



**The International
Insurance - Reinsurance Forum**



**REINSURING NATCAT RISKS CONFERENCE,
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BUCHAREST – “THE SEISMIC CAPITAL” OF THE EUROPEAN UNION AND THE GEARS OF NATCAT INSURANCE

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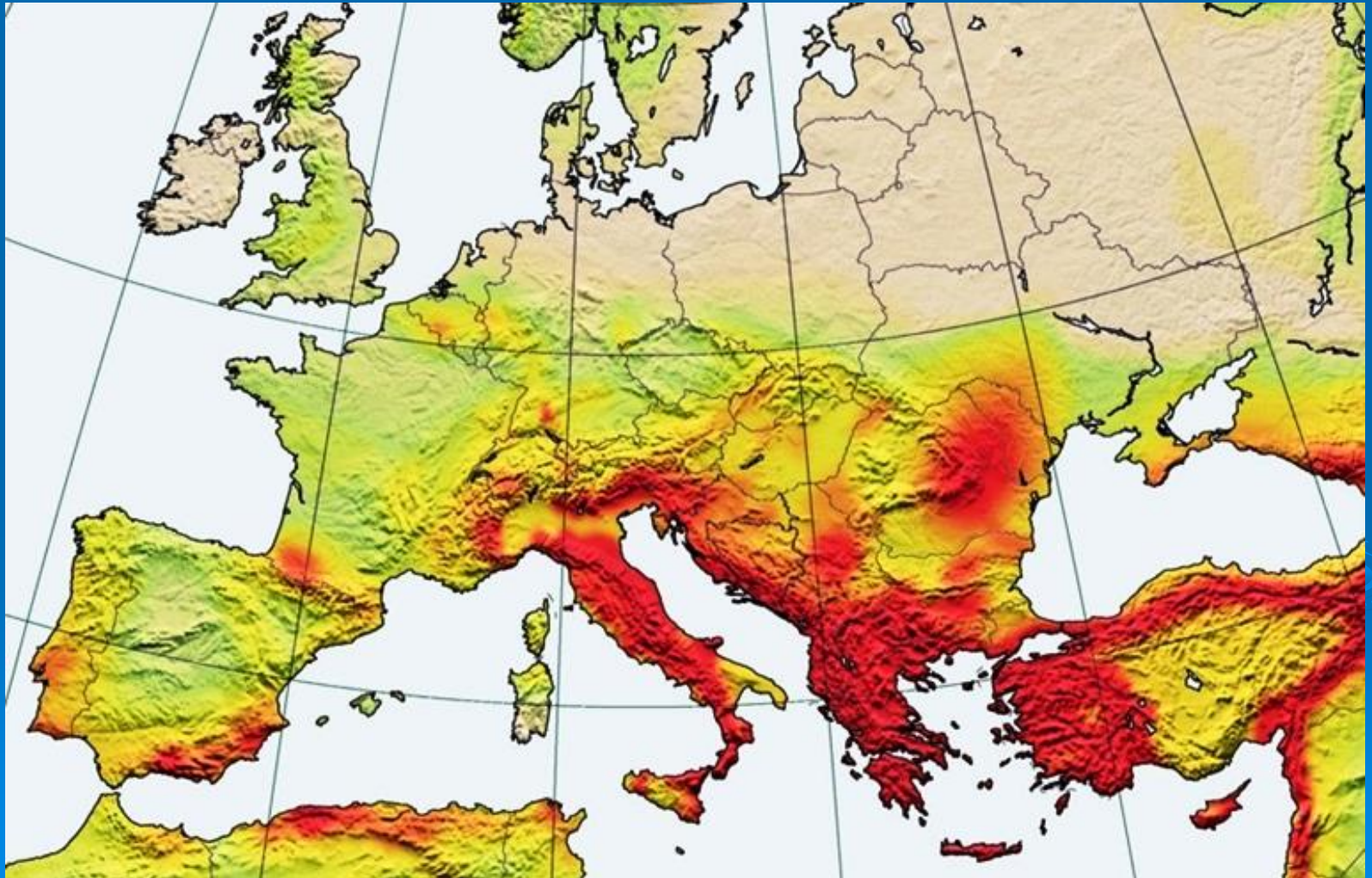
**European Center for Buildings Rehabilitation-
ECBR**



WHERE WE ARE ?
ARE YOU FEARFUL OF THIS CITY ?
OR DO YOU FEEL SOME “PRIDE” ?

- The Guardian: Bucharest’s risky reputation as “Europe’s Earthquake Capital” (By Newsroom News March 25, 2014)
- ”Bucharest is the most earthquake-prone capital in Europe...”
- “Bucharest is the most dangerous major city in Europe when it comes to earthquakes...”

**HOW IS BUCHAREST ON ESC SEISMIC HAZARD MAP
(2003) ? IN SOME RED-ORANGE COLOR...
THE ISSUE IS NOT ONLY THE HAZARD,
VULNERABILITY AND EXPOSURE HAVE A ROLE**



IT IS INDEED BUCHAREST THE CITY WITH HIGHEST SEISMIC RISK IN EUROPE ?

HISTORICAL EARTHQUAKE DISASTERS IN EUROPE

- Lisbon, 1755 – 30-40,000 ?
- Messina, 1908 – 75,000 ...200,000 ?? deaths
- Avezzano, 1915 – 33,000 deaths
- Friuli, 1976 – 1,000 deaths, 2,400 injured
- Irpinia, 1980 – 1,404 deaths; 4,624–7,000 injuries.
- Skopje, 1963 – 1,070 deaths, 3-4,000 injured

HISTORICAL DATA ON ROMANIA

- Vrancea, 1940 - 593 deaths; 1,271 injured;
 - Out of these, in Bucharest 140 deaths and 300 injured
- Vrancea, 1977 – 1,578 deaths; 11,321 injured;
 - Out of these, in Bucharest 1,424 deaths and 7,598 injured

March 4, 1977 M 7.2 Romania earthquake

Casualties :

- 1,578 deaths (1,424 or 90% in Bucharest)
- 11,321 injured (7,600 or 68% in Bucharest)

Damage to constructions 69.4% of the total or 84.3% of the direct losses (WB Report, 1978);

□the **housing sector losses** (US\$1.0328 billion) represented 71.4% of construction losses, or 61.4% of the direct losses and 50.4% of the total losses;

□MINISTRY OF FINANCE + ADAS –

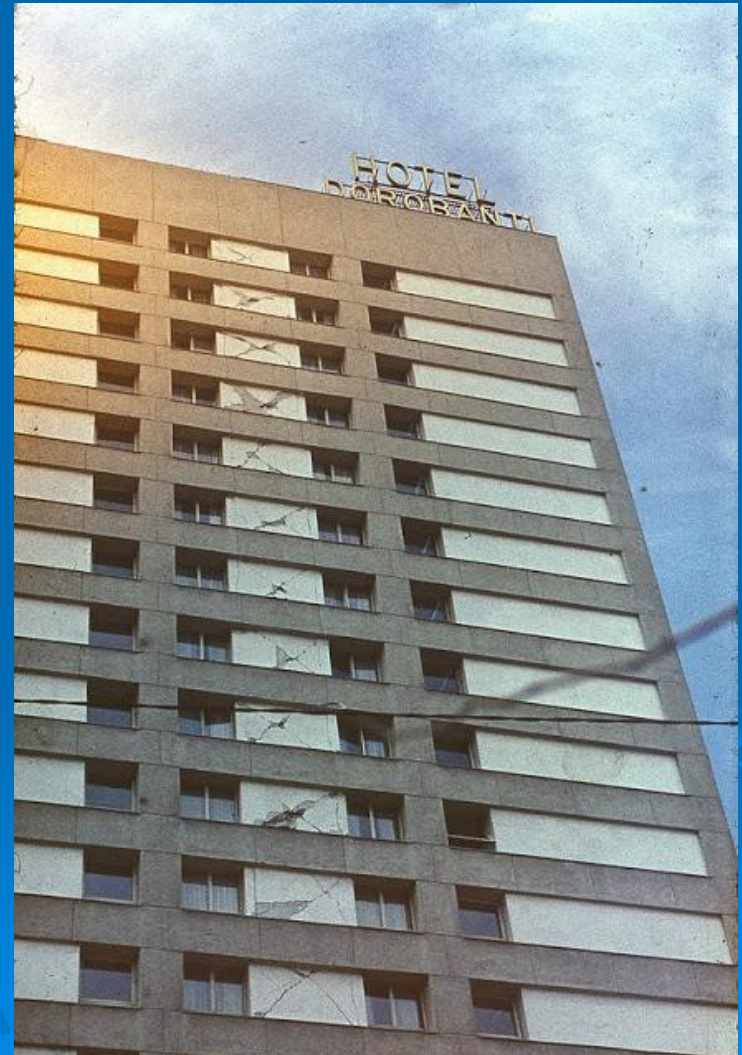
A very fast work of field assessment for insurance

□377,700 claims settled in June 20, 1977 !

□26,000 registered cases, mostly in Bucharest, waiting for strengthening, probably not achieved after July 4, 1977,

DOROBANTI HOTEL AFTER MARCH 4, 1977

- Tall structure with central core or tube in tube system
- Well designed
- Shear damage to spandrel walls because of strong long-period seismic Motion
- Good seismic response
- Structure was reinforced



ROMANIA VS. BUCHAREST SPECIFIC RISK

- Vrancea source - Great magnitude events at decades interval – mean value 3 times a century for some 1,000 years data
- Almost 50% of Romania is exposed at risk at each Vrancea earthquake
- **Annual seismic risk is reduced, as compared with traffic and other health risks, vulnerability of traditional buildings is moderate**
- But accumulated vulnerability and exposure are higher for pre-1940 high-rise structures in Bucharest, without earthquake design, damaged in 1940 and 1977 and not strengthened, also for some pre-1977 structures
- **BUCHAREST**
- Ca. 2,500 bldg. listed at risk
- Risk I – 348; **RED DOT**
- Risk II – IV 429;
- U 1...3 – 1577;
- Nonclassif - 145

MANY ROMANIANS HOPE IN E.U. AID IN CASE OF DISASTER....BUT E.U. HAS OTHER JOBS TO DO...

➤ E.U. priorities:

- Environment
- Human rights and democracy, lawful state
- Free circulation of products
- Cohesion
- Health

➤ E.U. Realities

- Tobacco – Smoking - Cancer prevention
- E.U. Parliament data (...) – 700,000 deaths / year from smoking
- Car accident deaths – ca. 25,000 per year
- Immigrants

THE E.U. AND ROMANIA HAVE TWO GEARS IN DISASTER PREVENTION MATTERS

- Civil Protection Mechanism and Solidarity Fund – POST DISASTER
- E.U. Internal Security Strategy (2010)
- E.U. Directives – e. g. for Floods
- E.U. Parliament Resolution (2007)
- Car Accident Liability – Insurance – common rules and rates – private industry with public control regulations
- Insurance and Reinsurance – private industry

European Parliament Resolution and E.C. Strategy

- On 14 November 2007, the European Parliament adopted a resolution ([P6_TA\(2007\)0507](#)) on an integrated approach to earthquakes by the EU, as regards precautionary measures, response and rehabilitation.
- This resolution is the first and the only text adopted by a European institution solely and exclusively devoted to earthquakes which calls on the Commission forthwith to take a series of practical measures to improve, inter alia, civil defence, the strengthening of buildings, funding and research.
- The EU Internal Security Strategy in Action: Five steps towards a more secure Europe, 2010 - a more coherent approach to threat and risk assessment and risk management.

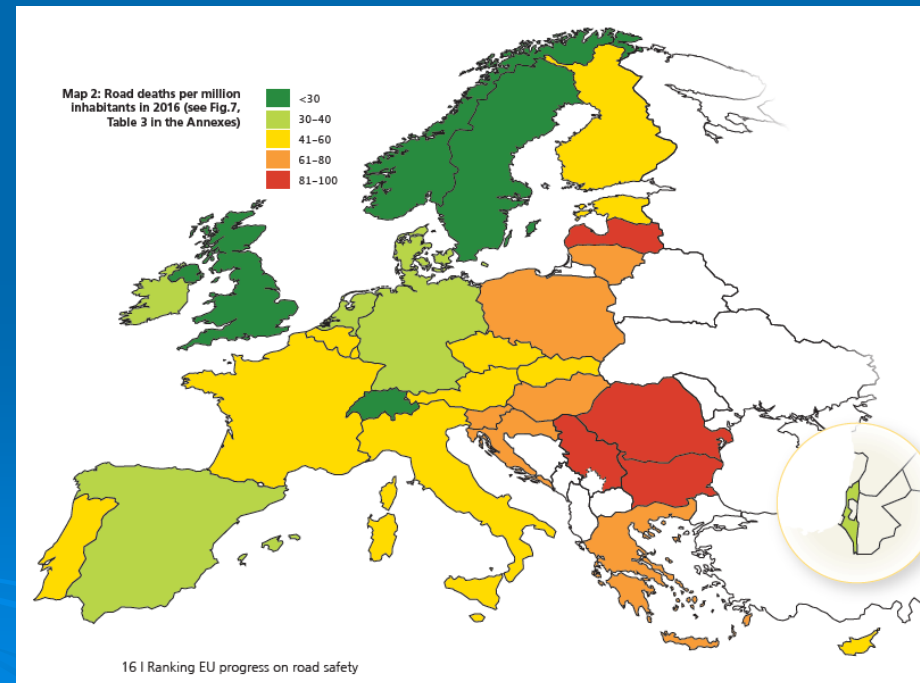
E. U. ROAD SAFETY TARGETS AN EXAMPLE TO FOLLOW FOR NATCAT RISKS

- In 2010, the European Union renewed its commitment to improve road safety by setting a target of reducing road deaths by 50% by 2020, compared to 2010 levels. This target followed an earlier target set in 2001 to halve road deaths by 2010.
- These targets were not fully reached in view of 2020.
- The E. C. is currently working on a new road safety framework for 2020-2030 and a series of concrete measures contributing to safer roads. This could include a revision of the European rules on vehicle safety, on infrastructure safety management and an initiative for the safe transition to cooperative, connected and autonomous mobility.

E.U. TRAFFIC DEATHS (2017)

A total of 25,300 people lost their lives on EU roads in 2017, which is 300 fewer than in 2016 (-2%) and 6,200 fewer than in 2010 (-20%). Beside the victims, road fatalities and injuries also affect the society as a whole, as they have an estimated socio-economic cost of €120 billion a year. (ETSC, June 2017)

- Romania's road death rate is **THE HIGHEST** - 98 per million inhabitants in 2017, while Bulgaria is next with 96 per million
 - Romania - 1913 people in 2016 vs. 2792 in 2009.
 - Bulgaria – 798 people in 2016 vs. 776 in 2009.



FACTUAL CORRELATIONS

- We cannot deny a positive correlation between severity of E.U. strategies on traffic safety and visible reduction of deaths, although Romania is still on red position
- Some influence may have occurred from E.U. unified and compulsory policies of insurance for Cars Accidents Civil Liability and “bonus-malus” practices
- Other influence would have been occurred from forced replacement of old cars that fall below EU pollution targets
- Such policies can be used as examples, because they show **how society reacts to risk, with “stick and carrot” methods**

VOLUNTARY VS. COMPULSORY NATCAT INSURANCE

- What's about NATCAT Insurance in UE and in the World ?
- France – state controlled risk reduction and insurance
- Spain, Italy - low insurance, state loss compensation
- New Zealand – 100 %
- Turkey – 40 % (after 17 years)
- ROMANIA
- Very low level of home insurance penetration - strong negative impact in a catastrophic event
- Another earthquake like 1977 – residential damage = 6.6 Billion EUR (AON simulation) A. Marin, UNSAR 2017; A. Badea, UNSAR-FIAR, 2017)

HOW MUCH ARE INSURED ROMANIANS ? WHY DO NOT MAKE SAFER THEIR PROPERTIES ?

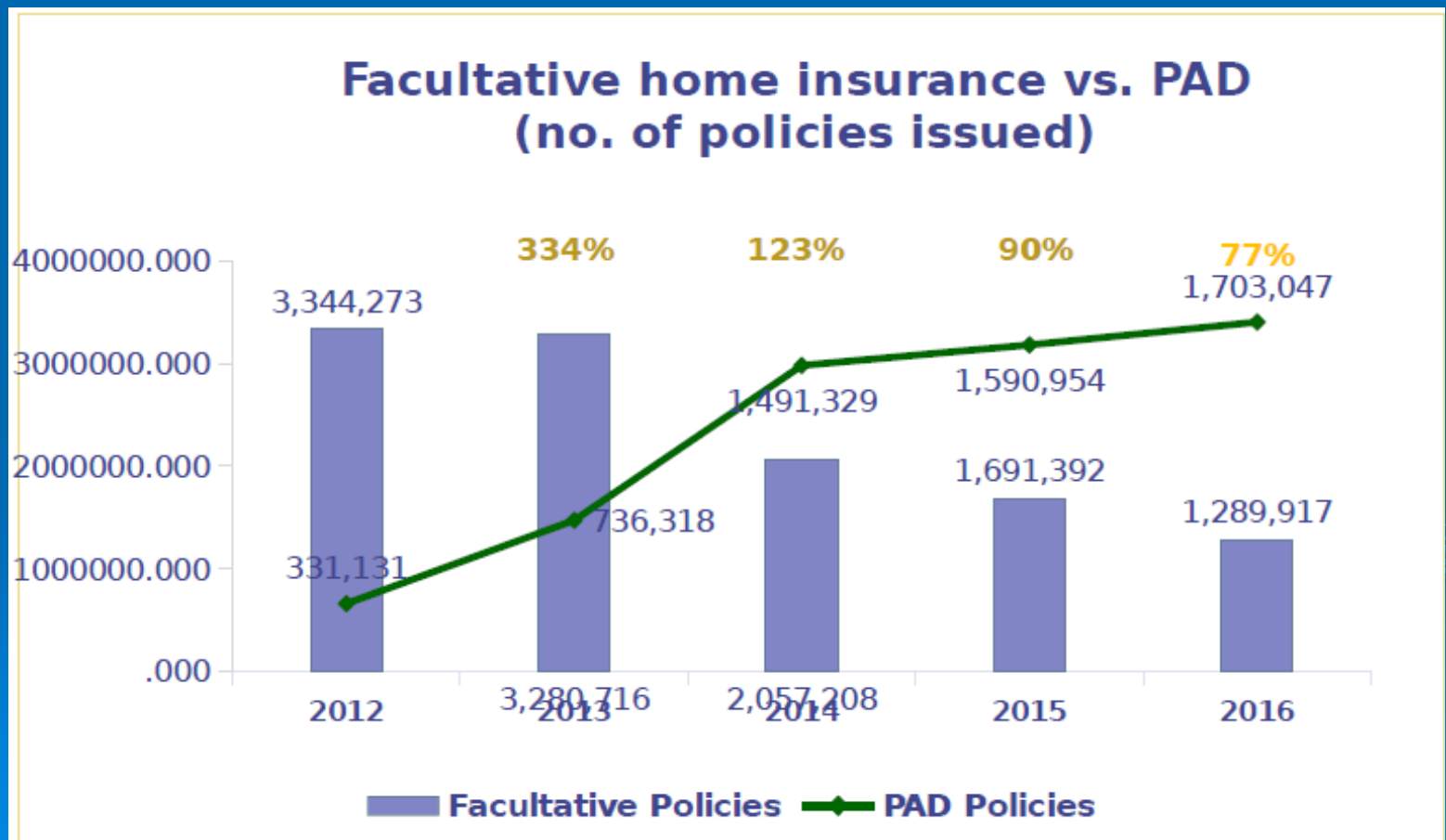
- Romania FY 2017 – life insurance segment increase
- Civil liability for vehicles – ca 40%, fire and natural disasters – ca. 10% of non-life GWP (XPrimm, May 2018)....***Car risk liability insurance is better enforced because of daily risk perception, police control and penalties***

➤ PAID

- Started in 2010 - NATCAT Risks: Earthquakes, landslides and floods
- Two categories of coverage:
 - 10,000 Euro / 10 Euro; 20,000 Euro/ 20 Euro
- Target – 60% of residential stock in 10 years
- Real: ca 20% in 2017

CORRELATIONS PAD vs. Facultative

- Facultative home insurance dropped of 2/3 in 5 years
- Overall insurance penetration improved marginally due to growth of PAD policies (Badea, UNSAR – FIAR 2017)



CONCLUSIONS

- The E.U. freedom allows also the free circulation of risks
- For the time being, as E.U. preventive measure we have only the risk evaluation and mapping – RO-RISK / IGSU Project 2016-2018
- The Romanian Law OG 20/1994 and Law 260 - PAID have a low risk reduction impact

- The gears of disaster and risk reduction are stuck
- Insurance industry may handle its two NATCAT gears:
 - PAID System
 - Facultative Policies

- Public sector shall handle all other gears and possibly find another car or another driver
- We need a Strategy with risk reduction targets for 10-20 years:
 - Life loss reduction / life safety targets – by public policies and possible by life insurance (??)
 - Economic loss compensation targets – by NATCAT insurance and other public policies

WHAT TO DO, TO HAVE A SMART USE OF INSURANCE AND PUBLIC POLICIES ?

- How to work for a “public interest” in face of a “public danger” with public and private means ?
- It is not possible to solve the NATCAT risks impact only by insurance industry or by public authorities
- I suggest a combined approach that observes the very basic principles of engineering, disaster management and insurance:
 - ***Vulnerability certification of all buildings, with permit for legal use or structural retrofit or order of demolition / replacement in few years and possible interdiction of living, sale or rent (for RED DOT cases)***
 - ***(like ITP + RAR + RABLA system for cars)***

FIRST GROUP OF BUILDINGS AT RISK IN BUCHAREST

We need an intensive program of strengthening, demolition or replacement for life safety goal mainly and to become insurable:

- Risk 1 class – $70...80 \text{ bldg / yr} \times 5 \text{ yrs} = 350 \text{ bldg.}$
- Risk II-IV – $85 \text{ bldg./yr} \times 5 \text{ yrs} = 430 \text{ bldg.}$
- Categ U1-U3 plus Nonclassif. – $80...90 \text{ bldg./yr} \times 20 \text{ yrs} = 1600 \text{ bldg.}$

- Succesively ... 20...30 years
- In parallel ...5...10...20 years

- WE HAVE NO MORE TIME !!!

–Strategic target: strengthening, demolition or replacement of 350 high-risk buildings in 5 years and other 500 blgs in 10 years

SMART INSURANCE PACKAGES

- Various premium coverage for NATCAT Insurance for acceptable (“normal”) risk buildings, as to have right to insurance, but premiums to commensurate risks vs certification:
 - NATCAT Compulsory insurance for all “Normal risk” buildings, but with higher coverage and deductible (**PAD, like a special “RCA”**).
 - To be “really” compulsory, penalties
 - Voluntary / Facultative insurance (offers to include NATCAT) at total covered value (**like CASCO**), with BONUS-MALUS related to state of the structure and maintenance
- ***Thank you !***