Awareness Questionnaire
A. Your local context

1- What is the degree of awareness of climate change and its consequences:

- **In the general public?**
- Moderate, but currently increasing. Due to incoherent information, some people are still dubious about the existence of Climate Change related **to** natural events.
  In the areas more exposed to the effects of climate changes (like the region of Campania, where floods pose real threats for the inhabitants, there is a general resignation and not a pro-active behavior in respect of this peculiar kind of risk).

- **In the business sector?**
- Medium high, basically for companies which are included in Emission Trading System. B2C [Business to Consumer] shows raising awareness and starts to position on climate change in favor of CSR [CORPORATE SOCIAL RESPONSIBILITY] and green marketing**.** In particular, the biggest companies are undertaking specific ethic codes welcoming rules and code of conducts that provide for a drastic reduction of pollution and pollutant agents related to their business' procedures.

- **In the insurance industry?**
- Medium/Low. Not directly perceived by public and by many of the actors in the distribution chain.
  It is really difficult to define specific insurance products in the field of climate change, especially because the climate change risk-perception is still too low among the population, hence the insurance companies don't find a big private market for climate-related products.

- **In public authorities?**
- High. Ministries of environment and economic development periodically promote actions focused on emission reductions and spread of renewable energy diffusion. Recently the debate on 20 20 20 targets [+ 20% of renewable energy; + 20% of energies' savings; - 20% of CO_2 emission], use of nuclear power and security of supply brought back the issue on top of the news (recently a joint venture agreement has been signed between Italy and France for the development of new nuclear plants, that should be operative in Italy starting from 2020). Specifically, pursuant to the goals of the 20 20 20, starting from September 2009 there will be an European ban for the incandescent lamps, which are not energy-efficient.

2 - which are locally the main expected consequences of climate changes?

	Not applicable	Medium risk	High risk
Floods (including flash floods)			X
Rise of sea level		X	
Melting of ice, of snow, avalanches			X
Earthquakes		X	
Storms, tornadoes		X	
Heat waves, draught, fires			X
Spread of diseases		X	
Other adverse effects			X [1]
Any favorable effects		X[2]	

3 – which economic sectors, critical for your country, could be particularly affected?

***-agriculture*:**
could be highly affected in all Italy because of drought; cultures might shift in some areas of even 1-200 km in latitude. Drought affects Northern as well as Southern Italy. Desertification in some areas of the Country (especially in the South). More watering plants in order to irrigate the agriculture fields, therefore a general price increase of agricultural products. Should the water supply be scarce for the agricultural necessities, there may be a conflict between the water request coming from agricultural producers and the need of water supply for domestic use.
Vineyards already experimented changes and increased use of water in the last years.

-***fisheries***: rising of sea water temperature can cause drastic changes in all Mediterranean sea. Increasing acidity of water can affect sea life equilibrium.

-***forestry***: yes, increasing fires. Desertification.

-***energy***: yes, main causes: not availability of cooling water during summer and parallel increase of demand for conditioning. Huge increase in the electricity consumption during summer time – more costs – black out risk.

-***industry***: yes: floods, drought can cause production stops. Too high temperature can cause production stops or increase of energy demand in manufacturing sector, e.g. food & drink.

[1] SOCIAL FRICTIONS FOR WATER SUPPLY
[2] IF CLIMATE CHANGE DOESN'T OCCUR TOO QUICLY, COULD FACILITATE SPREAD OF SOME COLTURES AT DIFFERENT LATITUDES.

-***tourism***: maybe potential impact if raise of sea level in costal areas. Potential impact in the Alps' areas where the lack of snow may have negative consequences on the winter-time tourism.

-health sector: part of population (elderly people) may need a lot of medical care and assistance due to the increase of temperature in summer time, specifically in the Southern regions and in the biggest cities (Rome, Naples, Milan): need to provide medical assistance.

-***other***: not specified

4 – have some concrete measures already been taken or envisaged (other than in insurance sector – see B below)?

-legislation, regulation:

- Legislative Decree 2 march 2009: incentives for the productions of electrical energy through the utilization of photovoltaic plants;
- Legislative decree 208/2008: extraordinary measures related to the management of water resources and the environmental protection;
- Legislative Decree 152/2006: provisions for the prevention of desertification, the protection and the correct management of water resources;
- Legislative Decree 59/2005: enforcement in Italy of the Directive 1996/61 on pollution's prevention and reduction;
- National transposition of 87/2003 Emission Trading Directive **(legislative** decree 216/06, as emended by the legislative decree 51/2008) and Kyoto targets in general
- Energy performance of building directive (legislative decree 192/2005 and 311/06, energy certification of buildings)
- Promotion of end use energy efficiency (legislative decree 79/99, ministerial decrees 20/july 2004)
- Promotion of renewable energy ("conto energia" for photovoltaic, green certificates) in accordance to the transposition of the European Directive 2001/77 (legislative decree 387/2003)
- Tax deduction (55%) for private interventions focused on energy efficiency increase (building, heaters) and tax deduction (36%) for private intervention on the domestic lighting sector.
- Adaptation polices

-initiatives of economic agents:

- Financial instruments for renewable – fiscal deduction plans (mostly for solar photovoltaic and solar thermal energy)
- Project financing (large size projects) based on guaranteed cash flows (energy fees)
- Risk assessment based on carbon for M&As or financing carbon intensive industries

5 – how much is your country involved in international efforts and initiatives related to climate change

In general there is a high involvement in all initiatives at a National and Regional or local level

-Kyoto Protocol: high involvement, with very ambitious targets -6,5 %. 20 20 20 targets of EC agreed for a high level of ambition.

-**international strategy for disaster reduction, Hyogo framework**:

Involved: see statement of Italian delegation to the 1° session of the global platform for disaster risk reduction Geneva – 5^{th} /7^{th} June 2007) italystatementgp07.pdf

-national platforms: many initiatives at Regional level

-emission trading systems: Directive 87/2003

-GMES (*Global Monitoring for Environmental and Security)*: the purpose of such European plan is to collect the most possible data through the utilization of satellites in order to monitor and map the whole European territories and therefore prevent catastrophic events.

-others?:

- Carbon Capture and Storage
  - Zep European technology platform “zero emission fossil fuel power plant” Italian members of zep advisory council (2007):
- Use of nuclear power: lately an agreement has been signed between EDF and ENEL to re-introduce Nuclear power in Italy.

6 – please provide references to literature on climate change concerning your country.

See attached shortcut below
http://www.minambiente.it/index.php?id_sezione=956&sid=2fc1d29a0883d55ddcd4723dafc87 5c 7
http://mars.jrc.ec.europa.eu/mars/Bulletins-Publications/Mapping-Climatic-Risks-in-the-EU-Agriculture

B. Climate change and insurances (please stress legal expects)

1 – which are the lines of insurance that could be affected?

Property

- **Agriculture** (crops, forestry, livestock): yes
- **Buildings:** (partial/total destruction of the real estate properties, reconstruction costs, costs to guarantee the safety of the buildings)
- **Business interruption**: high impact; many compulsory standard (e.g. thresholds of emission – pollution of rivers and water in general) could be very cost effective for companies in terms of renewal of infrastructures and penalties. Risk assessment required.
- **Others (specify):**
  - liability: emission liabilities for carbon intensive and ETS companies.

- transportation, marine: yes, e.g.: carbon dioxide levels related insurances.. risk for leased transport;
- life, health: heat waves could be one of the causes of health problems

2 – how are the risks linked to climate change to be defined?

Climate change has a wide impact on agriculture and risk assessment in general, as well as on all other human and economic activities that may be adverse affected by a general increase in temperature.
First of all, the climate change will have a huge impact on the agricultural activities, specifically related to the lack of water and the necessity to refer to irrigations' system in order to irrigate agricultural fields. Moreover, a dramatic change in the climate conditions may cause huge migrations among different areas of the world.
Coming closer to our Country, the drought in wide areas of Italy may change the habits and behaviors of people, specifically in the business of water supply.
Medical care is another big issue, specifically in the summer time, when it becomes really hard and expensive to provide medical care to all people suffering from high temperature.
Huge impacts may be expected on the costal areas of the Adriatic sea, where a general increase in the sea level may flood wide areas of shores, causing big damages to the population living on the costal areas. Insuring against floods all the real estate properties on the costal areas may become very expensive in the near future.
Another big problem is the one related to the general increase of population living in very sensible areas, where climatic change may cause landslides and avalanches.
All the aforesaid risks pose serious insurance problems, as long as it is really difficult to calculate the amount of insurance premium that has to be paid by the insured people in order to get insurance coverage against these kind of risks. The common risk management tools adopted by insurance companies, indeed, are not useful for the protection against catastrophic risks in general and, specifically, the protection against risks related to climate change. The risks linked to climate change can't be dealt and predicted as well as the common risks for damages and losses covered by insurance companies, first of all because all these kind of catastrophic risks are "systemic risks", meaning that they are not diversifiable among other different risks, therefore exposing the insurance companies to huge losses should the insured event really happen.
In short, we can define the climate change's risk as (i) systemic; (ii) not diversifiable; (iii) exposing the insurance companies to big losses; (iv) increasing in the future, with reference to the global warming; (v) with a high degree of asymmetric information between the insured people, the insurance companies and the people willing to buy an insurance coverage, making really hard for the insurance companies to set a proper premium level profitable for both the insurer and the insured people.
The aforesaid peculiar characteristics of the catastrophic risk force the insurance companies willing to operate in this specific sector to gather together in order to pool the risks (risk pooling) and share the risks among them: the risk pooling and the risk sharing may be realized in two different ways: horizontal and vertical agreements. Horizontal agreements: among different companies operating in the same market – antitrust problems to be solved.
Vertical agreements: agreements between insurance and reinsurance companies, to which the insurance companies transfer the risk, cleaning it from their balance sheet. In this structure, the reinsurance companies may once again transfer the risk to the

capital markets through financial instruments – derivatives, options and other products of the financial engineering innovation (in full observance of all legal requirements and full disclosure of the risks to the market); or seek State's guarantee (through public finance) should the loss incurred be extremely high. The last solution is the one adopted in France, where the State is the last guarantor of the entire catastrophic insurance system, providing financial assistance to the insurance companies should the loss incurred overcome a certain amount. The State itself is the perfect guarantor of last instance - the perfect reinsurer - having access to public finances through the taxation system.

3 – insurers' measures of protection against excessive exposures

- Improvement of statistics (cartography of risks); more data collection; networking among different companies in order to share information, data and forecasts. PROBLEM: in these fields, need to consider antitrust matters.
- raising risk awareness (communication campaigns, lobbying, public funds for prevention's initiatives among population)
- Prevention (new technological standards for building new properties; developing new insurance products, for example new products according to which the amount of premium to be paid varies proportionally to the degree of prevention adopted by people willing to buy insurance; funding researches and public bodies to carry out researches)
- Limits of indemnity – stop loss instruments, in order to fix *ex ante* the maximum pay-out that an insurance company is willing to pay when dealing with climate change's risk.
- Deductibles – a minimum amount of damages under which the insurance companies are not willing to pay out any sum to the insured, in order to force the insured to raise its level of attention and prevention against the insured risk.
- Exclusions – for some peculiar kind of risks, or in some peculiar areas of the Country where the risk itself is really high or it is really difficult to assess the risk level, or in case the problems of asymmetric information may not be resolved, the insurance companies may not be willing to insure the catastrophic – climate change risks - hence leaving the population without any form of private insurance available.
- Premium increases – to what level?...a to high premium level may force people willing to get insurance coverage to drop out from the market, relying only on *ex post* State intervention. The premium level has to be competitive and adequate to the necessity of people seeking for insurance coverage.
- Cancellations
- Withdrawals from markets – *Extrema ratio* hypothesis: in such a case the State, through public funds and public finances, shall guarantee protection against catastrophic risks to all citizens.
- Adaptation of reinsurance agreement (or develop under point 4 below)
- Cover or climate risks on the financial market (or develop under point 5 below)
- Others

3 –insurers' initiatives to develop "new products"

N.b.: climate change is seen as opening new opportunities by a growing number of insurers. Some examples are listed below, but they are far from exhaustive and new product keep appearing. Please investigate the situation in your country and provide as much information as possible (obtaining models of clauses and policies would be extremely valuable).

- New policies to cover the consequences of climate change:
  - coverage for producers of new energies (e.g. wind mills): zurich assurance tools (wind) (ear – erection all risks, civil liability of third part, civil liability of employers, alop – advanced loss of profit)
  - liability of architects: zurich insurance (reference:
  - d & o environmental liability
  - micro – insurance products for developing countries
- Climate risk management services, expertise
- New policies as incentives to reduce greenhouse gas emissions
  "pay as you drive" motor insurance
  "energy saving", "green-building" insurance
  Zurich insurance:
  Ccs responsibility coverage (January 2009)
  http://www.businesswire.com/portal/site/home/permalink/?ndmviewid=news_view&newsid=20090119005780&newslang=it
- Initiatives in the carbon market
  carbon credit insurance (covering failure to deliver emission rights)
  options to buy carbon credits to offset emissions (vehicles)
- Others

4. Reinsurance

In your country what is the role of reinsurance companies with respect to the above problems?

As of today, Italy has not passed any specific law regulating the reinsurance sector dealing with catastrophic risk. Hence we have to refer to the European Regulation 358/2003 that grants block exemption in the insurance – reinsurance market, allowing data and information collection and sharing among competitors in the insurance market, as long as some specific provisions are respect: time period, market share threshold, premium determination and policies adopted.

It was the European Directive 64/225 to open up the European reinsurance market, providing for the freedom of establishment and the development of a common market in the reinsurance sector. With reference to the reinsurance sector, in Italy recently has been passed a legislative decree – legislative decree 56/2008 - implementing the European Directive 2005/68/CE that has amended the provisions concerning reinsurance contained in the previous European Directives 73/239/CEE, 98/78/CE and 2002/83/CE. The aforesaid legal provisions refer to the access to the insurance activity and the carrying out of insurance business in the European Union, in order to establish a common European legal framework to boost the harmonization of the European insurance/reinsurance market. The European Directive 2005/68/CE, nevertheless, does not provide for any legal framework regulating reinsurance companies covering specific and peculiar risks.

As stated in point 2 above, the reinsurance sector may be declined in two ways: private reinsurance sector, public reinsurance sector (the State). The private reinsurance sector is widely concentrated worldwide, being three the big reinsurers : Munich Re, Swiss Re, Lloyds. These companies and operators work worldwide without any reference to a specific country or a specific related risk, reinsuring risks that are transferred to them by insurance companies, gathering and diversifying risks on a global scale, hence granting the financial stability and the overall operational process of the insurance market, through the proper risks' allocation in the balance sheets of each companies.
Specifically, in our Country the reinsurance sector is regulated by article 1928 and followings of the Italian Civil Code. These legal provisions state that the reinsurance company pays back to the insurance company the fraction of risk that has been reinsured, hence compensating the insurance company for the risk that it has transferred to the reinsurance company. The utilization of the reinsurance sector allows the insurance companies to subscribe a higher quantity of risks, with beneficial effects for the whole insurance private market.

5 ART (alternative risk transfer)

have any of following techniques developed in your country in connection with climate change?

- Derivates: they might develop in connection with emission allowances. Spread in oil & gas sector
- Swaps: yes, CERs to EUAs
- Cat bonds
- Captives;
- Multi line, multi year products;
- Multi-trigger products;
- Finite solutions;
- Contingent capital;
- Securitization.

See "*Gli strumenti di Alternative Risk Transfer (ART solutions)*", Raoul Pisani e Monica Potrich, Rapporto preliminare Dipartimento di informatica e studi aziendali Trento, dicembre 2001

What is the legal nature of these different products? Can they qualify as "insurance"?

These "alternative risk transfer" instruments are most of all financial solutions utilized by insurance companies to increase their ability to subscribe new insurance policies and diversify the risk, boosting the financial profitability of their assets. For the aforesaid reasons, the ART instruments should not be qualified as "insurance".

6 – cooperation or competition with public sector

What is the state of cooperation (or competition) between public authorities and the insurance sector in your country in issues related to climate change?

There is no high degree of cooperation between public authorities and private insurance sector, as long as Italy has not yet passed any law that regulates the insurance market for products related to climate change. As of today, any adverse effect caused by climate change is covered by public funds and by State intervention.
Many legislative reforms have been discussed during the last 15 years, starting from the draft for the insurance of catastrophic risks (Ddl 1164/93); the Casinelli draft dated 1996 (Ddl 235/1996); the Manfredi draft dated 2001 (Ddl 503/2001); the legislative proposal of art. 40 of the Financial Budget law for the year 2004 and the legislative proposal of art. 202 of the Financial Budget law for the year 2005; last, the Benvenuto-Fluvi draft dated 2005 (Ddl 5921/2005).
Specifically, the Casinelli bill (1996), provided for the establishment of an hybrid system, including both private and public intervention: this system proposed the tying of fire insurance policy with catastrophic-natural events ("cat-nat") policy. Such tying raised important antitrust matters, because it mixed up the private and public intervention, having adverse consequences on the fire insurance sector (where a solid ground of competition always existed) tied to a completely different product - catastrophic insurance, strictly regulated by public intervention. This bill, according to the Antitrust opinion no. 13-14 of 26 April 1999, would have had negative consequences on the whole insurance market for both fire and cat-nat coverage. For the aforesaid reasons, the Casinelli proposal was rejected by the Antitrust Authority and therefore dismissed by the Parliament.
Nevertheless, it is submitted that an hybrid system, based both on public and private intervention, is the most efficient and suitable system in the catastrophic insurance sector, because the amount of losses and damages that may be faced by private insurance companies may have unbearable consequences for the insurance industry – without public intervention.

Are there specific public schemes concerning some of the risks involved?

In Italy, the *Protezione Civile* is the public body active in the forecast, prevention and management of catastrophic events. Specifically, it is active in the management of seismic risk, volcanic risk, geological and waterflow risk, fire risk.
The *Protezione Civile* is granted with a certain amount of funds per year, as set forth by the yearly Financial Budget law, in order to comply with all the catastrophic events happening during the year.
For more details, www.protezionecivile.it