northeast of Brazil mainly. Some drought periods in Mexico have occurred during ENSO years. Aquaculture and fisheries will be threatened and insurance of these must act in advance. “La Niña” conditions have been blamed for floods in Colombia and drought in Southern Brazil. Any variation in these “El Niño” and “La Niña” cycles will bring severe disruption to the threatened countries.

Mountain glaciers: The loss of freshwater mass retained in the peaks as a consequence of global warming leads to changes in river courses, hydroelectric energy, shipping and boating routes, along with changes in tourism uses.

Other natural perils: Winter storms in the Southern Cone, above all along the coasts of Chile and Argentina. The effects of the variation in size and location of the ozone hole over the Antarctic are tied to variations in temperatures and ultraviolet radiation. The southernmost latitudes of South America are the areas which are most threatened.

The insurance market and climate conditions

The Latin American share of the world market premium is 1.5 per cent (2004). This is split into life and non-life premiums at 41 per cent and 59 per cent, respectively.

Owing to the fact that many of these countries are small in size as well as in insurance penetration, a selection of the relatively bigger markets has been taken among the most representative of different climates for the purpose of this paper (see Table 1).

Hurricanes: They cause material damage as a result of wind and rainfall. Floods and storms are secondary perils. Hurricane insurance (or *named perils* such as wind and flood) is available in Mexico and rest of the Caribbean islands as a general rule and as a complementary cover to basic fire insurance in property policies with additional surcharges. Flood cover is excluded in Puerto Rico in residential and commercial risks; private cover, however, is available through the NFIP (National Flood Insurance Program) in the U.S. Severe hurricanes making direct landfall in small countries such as Puerto Rico have been a new landmark in the insurance market (i.e., hurricane Hugo in 1989, hurricane Georges in 1998). Slow hurricane tracks can lead to complete destruction of the infrastructure (hurricane Mitch in Central America, 1998) and when a storm moves at a slow pace over areas with concentration of high values, a huge loss results (hurricane Wilma 2006 in the Cancun area in Mexico).

Commercial cat models do not consider hurricane impacts in the Caribbean and Mexican coasts with the same accuracy as is applied in the U.S. East coast and Gulf States, even though *clash losses* affecting several territories do happen and must be expected in the future.

Hurricanes are fuelled by sea surface temperature of 27°C or higher, so the direct conclusion arising from the postulated global warming is that an increased number of tropical storms must be expected. Discussion is taking place among experts (although they have not reached agreement) as ocean circulation and multidecadal oscillations overlap their effects on the general context.

Table 1 Different climates and their impact in Latin America

<i>Country</i>	<i>Location</i>	<i>Climate</i>	<i>Main perils</i>	<i>Share of lat. ins. market 2004</i>
Mexico	Northern Hemisphere	Moderate to Tropical. Dry in some areas	Hurricanes, droughts, floods	25.7 per cent
Puerto Rico	Northern Hemisphere	Tropical	Hurricanes, floods	13.4 per cent
Peru/Ecuador	Northern and Southern Hemisphere	Equatorial and Tropical. Dry in some areas	ENSO and allied	1.7 per cent Peru 1.0 per cent Ecuador
Argentina/Brazil	Southern Hemisphere	Temperate. Dry in some areas	Droughts and floods. ENSO and allied	7.7 per cent Argentina 27.1 per cent Brazil

Meanwhile, Latin American insurance companies in Northern-hemisphere countries suffer an increase in international reinsurance costs when a hurricane does not make landfall in their territory but does so in the U.S. Luckily, South America is not threatened by hurricanes: Argentina, Brazil (although a sort of hurricane, “Santa Caterina”, was observed in March 2004), Peru and Ecuador are hurricane-free because of the cold waters that surround their coasts and the weak vertical wind shear that makes tropical storms increase in strength.

The time framework of a hurricane’s life (days), coping with its socioeconomic consequences (days, months, years) and preparing for the next hurricane event (months, years) that will certainly arrive (sometimes within the same hurricane season) seem more urgent than, perhaps, researching the effects of climate change in Latin American and Caribbean countries.

Floods: They happen following hurricanes, but are also a result of persistent and/or intense rainfall, normally aggravated by deforestation. Additionally, settlements located in flat and low lying terrains close to rivers and coasts are prone to floods.

Droughts: They affect mainly crops and livestock. Insurance cover is offered in somewhat mature markets, as it protects from loss of yield instead of pure damage (i.e., hail). A long history of statistical information and high technology farming are key factors for drought cover to be offered by insurance companies specialised in agrobusiness. Pools of crop and livestock insurance are not common in Latin America, and their creation should be encouraged.

There is a high potential for crop insurance business in Brazil. But the Brazilian crop insurance market suffered a decline from a premium volume of USD 22 million in 2003 to USD 11 million in 2005, following a multiyear drought in the southern states. Argentina is the other main country that supplies grain to the rest of the world, together with Brazil and the U.S. Hail insurance is the main cover that can be bought by a farmer in Argentina.

The time framework of droughts (months, years) and the geographic scope are difficult to measure. High penetration of crop insurance, adequate agricultural practices along with a state subsidy supporting the premium might be a good starting point to tackle a drought crisis in the future. Sophisticated and well-advanced scientific studies will bring progress.

ENSO: ENSO years are said to be responsible for a lower number of hurricanes in the North Atlantic and Caribbean area, while “La Niña” years are blamed for more frequent and severe hurricanes affecting the Caribbean and the U.S. East coast. These ENSO, “neutral” and “La Niña” cycle years have been taking place for centuries and, in principle, have nothing to do with climate change.

Strong ENSO episodes bring intense rainfall in Ecuador and Peru that result in extensive flooding.

Reflections

Current climatic and meteorological conditions are themselves a problem in Latin American countries and, considering their consequences, are not being properly dealt with. Examples such as hurricane Georges in the Caribbean countries (1998),

hurricane Mitch in Central America (1998), hurricane Wilma in Mexico (2006), ENSO in Peru and Ecuador (1998) and drought in Brazil (2003–2006), just to mention the most costly ones in human, economic and insured terms, always surprise scientists, politicians and the population in general. Urgent solutions are needed to establish a better socioeconomic framework to cope with ordinary and extraordinary losses following climate-related events, even before any change in climate patterns is detected.

Developed countries with long experience in scientific research and more advanced weather and climate monitoring and forecasting are obliged to share their knowledge in these fields with the less advanced countries. Global telecommunications constitute the best way to do so. Standard technical approaches on a country-by-country basis should be followed in order to make comparison and consolidation of results easier.

The Spanish government, through its Ministry of the Environment, promoted the creation of a Latin American Network of Offices for Climate Change (RIOCC) to exchange experiences, identify priorities and difficulties and maintain common positions in international negotiations during climate change forums. In October 2005, the Spanish Ministry of the Environment proposed the creation of a Latin American Program of Vulnerability, Impact and Adaptation to the effects of climate change, where priorities were given to the study of water resources and permanent climate monitoring.

The IPCC¹ experts must make their conclusions understandable and applicable, so as to be the subject of discussion and analysis within the rest of the environmental, socio-economic and human health-related sectors. Ambiguous, obscure and alarming declarations are not good for present or future mankind. Specific impacts for Latin American countries must be identified in order to minimise the overall negative affects and to maximise the positive ones.

Politicians' role is to allocate resources according to a time framework set by scientists, always taking into account the most urgent problems first (famine, disease, violence, poverty). Some Latin American countries are exposed to political risks that form a disincentive for foreign investments and reduce the budget for R&D, prevention measures and monitoring of climate processes and their consequences. Certain economic adverse events constitute an additional factor which put an end to any positive initiatives.

Insurance penetration in Latin American countries is not high enough to furnish sound catastrophe loss statistics. And – what is worse – the insurance of natural perils is not well spread through all levels of the population, so it only contributes to a small share of the total economic loss. The cover of wind losses in property insurance, and of drought losses in crop insurance, are the most common and demanded ones. Alternative Risk Transfer mechanisms (ART) are normally used in more mature insurance markets, but should be considered for Latin America in a near future.

International corporations with headquarters in first world countries must transfer their experience in risk management so as not to build in the areas most exposed to

¹ IPCC: Intergovernmental Panel on Climate Change was established by the World Meteorological Organization, WMO and the United Nations Environment Programme, UNEP in 1988.

natural events. A culture of not overexploiting natural resources, mainly water and forests, should be spread all over the world.

International insurance companies in Latin American countries must share their views of technical approaches to cope with climate-related events and possible future worsening of an already catastrophic pattern. The involvement of governments with long-term commitments makes the possible solutions even more flexible from an insurance perspective.

International reinsurers play a crucial role in the whole process, not only providing capacity but also worldwide experience. An adaptation to particularities of each and every market's idiosyncrasies is required.

Cooperation formulas between states in the same climatic region and with the local insurance sector and international reinsurance are vital in order to confront the current problem of climatic conditions and possible future negative developments. Examples such as the Consorcio de Compensación de Seguros and the Sistema de Seguros Agrarios in Spain demonstrate that this is possible.

As an extension of the cultural and historical ties with Latin America, Spain and other European countries frequently play the role of passing on the lessons that have been learned in the European economic, social and political context. There is also an exchange of knowledge such as that mentioned between Latin America's ministries of the environment concerning climatic change and whose decisions are then communicated to the administration and scientists. The working guidelines should acquire an imposed inertia following a balanced appraisal of the situation, giving priority to the most important matters, such as the systematic and standardised collection and recording of climatic and meteorological information in the whole region. Correct decisions can only be made through rigorous analysis of this information.

In the economic context, in answer to this strategy many Spanish and European companies have shared the strategies which have been successful in the European market with Latin America, while at the same time learning from all these local markets and adapting their products and processes to the dynamic and cultural needs specific to each area.

The most highly developed countries (without doubt those which pollute most) could play a guiding role in the less favoured regions of the world, sometimes those which are most punished by the effects of nature, where the most urgent short-term needs can obscure attention to matters such as the assessment of the long-term impacts of possible climate change.

About the Author

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