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Risk Manager France

Gestion des risques majeurs

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Résumé

La gestion, la couverture, la prévention et le financement des catastrophes majeures concernent au premier chef dans un pays donné les pouvoirs publics, les marchés d'assurance et de réassurance ainsi que tous les acteurs de la vie économique qui peuvent agir dans l'intérêt général. Compte tenu du développement des événements climatiques et des risques technologiques, il s'agit d'un enjeu majeur, auquel font face tous ces acteurs et en particulier les réassureurs dont le financement des catastrophes est le cœur de métier.

En ce qui concerne l'action des pouvoirs publics, l'OCDE avait édicté en 2010 des recommandations (bonnes pratiques sur l'évaluation, la perception, le risk management et le financement des catastrophes) aux gouvernements des principaux pays pour prévenir, diminuer le coût et financer les risques de catastrophes. Ceci a été réactualisé en 2012 avec un rapport circonstancié au G20 sur l'évaluation, le suivi et la prévention des risques majeurs ainsi que le financement des catastrophes, assorti d'une méthodologie et de recommandations.

La Commission Européenne avait procédé par ailleurs en 2013 à une consultation sur la gestion et la prévention des catastrophes (naturelles et humaines) en Europe, à laquelle avait participé le RAB, association des réassureurs en Europe (annexe 3). Celle-ci est malheureusement restée sans suite car pas considérée comme priorité par la nouvelle Commission, malgré l'importance du sujet et la Conférence de la COP 21 axée sur les conséquences du dérèglement climatique et les façons d'y faire face.

En 2013, l'Association de Genève, qui regroupe les principaux assureurs et réassureurs mondiaux, avait recommandé après plusieurs études de différents réassureurs et du CRO Forum, la création de Risk Managers Pays pour une meilleure gestion et prévention des risques majeurs. Cette position a été aussi suivie et approuvée par les Nations Unies.

En 2014 L'OCDE a publié un document sur la gouvernance des risques critiques, où parmi les recommandations aux ministres des finances figure l'utilité d'un risk management public intégré. Elle vient enfin d'engager en 2016 une importante consultation sur le risk management public et le financement des catastrophes par les marchés d'assurance/ réassurance et des Etats, à laquelle l'APREF a répondu en avril (annexe 4).

En 2016 a été créé l'International Development Forum (IDF) sous les auspices de l'ONU, la Banque mondiale et l'IIS (Association Internationale de l'Assurance), dont les premières missions sont la compréhension des risques, la réglementation, le partage et transfert des risques et le développement de la résilience des marchés.

Dans ce contexte de convergence des organisations internationales et des marchés de l'assurance et la réassurance sur l'analyse des risques majeurs et de leur suivi,

l'APREF propose une application effective en France, pays très exposé aux risques majeurs de toute nature, avec une approche globale des catastrophes avec en particulier:

- *Une fonction de Risk Manager France, élément clef d'une vision transversale des risques de marché, pour inventorier, réduire et financer les risques majeurs potentiels y compris les risques publics*
- *Un Conseil des Risques indépendant, composé d'experts, d'assureurs et de réassureurs. L'APREF propose en annexe à cette note une première approche avec un projet de cartographie des risques majeurs pays avec des premières évaluations et recommandations*
- *Une captive publique de marché pour gérer l'assurance et la réassurance de l'ensemble des risques publics en France*

Assurabilité des risques majeurs

Les études de réassureurs et de courtiers mettent en évidence une tendance des catastrophes naturelles et humaines à la hausse à la fois en fréquence et en montant. On ne peut exclure que cette tendance perdure pour les catastrophes naturelles, en particulier avec un impact sensible du réchauffement climatique, des effets de richesse et de la concentration de valeurs dans les zones dangereuses. En ce qui concerne les risques technologiques, des sinistres récents importants en dommages économiques (comme le tsunami et Fukushima au Japon de 2011, estimé à 4-5% du PIB, les inondations de Thaïlande de 2014, estimées à 13-14% du PIB ou le tremblement de terre du Chili de 2013 estimé à 15% du PIB) ont montré la vulnérabilité de marchés de taille variable et d'installations soumises en principe à des normes sévères. Les dommages assurés sont beaucoup plus faibles d'où un différentiel important d'assurance mis en évidence par les études de l'Association de Genève et des grands réassureurs.

De nombreux pays vont ainsi devoir s'adapter à la fois à une récurrence plus forte de sinistres plus importants et aléatoires, à un différentiel de couverture d'assurance d'autant plus important que les événements sont extrêmes et à une combinatoire d'événements difficiles à modéliser (comme un mix de catastrophes naturelles et industrielles –type Fukushima). Chaque pays ayant des expositions particulières, il faudra développer une vision marché des expositions majeures multi-branches en dommages économiques plus un reste à charge pour les pouvoirs publics (auto-assurance et assureur de dernier recours) ainsi qu'une vision globale avec les interdépendances économiques entre différents pays, compte tenu des chaînes de production complexes et diversifiées pour les produits industriels.

Suite au choc de l'année 2011, la plus coûteuse en Catastrophes naturelles et industrielles dans le monde, avec des dommages économiques estimés à 450 milliards de dollars, de nombreuses réflexions ont eu lieu dans différents marchés, impliquant de grandes questions assurantielles (pools catastrophe en Asie...) et industrielles (sortie du nucléaire dans certains pays...).

2013 avait ainsi donné lieu en Europe à une réflexion majeure sur les catastrophes, la Commission ayant engagé une réflexion de fond sur les catastrophes naturelles et humaines, portant à la fois sur le comparatif des différents marchés et sur les pistes d'amélioration de la gestion, de la prévention et de l'assurabilité des risques. Elle avait ainsi produit un 'Livre vert sur les catastrophes naturelles et humaines', appuyé sur une étude comparative de l'assurance des catastrophes dans les différents pays de l'Union. Cette occasion unique de faire le point dans chaque marché sur l'assurabilité des risques, la gestion et la prévention des risques majeurs, les systèmes de couverture et de prévention, ainsi que sur les meilleures pratiques en Europe n'a malheureusement pas été suivi d'effets, la nouvelle Commission ayant engagé d'autres projets à effets plus court terme.

La France est particulièrement exposée aux risques majeurs de par son exposition géographique, sa position technologique et son activisme politique international. L'APREF poursuit depuis sa création sa réflexion sur les problèmes d'assurabilité de risques nouveaux et de développement de branches, indépendamment des priorités de type politique, technique ou réglementaire. Elle suit les éventuels besoins de couverture pour les catastrophes majeures, et propose la mise en œuvre pour le développement et la transparence du marché ainsi que pour la sécurité de place. Des travaux et des propositions ont été produites dans la plupart des sujets régaliens reposant sur l'analyse et l'action des pouvoirs publics (catastrophes naturelles et industrielles, nucléaire, agriculture, corporels terrorisme...), dont le résumé se trouve dans la Lettre des 10 ans publiée en 2015.

Cartographie des risques majeurs France

Les événements majeurs et leur financement font l'objet d'une consultation OCDE à laquelle l'APREF a participé. Un des premiers points discutés dans ces propositions OCDE est l'évaluation des risques et les limites d'assurabilité pour les événements extrêmes. Rappelons que selon les chiffres mentionnés plus haut, les événements extrêmes varient de quelques points de PIB national à des dizaines de points de PIB pour des catastrophes nucléaire ou terrorisme NBCR, donc constituent un enjeu majeur pour les Etats et pour les finances publiques. Il s'agit bien ici d'une question centrale et stratégique pour le pays, qui dépasse largement le cadre de l'assurance et de la réassurance. Les événements de type 'cygne noir' ne sont pas légion, mais ont existé sur la période récente et déjoué les projections ou les probabilités, impliquant plusieurs Etats ou marchés sont difficiles à gérer et demandent une action collective (crise financière mondiale de 2008, réchauffement climatique à effets lents, crise des migrants en Europe de 2015...). D'autres peuvent advenir, comme des attentats terroristes majeurs, des épidémies, des ruptures technologiques, des cyber-risques, mettant en évidence la fragilité des sociétés développées dans un monde de plus en plus inter- connecté.

Dans ce contexte difficile et aléatoire de l'évaluation des risques majeurs, à la fois sur le plan technique, scientifique et politique, il y a peu d'éléments structurés par marché, et la réglementation sur le contrôle des risques qui pousse à la connaissance et à la probabilisation des risques majeurs s'applique aux entreprises mais pas aux Etats. Il n'y a donc pas en général de vue marché et les superviseurs ne sont pas en position de donner des éléments agrégés pour le marché ni d'avoir une vue globale.

La France est particulièrement exposée aux risques majeurs de par son exposition géographique, sa position technologique et son activisme politique international. L'APREF a décidé d'entreprendre une démarche générique de cartographie des risques majeurs France, qui préfigure une démarche plus structurée et plus reconnue, émanant d'organismes scientifiques publics.

Nous avons répertorié l'ensemble des scénarios à caractère public sur le plus grand nombre possible de périls, en général déterministes et sans période de retour. Nous les affectons de manière arbitraire à deux types de périodes de retour: celles usuelles pour les scénarios de risques majeurs dans l'univers réglementaire des grands marchés d'assurance (100-250 ans) et celles que l'on peut considérer correspondant à des risques extrêmes ou 'cygnes noirs' (250-500 ans), plus adéquates pour certains périls très peu fréquents ou très mal connus. Il s'agit d'un travail en cours qui sera alimenté au fur et à mesure par tous les nouveaux scénarios France sur des risques connus ou émergents (à défaut scénarios étrangers transposés). Un résumé de cette approche reprend les principaux sinistres historiques connus et actualisés et les principales expositions potentielles en France (base accidentelle ou long terme sur la base des conditions (annexe 3). Les scénarios utilisés sont documentés en annexe chaque fois que possible.

Il en ressort plusieurs éléments importants, qui demandent un vrai travail sur l'évaluation des risques potentiels et les problèmes afférents de couverture et de prévention:

- Différentiel important entre les dommages économiques potentiels et les dommages assurés pour les risques majeurs
- Manque de transparence sur les sinistres potentiels à basse fréquence et haute intensité, particulièrement sur les risques technologiques et politiques
- Besoin de meilleure couverture des biens et des personnes ainsi que de mutualisation des sinistres extrêmes, qui dépassent la capacité contributive d'un pays

Gestion des risques majeurs en France

Différents organismes assurent un suivi des risques majeurs, soit dans des ministères, soit dans des organismes indépendants, soit en transversal (inter-ministériel) comme le Secrétariat Général de la Défense Nationale (SGDN). En particulier la Délégation aux Risques Majeurs produit chaque année pour le MEDDAD un rapport sur l'ensemble des risques naturels et technologiques. Pour les catastrophes naturelles, la création de L'ONRN (Observatoire National des Risques naturels) est un premier cas d'organisme central et pourrait servir de modèle pour une réflexion future sur un périmètre beaucoup plus large. La participation du COPRNM (Conseil d'Orientation et de Prévention des Risques Naturels Majeurs) avec la présence du Délégué aux Risques Majeurs dans le cadre d'une plateforme nationale de réduction des risques est un signal positif pour l'avenir. Différents organismes techniques de sécurité suivent des sujets technologiques particuliers comme le Nucléaire (ASN et IRSN)...

Le CAE (Conseil d'analyse économique) produit des analyses de long terme sur les risques naturels ou technologiques (nucléaire) avec des recommandations pour des bonnes pratiques (voir rapport 2012). Le Conseil Général de l'Environnement durable produit aussi des études dans ce domaine. Des organismes comme France Stratégie

étudient des tendances long terme et proposent des solutions de gestion des risques. La Cour des Comptes étudie du point de vue technique et comptable les engagements de l'Etat, en particulier les garanties de passif explicites ou implicites, qui peuvent être très importantes dans le cas de la couverture des risques majeurs, de même intervient dans des sujets technologiques majeurs comme l'Energie et le Nucléaire.

Risk manager France

Tous les organismes de surveillance par types de risques permettent une vision intéressante mais parcellaire d'un certain nombre de risques et de périls qui mettent en jeu la couverture des citoyens en France et les finances publiques. Il s'agit savoir s'il convient de rationaliser tous ces dispositifs dans une approche plus globale de Risk Management pays.

La gestion des risques (Risk Management) s'est en effet considérablement développée dans les grandes entreprises et la fonction de gestionnaire des risques (Risk manager) est devenue centrale pour étudier, limiter et prévenir l'ensemble des risques auxquels l'entreprise est exposée. Ceci doit pouvoir être transposé pour une coordination centralisée des risques, avec les outils existant et une approche globale pour la gestion des risques pays. Le Risk Management pays devrait devenir selon les recommandations de l'OCDE, de l'ONU et des laboratoires d'idée de l'assurance et de la réassurance un outil clef de gestion et d'orientation des politiques publiques en matière d'évaluation, de suivi, de prévention et de couverture des risques majeurs.

Ce concept est issu de recommandations de grands organismes comme l'OCDE, l'ONU, l'Association de Genève et de grands réassureurs. Il modifierait les rapports entre les différentes entités en charge de la gestion des risques et permettrait la modernisation et le développement des Partenariats Public Privé qui sont essentiels pour la couverture des risques majeurs.

Recommandations APREF

- **Risk Manager France**

Création d'une fonction stratégique pour l'Etat et rattachée au plus haut niveau (premier ministre), de coordination de l'évaluation, la gestion et la prévention des risques majeurs pays. Elle pourrait s'appuyer sur l'ensemble des organismes existant dans ce domaine et peut être ensuite déclinée sous forme de coordinateurs dans les différents ministères concernés, les régions et décideurs publics ainsi que devenir l'interlocuteur naturel des futurs Risk Managers de collectivités locales, grandes villes et grandes entreprises.

- **Conseil des Risques**

Le Risk Manager France doit pouvoir s'appuyer sur un Conseil des Risques indépendant, en charge de l'évaluation et des données techniques concernant les risques. Il pourrait comprendre des experts et représentants des spécialistes de la gestion des risques (assureurs, réassureurs et risk managers). Il serait chargé de préparer une cartographie générale des

- **Captive de marché**

Au niveau du patrimoine constitué par les biens publics, l'Etat devrait choisir entre l'approche passive actuelle d'auto-assurance (génératrice d'inefficacité, d'aléa et de gestion non coordonnée des risques) et une approche active basée sur le suivi de ses risques patrimoniaux, qui pourrait déboucher sur la création d'une captive publique de réassurance, avec possibilité de transférer des risques aux marchés de l'assurance et de la réassurance. Cela permettrait à l'Etat d'avoir une gestion dynamique de sa rétention de risques et de diminuer les besoins de dotations budgétaires et leur aspect aléatoire.

- **Réduction des risques et de la sous-couverture marché**

Les 3 fonctions explicitées ci-dessus devraient permettre une réduction des risques marché et une limitation de la sous-couverture de marché. Ci-joint des recommandations complémentaires par type d'acteurs, telles qu'exprimées dans les réponses aux consultations de la Commission Européenne et de l'OCDE:

Pouvoirs publics

- Encourager le développement, l'accès et la **centralisation des données publiques** de toute nature sur l'exposition aux risques majeurs
- Créer les conditions réglementaires et fiscales de **l'assurabilité des risques**, ce qui permettrait et améliorer la couverture assurance et réassurance de tous les périls connus ou émergents et de réduire le différentiel entre les dommages économiques potentiels et les dommages assurés
- Coordonner l'action avec le secteur privé pour développer l'assurabilité des risques majeurs et émergents ainsi que pour moderniser les **Partenariats Public Privé**
- Développer les **politiques de prévention** dans tous les domaines avec la

- coopération des assureurs et des entreprises*
- Contribuer à créer **un niveau européen de solidarité** pour les risques extrêmes mettant en jeu la solvabilité des Etats

Assureurs

- Harmoniser l'incitation à la prévention par une **tarification d'assurance adaptée au risque** et par le financement de mesures ciblées
- Développer **la sensibilisation des assurés aux risques** et à la prévention pour modifier leur comportement

Réassureurs

- Développer les **modélisations des scénarios** d'événements (avec possibles corrélations)
- Participer à la coordination de la **cartographie des risques de marché** (étude et probabilisation de l'ensemble des expositions sur tous les périls),

En conclusion, la France est très exposée aux risques majeurs mais a des atouts pour devenir exemplaire dans leur gestion, suivi et prévention des risques majeurs, à condition d'avoir une coordination de Place financière, la volonté politique et les moyens à partager entre public et privé.

La convergence et la coordination des projets et actions recommandées bénéficieraient largement à une gestion efficace des risques pays, permettant de donner l'impulsion à l'ensemble des acteurs pour cerner, couvrir, prévenir et réduire les risques majeurs en France.

ANNEXE 1
Annexe 1
Cartographie des risques pays et scénarios (sinistres historiques, expositions potentielles et différentiel assurance)

*La présentation simplifiée (voir Cartographie des Risques Majeurs sur site public APREF) reprenant certaines expositions du marché français aux principaux périls, sinistres historiques et recommandations est accessible à partir du lien suivant :
Ci-joint quelques éléments méthodologiques :*

Sinistres historiques

*Ils sont évalués au montant estimé des dommages (économiques) à l'époque du sinistre (accidentel) ou au terme de la période de latence (à lent développement) et réévalués à la date actuelle sur base purement monétaire (évolution de l'inflation).
Ils ne sont pas réévalués pour la partie développement des expositions et effet de richesse, car cela demanderait des modélisations trop complexes). Ils sont donc très largement sous-estimés, en particulier pour les plus anciens*

Expositions potentielles

Le principe retenu est d'utiliser comme documentation des scénarios dommages économiques France publics, provenant d'études académiques professionnelles ou du secteur public, avec une probabilisation à dire d'expert entre périodes normées (usuelles dans les différentes réglementations mondiales sur le capital et la solvabilité) et périodes hors normes (au-delà de 250 ans de récurrence), en particulier pour les périls à très faible fréquence et très forte intensité.

A défaut de scénarios France seront utilisés des transpositions de scénarios dommages économiques étrangers considérés pertinents et ajustés selon les rapports de PIB ou de concentration de peuplement.

En cas d'absence de scénario académique reconnu sur un péril dénommé, des chiffres seront fournis pour mémoire, en fonction de scénarios qualitatifs.

Différentiel dommages économiques et assurés

*Le différentiel entre dommages économiques et assurés peut être très important y compris pour des pays développés comme l'ont démontré des études de grands réassureurs, de l'Association de Genève et de l'OCDE. Ils peuvent aussi être très variables selon les périls et dépendent de l'assurabilité et du degré d'assurance dans le pays.
Ils sont extrapolés en tenant compte soit d'études existantes pour certains pays/périls, soit de la part estimée des biens ou des personnes assurées, des limites assurées, de la réassurance privée et publique. Il s'agit donc d'un chiffre indicatif et non documenté en détail.*

ANNEXE 2

Sous – assurance marché et partenariats public-privés

Sous –assurance marché

L'OCDE, l'Association de Genève et les grands réassureurs produisent régulièrement des études sur le différentiel par pays pour les plus grands sinistres connus entre les dommages économiques et les dommages assurés. Ces études montrent que le 'différentiel assurance' ne concerne pas que les pays en développement où l'écart est plus visible, mais aussi les pays développés où il peut y avoir des écarts importants quand certains types d'assurance ne sont pas obligatoires.

En ce qui concerne la France, des études sur les différentiels dommages assurés- dommages économiques ont été effectuées par des réassureurs sur des sinistres passés de type catastrophe naturels et sont relativement important, pour des raisons de sous-assurance, limitation ou auto-assurance des biens publics.

L'APREF essaie à travers une présentation simplifiée (voir Cartographie des Risques Majeurs sur site public APREF) d'évaluer la sous-assurance par rapport aux risques majeurs de marché sur la base de scénarios extrêmes. Ceci est plus complexe et demande des extrapolations beaucoup moins précises que sur les sinistres historiques. Il y a par ailleurs un effet exponentiel dans les différentiels dommages assurés- dommages économiques : plus les sinistres potentiels sont importants, plus les différentiels s'accroissent par manque de couvertures ou dépassement des limites. Cet effet est faible en catastrophes naturelles avec la protection de l'Etat mais très sensible pour certaines catastrophes technologiques (cyber, nucléaire...) ou liées au terrorisme.

Risk management public

La sous-assurance de marché sur les risques majeurs est une des raisons principales pour développer le risk management public et favoriser l'assurabilité des risques et la prévention. Un des leviers incitatifs pourrait venir aussi des notations souveraines. En effet les agences de notation commencent à intégrer dans leurs notations souveraines l'exposition des Etats aux catastrophes et leurs conséquences économiques potentiellement importantes : dans un premier temps pour le contexte du réchauffement climatique et ses possibles conséquences économiques, dans un deuxième temps pour le contexte des autres catastrophes majeures.

Partenariats public-privé

Les Partenariats Public Privés sont pour les risques majeurs la meilleure façon de développer l'assurabilité du marché et l'harmonisation des couvertures. Ceux qui existent déjà (catastrophes naturelles, nucléaire, terrorisme) peuvent être modernisés et l'APREF fait régulièrement des propositions dans ce sens (voir notes spécifiques). Ils peuvent aussi de façon utile être développés dans d'autres secteurs (risques biométriques, cyber, technologiques...)

ANNEXE 3

Réponse RAB (consultation 2013 Commission Européenne sur les catastrophes)

Introduction

The Insurance Europe Reinsurance Advisory Board (RAB) membership accounts for about 60% of worldwide reinsurance business and is represented at the CEO level by the following major European reinsurers: Gen Re, Hannover Re, Lloyd's, Munich Re, Partner Re, SCOR and Swiss Re.

The RAB welcomes the opportunity for reinsurers to comment on the European Commission's green paper on catastrophes. We applaud the Commission's efforts in recognizing the needs of the (re)insurance industry and in working toward making Europe a more insurable society against large disasters. We will answer very briefly, from a reinsurance point of view, as we see this contribution merely as a complement to Insurance Europe's answer.

The (re-)insurance industry strongly maintains that there is no one size fits all solution in Europe due to the different risk exposures of the various markets, the very wide diversity of covers available, the heterogeneity of data availability as well as the different economic and political conditions across Europe. However, the Commission's Green Paper rightly concludes that – in order to increase risk insurability – there is a need for better data, as well as best practices concerning prevention and preparedness throughout Europe.

We see this consultation as part of an on-going and cooperative dialogue between the insurance industry and the EU in order to facilitate a flexible environment for sustainable and effective insurance solutions. Through this cooperation, the EU can promote the development of insurance across the different perils, including more use of reinsurance. We view the current process mainly as:

- Getting a better overview of the situation of the different Member States,*
- Putting pressure on Member States governments to exercise more leadership in this field by highlighting to their constituents the benefits of (re-)insurance as well as the risk-mitigating impact of prevention measures,*
- Increasing risk awareness and developing insurance and risk transfer,*
- Increasing risk awareness and preparedness for adapting to future climate impacts and encouraging optimal insurance solutions, depending on the exposure and situation of various markets,*
- Addressing the gap between economic losses (assessed at 450 billion euros in Europe for the last 30 years and on the rise) and insured losses*

Catastrophes have been on the rise in recent years both in frequency and severity (as stated by major reinsurers' studies) and reinsurance plays a major role in paying for these losses. A new feature is that the events are becoming more complex, difficult to model, with potential

chain of events (mix of natural and man-made catastrophes as in Japan in 2011) and with global implications (consequences on loss of production in various countries). Furthermore, the economic losses are increasing due to the wealth effect, the industrial production concentration and climate change with sometimes a magnitude of up to 10% of GNP for some countries, thus major consequences for public finances with the bigger gap between economic and insured losses.

Europe as a whole is very vulnerable to nearly all kinds of natural catastrophes and man-made disasters that could cause huge economic losses and life losses. Catastrophe (Non-Life and Life) being one of the core reinsurance businesses, this process gives reinsurers a major challenge and a unique opportunity to present messages on reinsurance, to play an active role both from an industry perspective and to show that reinsurance is available and that reinsurers are ready to offer tailor-made solutions and improved insurance efficiency in the various markets. Considering the diversity of markets and risk exposures (Nat cat and man-made across all classes of business), there is no one single solution that would effectively cover the entirety of Europe. However, potential actions at EU level in the form of increasing risk awareness and risk prevention would lead to a huge improvement and further insurance development potential in Europe.

We see this effort as one holistic approach to catastrophes in Europe, but there are some basic issues to foster risk awareness, prevention and improved solutions, with the use of reinsurance as a key tool to mitigate losses:

- *In cases where perils may be underinsured or not Solvency 2 consistent, reinsurance must play its role for helping markets and insurers to comply,*
- *Catastrophes have the potential to be extreme and with cross-border implications. Thus, national solutions are not always adequate or sufficient, and a global approach to extreme events with a key role for reinsurance is needed,*
- *Contributing to insurability issues at market level as States often request reinsurance before getting involved in specific perils (like terrorism).*

We think the way forward to address and improve the current situation would be a close cooperation between the EC and the insurance/reinsurance industry to:

- *Help the member states to develop strong Disaster Risk Management*
- *Contribute to the European framework on adaptation and other forms of risk prevention*
- *Develop insurance as an incentive for prevention and mitigation whenever there is a potential gap between economic and insured losses*
- *Assessing emerging risks and new potential exposures with a global approach (Non-Life, Life and Health)*
- *Foster national solutions where there is a specific need for them*
- *Assess the need for a “principles-based” approach that would suggest best practices for improving the insurability of risk*
- *Limit intervention of States and public-backed reinsurers to fill market gaps.*

- **Questionnaire**

(1) Penetration rate of disaster insurance in EU

The penetration rate is usually more the effect of a lack of demand from insureds than lack of supply from insurers, thus developing sensitivity among consumers should be a major target.

As penetration rates are difficult to measure, the focus should be placed on how to encourage insurance take-up overall rather than comparing these rates to determine the most effective insurance scheme.

One indirect way to measure penetration rates at the macro level, however, is to build a historical database in Europe with all economic/insured losses by peril and by country.

(2) Further action, mandatory product bundling

Combining products is usual for natural catastrophes, sometimes also with political risks (riots, terrorism...). The opt-out option is unusual but could be a feature for business insurance where buyers are more risk aware.

The product bundling around catastrophes is usually a market or State decision and cannot be an EU mandatory requirement.

(3) Compulsory disaster insurance

Compulsory cover for catastrophes is not in use in Europe and cannot be a way forward in a free market. In case of market failure the introduction of compulsory elements may be considered at national level under the following prerequisites:

- *Risk adequate insurance rates.*
- *Ample participation of the private sector in setting terms and conditions of the insurance cover.*

(4) State disaster programs

There are a lot of Public Private Partnerships in Europe. Reinsurance is usually used in State disaster programs to increase the State intervention threshold.

As mentioned in our introduction, the State should intervene only where there is an insurability issue. Any State intervention on any peril should be limited to filling market gaps (for example for Nuclear, Biological, Chemical and Radiological (NBCR) terrorism covers). The ex-post State intervention is a source of moral hazard and insufficient risk awareness. Public-backed reinsurers benefiting from a State guarantee should not, as is the case in some Member States, enjoy a near-monopoly for the reinsurance of all natural catastrophes, thus exerting unfair competition vis-à-vis private reinsurers. It is possible for many natural or man-made perils to set up successful public-private partnerships where insurers, private reinsurers and the State (or the public-backed reinsurer) all participate and play their respective roles, while offering extensive coverage to all insureds at reasonable prices.

Thus the RAB supports the statement by the European Commission in its green paper that “Governments may serve as (re-)insurers of last resort by taking on risks above a certain disaster damage level, i.e., stop-loss re-insurance. This approach blends the potential risk spreading capacity of the government and the ability of the market to apply insurance principles and also to use its administrative capacity, i.e., collecting premiums, marketing and handling claims. Public programs, therefore, may provide for cover at the highest risk levels, while the private market retains some or all of the lower tiers of risk.” We encourage the European Commission to promote this approach actively and take all necessary action.

(5) Barriers to parametric insurance

There is a general lack of consistent data in Europe, which is not helping to develop these products; furthermore there could be gaps in the coverage.

Parametric covers are best suited for risks that are uninsurable or difficult to assess – for example business interruption, infrastructure or crops. Therefore, parametric covers have significant potential. The most interesting customer segments are large corporations that are subject to complex business interruption and contingent business interruption exposures, as well as governments who usually suffer considerable damage to uninsured infrastructure.

Parametric solutions in reinsurance are feasible for the "big bang", i.e. really catastrophic events. Implementation of parametric solutions which respond to small to medium sized events may be difficult, especially for the high resolution flood risk. The trigger itself can be difficult to define, i.e. using water depth at gauging stations is useful for river flooding, however the trigger is not suited for surface water flooding. In this case the consequent basis risk makes the product undesirable.

(6) Risk based pricing

Risk-based pricing is key for all catastrophe perils as it is very important for risk sensitivity and prevention, when linked to other measures (limitations, deductibles, conditions...), both for homeowners and business risks, and should be encouraged widely. It is a pre-requisite for insurability and development of insurance/reinsurance covers.

(7) Specific disasters with flat rate premiums

Flat rates should remain an exception and limited to perils where there is a potential for extreme events, a need for broad mutualisation and a difficulty for individual risk assessment (such as epidemics, political risks, solar events...).

(8) Other solutions for low-income consumers

The solution for low-income consumers is efficient and fair catastrophe insurance (possibly a basic contract with limitations) at the lowest cost and should not include subsidies.

(9) Promoting long-term disaster contracts

Long-term disaster contracts may appear to give more visibility and safety to consumers but are not common in Europe. In addition, they also have contractual and regulatory impediments (diminished consumer choice, prohibited by national law).

Long-term contracts may operate differently at the reinsurance level than for insurance, as there is a market for multi-year catastrophe covers for the backing of insurers.

(10) Harmonization of contractual information

Due to the legislative and cultural differences at EU level, it would be better to enhance the quality and comparability of contractual information through best practices rather than harmonization.

In fact, contractual information is treated in specific national laws. The existing laws on insurance contracts should be used for natural catastrophe insurance. It is more important that all insurance covers in a country are treated consistently, rather than having harmonization across Europe.

(11) Alternative terms and conditions

As stated in question 6, alternative terms, conditions, limitations, when coupled with risk-based pricing are important tools for insurability and risk prevention, especially in risk-prone areas.

(12) Data impact of past disasters

The improvement, collection and sharing of data in the various markets must be encouraged and developed. Access to public data is important for all stakeholders, in particular the reinsurers which pay for most of the disasters.

(13) Mapping of future disasters

Mapping is important both for natural and man-made catastrophes at the lowest granular level.

(14) Better sharing of data and tools

There could be an increased cooperation between public and private sectors through specialized bodies that could be in a position to deliver data for all the stakeholders and facilitate their mapping and modelling.

(15) Development of disaster financing solutions

There are a lot of market insurance schemes in Europe, linked to insurability issues or catastrophes (see the EC study on pools and coinsurance schemes). One way forward is to compare the insurability needs of the various financing schemes, while limiting State intervention. Innovation, competition and best practices should foster enhanced and new solutions.

In cases where there is a gap in the market, the EU could consider the need for a solidarity scheme for major events over a certain threshold, by market, measured in relation to the country size (for example 2.5% of GNP).

There is a legal basis for such a solidarity scheme, as foreseen in the Lisbon treaties for risks like terrorism, and this should be extended to all perils resulting in catastrophes. The best way is to provide an ex-ante specific financing framework and not an ex-post undefined and uncertain financing scheme.

(16) Design of insurance for Environment Liability

Environment risks are difficult and capacity is scarce, thus more clarity in the directive may be explored by continually increasing awareness about the ELD at both EU and national levels.

Mandatory financial security should not be introduced at EU level, as it is an issue in terms of cost and capacity (in particular reinsurance). This security should be limited, optional and tailored according to the needs of the different markets.

(17) Data and tools for industrial risks

The industrial and technological potential for catastrophes is huge and difficult to measure, in particular for the Seveso type plants and the nuclear industry. The current tools for mapping and modelling the risks, however, can be greatly improved with more readily accessible data.

The legislation and market practices are very different throughout the EU.

This is a typical area where improvement is necessary as exposure control is difficult to model and insurers' covers are often insufficient for extreme events.

(18) Specificities of offshore oil and gas

The 2010 Deep-water Horizon pollution incident in the Gulf of Mexico stirred interest in new types of cover in this field. In general, insurers and the captive insurance market, backed by the international reinsurance industry, provide sufficient cover to meet the needs of offshore operators in EU waters. The question of whether this is adequate to meet possible extreme losses requires detailed technical analysis. The offshore oil and gas industry is global, and many important participants are not EU firms. This makes it difficult for the EU to take unilateral action in this area.

(19) Conditions of third party liability insurance

The actual business liability covers are usually insufficient and not tailored to the risks taken. The systematic disclosure of the liability covers to all parties involved could be efficient as a protection and a tool for developing minimal covers in the various activities, but due to the variety of contracts used across Europe any such decisions about disclosure practices should be left up to national level.

Environmental liability is covered through non-standardized insurance terms and conditions for heterogeneous risk and related losses from industry accidents where each risk has to be assessed on its own merits and where the terms and conditions of an insurance contract may differ significantly between industry risks in respect of the scope of the insurance contract and in respect of the sum insured. Therefore a general broad disclosure of such an insurance contract would not be appropriate and could also be quite misleading as other third parties outside the contractual parties would lack of the rationale and knowledge which led to the setup of tailored made risk appropriate terms and conditions in an insurance contract.

(20) Specific aspects of loss adjusting

Loss adjusting is an important element, in particular for extreme events, where availability and competence are important. Cooperation between national markets and a promotion of best loss-adjusting practices could help in cross-border or extreme events, even if there are already international expert groups.

(21) Important issues omitted or underrepresented

As reinsurers are mostly concerned by major catastrophes/events, here are a few general remarks, based on that aspect:

- *There is no qualitative or quantitative definition of catastrophe/event, which may have different meanings and sizes. There should be a clear distinction of types of events (frequency and severity), which have very different consequences for insureds and markets. Extreme events like a major nuclear accident, NBCR terrorism events or solar events should be segregated.*
- *There is an underlying assumption that natural catastrophes are in the Property class and that most man-made catastrophes are in the Liability class. In fact, in major catastrophes, and in particular extreme events, all lines could be affected, including Life and Health, needing a global and holistic principles-based approach for all lines, all companies, all markets.*
- *There is little about political risks and cyber risks, which could be a major issue in Europe, in particular NBCR terrorism, where there is a specific need for a pan-European study.*
- *There is a lack of specific analysis on Life and Health, where major catastrophes are possible, like epidemics.*

ANNEXE 4

Réponse APREF (consultation OCDE 2016 sur le financement des catastrophes)

General

APREF is the French Reinsurance association, which gathers most of the worldwide reinsurers, brokers and consultants operating on the French reinsurance market.

The 2010 OECD recommendations on Disaster financing have been very helpful but only partly followed as regards risk assessment and risk management, which are key areas for improvement in the public sector. In 2013 the European Commission issued a green paper on Natural and Man-made disasters with a consultation aimed at insurance and reinsurance stakeholders, to which the European Reinsurance Association and the Insurance Europe Association responded, but there was no follow up on this important matter due to changes of priorities in the Commission.

The 2016 OECD consultation is thus very timely and important to raise awareness and efficiency for various stakeholders in the insurance and public sectors. We welcome the opportunity to answer to OECD proposals on Disaster financing, as it is a topic of utmost importance for Europe and particularly for France, which is heavily exposed to natural and man-made catastrophes (our answers will be related to this particular area).

II Strategy for managing the financial impacts of disasters

i Integrated approach

An integrated approach is key for a thorough set up of an efficient public risk management and prevention set up. Usually there is a tendency in the mature markets to have a specialized approach by type of hazards and technologies or by type of action (prevention, crisis management, financing...) with various safety agencies and ministers in charge of different areas or processes. This silo approach is short term and not the most efficient as most major catastrophes require a long term effort and the same type of approach, expertise and financing. Therefore, a strong coordination between the different public authorities and departments is key for a prompt response to disasters.

As the Geneva Association and some major insurers and reinsurers, we recommend the introduction of a function of Country Risk Officer for helping disaster risk mitigation in a properly manner. It is very important to have a central view and a holistic approach to better assess, prevent and reduce risks and to better coordinate the interventions of the different actors, especially in the public sector. This is a culture which is already well implemented in most major corporations with a central function. Governments have a role and a duty to reduce the impact of risks and an integrated approach is the best way forward.

APREF has been pleading for an integrated public risk management and modernization of the Private Public insurance and reinsurance schemes in France.

ii Capacities and expertise

The first step for an integrated public management would be to do an inventory of all possible natural and man-made hazards and work out an assessment of maximum exposures.

The second step would consist in doing:

- *A gap analysis of what is insured vs potential economic damages*
- *A cost/analysis of different financing schemes*
- *A process for trying to mitigate the risks by investments in prevention and recovery*

This two- step analysis requires a lot of information, modeling and testing of different schemes, thus different experts in different specialties and a good coordination.

APREF is currently working on an inventory of all major perils relying on public data and an assessment of market and public exposures for major and extreme catastrophes in France, relying on public major loss scenarios. This first risk mapping could be used as a pilot for future market studies.

iii Coordination across public and private organizations

The main capacities of dealing with disaster risk financing rely with insurers and reinsurers, the main prevention means and financing incentives rely with the public agencies or ministries. It is thus important to combine these two expertise to ensure a good public private coordination and when the conditions are met, possible partnerships for disaster financing. It is also important to ensure a good coordination between all the public authorities and agencies that should join their efforts.

iv Opportunities for international cooperation and information sharing

Perils and disaster risk financing are worldwide issues and it is interesting to compare data and best practices across markets and organizations. Although it is difficult to ensure a cooperation at global level as there are no Country Risk Officers positions as such with a global view and a global reach across the hazards and the different financing schemes, there could be a segmented cooperation by type of hazards.

For example, the nuclear pools are coordinating best practices across the main markets with significant nuclear electricity production. In the same fashion, the terrorism pools and schemes are currently discussing a potential cooperation and exchange of information on a worldwide level.

Moreover, a Country Risk Officer would facilitate the coordination of international interventions in case of major disasters exceeding national capacities and expertise, especially in small countries.

v Appropriate levels of risk retention and risk transfers

This is a difficult issue as it depends on many parameters, including: insurability, insurance take up rates, market risk appetite and pricing, mandatory or optional insurance cover, reinsurance loss distribution within

specific public protection schemes. The main problems are inaccurate assessment of risks, insurance gaps of covers and insufficient reinsurance covers. There is in fact very little certainty of what would be the market real retention in case of some extreme risks, and what it should be.

There are indeed very few global public operations for Catastrophes in Europe, except the ‘Consortio de Seguros’ in Spain, which insures practically all hazards on a market basis and with a public stop loss warranty. In general the calculation of the potential market retention would need a specific assessment, depending on the hazard, the availability of covers, the potential insurance gap, the possible clash between various insurance classes and the remaining public exposures.

The gap and retention assessment should lead to the improvement of the insurance covers and to the government action in terms of prevention and financing to bridge the gap.

vi Risk reduction incentives

The risk reduction incentives are important to help ensuring insurability, affordability and capacity to cover high severity and low frequency risks. They can come from several aspects: risk pricing for homeowners and businesses, loss sharing (franchises), prevention measures such as building codes, insurance regulation... Whatever the local situation, (re)insurers and public authorities should ensure that the pricing is proportionate to the risks covered and that it encourages stakeholders to prevention actions.

These incentives, coupled with potential others, would help reducing the disaster costs and developing the availability and affordability of the risk coverage for most hazards.

II Comprehensive risk assessment of exposures and financial vulnerabilities

i Development of expertise for assessing disaster risks

The technology is a huge driver for improving the knowledge of risks data at a granular level. This has allowed in many mature markets an increased possibility of risk pricing and risk aggregate assessment. As government agencies have information and reporting on some

specific perils, the public- private coordination on data and risk assessment and sharing is important.

The exposure models are either proprietary for some major insurers and reinsurers or sold by expert consulting firms and available on a commercial basis. A good mix of public data and private models could be efficient for a proper risk assessment. The access of private stakeholders to public data is key for a better risk management.

ii Data necessary for the quantification of potential exposures

The data necessary for the quantification of vulnerabilities and potential major exposures may come from different sources: past losses, data from insurance associations, technical data on hazards, scenarios (by model vendors, public institutions or private corporations)...

It would be helpful if all these data, aggregated at market level, are considered of general interest and become stored in a database and become available to the various stakeholders, provided that there is no breach of confidential data. This process is already implemented in some markets, in particular for natural hazards data, sometimes at a granular level (home address).

iii Normal and extreme risk scenarios

The evaluation of vulnerabilities and of worst case scenarios for all the potential natural and man- made hazards is a fundamental step in the process of a country risk management strategy and will help coordinate the necessary prevention measures. The suggested approach is to evaluate normal and extreme scenarios, which leads to a definition problem as normal could be considered as ambiguous. It must also be clear that what should be assessed are the economic damages and not the insured damages, which could be misleading in terms of maximum exposure. Taking into account correlations, interdependencies and international consequences is the most difficult part. It is clear anyway that any extreme loss would have an impact, not only for the economy, but also on the financial markets as shown by the indirect effects of the World Trade Center event.

We value the fact that it is useful to have two points on the loss distribution for the different hazards but would suggest to be more specific on the return periods as normal and extreme could be quite different depending on the markets and stakeholders. One observation point could be the usual return period (or range) used in solvency or capital regulation, which could be considered as normal and one beyond this period (or range), which could be considered as extreme.

For example, to assess the risk mapping in France, APREF is considering ranges of return periods, due to the uncertainty of high severity losses: normal as 100-250 years return period and extreme as 250-500 years, which is more sensible for very low frequency hazards such as earthquake, tsunamis or solar storms...

iv Post disaster loss assessments

Post disaster loss assessment is generally taken care of by local insurance associations. This might be completed by data on losses for infra-structure and economic damages from the public sector. There are also assessments from major reinsurers and brokers, and specialized modeling vendors.

It could be better standardized by an agreement between the different stakeholders with a definition of common methodologies, common use of data and transparent calculations.

v Data and information sharing

The harmonization and the sharing of data and information would be a very positive improvement in terms of common approach and efficiency. It will take time however, as seen in other fields like accounting standards, to promote efforts to harmonize the approach as there might be proprietary data and processes as well as competition issues.

As it is difficult to start from standards from international bodies working on these matters, like the OECD, IMF and UN, we would suggest a bottom up approach: start the discussions at the national level taking into account the local particularities, then bring it up to the regional level (such as Europe), then at the international level with the related international bodies.

IV Management of disaster risks through risk financing tools

i Raising awareness of disaster risks

This is the first mission of public authorities, insurers and risk managers: increase information, awareness and sensitivity for citizens, business and local authorities. There is a clear lack of risk culture and prevention incentives in some markets concerning different hazards and possible disasters.

One way to raise awareness is to generalize insurance with risk based pricing for properties and persons related to the different hazards. Another way is to organize information campaigns on a local basis alerting citizens on hazards and possible mitigation and protection measures.

ii Financial sector regulatory and supervisory framework

The insurance regulatory framework set up is important for disasters financing as it defines the charges in capital for (re)insurers in respect of catastrophe risks and the capital discounts afforded by reinsurance which spreads these risks on the international market. The security level of capital by the solvency rules allows also to determine the claims paying ability of the insurers and the liquidity availability. The transparent communication on financial protection is difficult to explain to non- experts but could be done by insurers.

Reinsurers have been pushing for a risk based solvency system but have been disappointed in Europe as Solvency 2 is sub-optimal for reinsurance, the standard formula taking only into account non proportional reinsurance on a ratio basis and not on a risk basis: we recommend an update of this rough calibration as there is room for improvement to benefit from an efficient regulation for disaster financing.

iii Challenges of financial protection tools

The availability and affordability of private financial protection tools are easy when the extreme scenarios are within market capacity (like wind) as there is capacity at a reasonable price, they are more difficult for high severity hazards (like flood) and they are impossible for some extreme risks (like nuclear or NBCR terrorism). One way for mitigating those risks is to improve the standards and increase prevention. The ways to increase affordability could be subsidizing, but this is not an economic solution, or to have fiscal incentives, which is usual in other areas and may allow in particular to set up more appropriate reserves for facing major losses and spreading the cost over the time.

We do not favor subsidizing for insurance, except when there are international agreements such as for agriculture multi- crop insurance where the “technical” protection cost would be unbearable for policy holders. The best way for covering high severity or extreme events is to have a mandatory cover coupled with a public private partnership including a public retrocession scheme supplied to the market at the same terms and conditions, and covering the most extreme losses that would otherwise not be sufficiently covered because they are exceeding the market capacities. Such schemes could be defined and implemented by tight cooperation between market actors and public authorities. Two examples of partnerships in France which have been discussed between the State and the market are the Nat Cat regime for natural hazards, which is very structured, and GAREAT for terrorism coverage of properties, involving largely the international reinsurance market. The GAREAT scheme could be replicated in other areas where there is a need for public reinsurance.

iv Pricing and conditions to promote coverage and prevention

Enabling pricing and coverage that encourage risk reduction and prevention means that insurance pricing should be risk based, whatever the contract and the customer. It also means that deductibles and limits must be carefully applied to the risk level and exposure.

We favor fair pricing which should be competitive and risk based as the best way to enhance risk awareness and prevention in all areas where it is possible for the customer.

v Government financial assistance vs private financial tools

In all areas and for all hazards, the private market should be used as much as possible, as it helps limiting moral hazard and giving incentives for prevention. The financial markets could bring complementary covers, before State intervention.

When there is an insurability problem (like for terrorism, for which the magnitude of the risk critically depends on public security policies and counter-terrorism) it is important to find the right scope of cover (as large as possible for a better mutualisation) and the 'efficient frontier' between private and public reinsurance to take advantage of the diversification effect brought by international reinsurers and of the State as reinsurer of last resort. We favor pre-financing vs post -financing for any public intervention as it allows risk pricing and reserves accumulation which is the most efficient way to finance disasters.

V Adequate financial support for vulnerable segments

i Identification of vulnerable segments

The vulnerable segments of the population (low income citizens) are usually less insured but are protected in other ways, like warranty funds for non- insured or under- insured persons and social system compensation. In some cases, there are subsidies or social help from the State or local authorities.

In terms of low income citizens, the best way to protect them is to have mandatory covers for properties and accidents.

ii Development of financial assistance

Financial assistance to vulnerable segments of population is difficult to set up except by mandatory insurance coupled with a minimum compensation scheme for any major accident, including catastrophes. Vouchers and direct income supports are far more efficient means to support vulnerable segments while giving them sufficient incentives for prevention than price subsidies that would have the drawback to maximize the exposure of the vulnerable segments to the extreme risks.

iii Minimizing potential economic disruptions

The most important step to reduce economic disruptions is to ensure that there is a maximum coverage by reducing the gap between economic and insured damages. This can be done by mandatory covers, incentives for insurance coverage and full information on hazards and potential losses. In terms of cash flows, minimizing the potential economic disruptions could also be done by imposing time limits of advance payments of the losses for the insurers and the public covers or funds.

Accent should also be put on prevention measures to protect infrastructures and quickly repair potential damages, which too requires to anticipate the way of mitigating the losses.

We favor a risk based approach, consisting on risk mapping for individuals and business, with the assessment of potential financial consequences. This could be an alternative in case there is no mandatory covers in some fields, in particular for personal insurance.

iv Coordination for ensuring risk reduction

Coordination of financial assistance is important between local and national authorities to ensure consistency and fairness for the victims. Any incentive or assistance should not create moral hazard and discourage cover or prevention.

VI Management of government exposures

i Potential financial exposures of public sector

It is key for national authorities to assess the potential public exposures, in particular for extreme disasters, in particular for:

- Costs of public infrastructure

The costs related to public infrastructure losses are difficult to measure as they are usually accounted for as maintenance costs.

- Exposures related to reinsurance and financial schemes

Exposures related to reinsurance and financial schemes can be assessed by modeling the final losses expected in the schemes for various hazards. However the probability of losses is difficult to assess and the public accounting usually does not take it into account.

- Estimated payments for public compensation and assistance

This can only be done on the basis of stress testing.

- Potential impact on macro- economic conditions

The potential impact on macro -economic can be huge and disruptive for the public finances in case of extreme losses.

The assessment of the potential exposure of the public sector should take into account self-insurance situations as well as insured ones. Public authorities should also systematically assess the cost-benefit of self-insurance versus market insurance, taking into account potential moral hazard costs of self-insurance. Public authorities should also consider creating a public captive insuring, at a market price, the different public entities so as to give them the right risk management and incentives for prevention.

Due to the major potential impact in some exposed countries (up to 20/30 % of the GDP) for losses such as a major nuclear accident or a NBCR terrorist attack, we favor regional financial agreements to mutualize the loss at a certain threshold (such as 5% of the national GDP) to a regional level (such as Europe).

ii Plan for financial management of government exposures

Developing a plan for financial management of government exposures should be the task of a Country Risk Officer, which would ensure the coordination and have authority upon the various public organizations in charge of the public risks. The financial tools could be handled through specific bodies like a public reinsurer building up reserves, and in case these reserves are exhausted, use debt financing or temporary taxation.

It is important for public authorities and public accounting auditing (in France: Cour des Comptes) to have a global view of the public exposures which may become off-balance sheet commitments of the State, reserves, liabilities and tax financing power before choosing the right mix of financing tools for disasters. One way to handle that would be to have a risk mapping of all public properties and liabilities and, as suggested above, to create a public captive for all public uninsured risks in order to promote a good risk management process, a forward looking view, a prevention task force for all major hazards, a reduction of public exposures and the most efficient financing tools for disasters.

A declaration by governments of their financial exposure to natural events (e.g. 1/100 or 1/250 year events) would provide a stronger incentive to consider risk financing options and is in line with the push towards greater transparency on risks, in particular in the context of the debate on how best to address climate change (see UN RISE initiative, recent reports by Standard & Poor's on the impact of climate risks on sovereign credit ratings, or the recent Bank of England enquiries into climate risk).