

## INTERNATIONAL SEMINAR ON RISK MANAGEMENT FOR ROADS – HANOI APRIL 2006

### **TITLE : " CLIMATE CHANGE AND INFRASTRUCTURES : RISK MANAGEMENT FOR VULNERABILITY REDUCTION – THE GERiCi PROJECT"**

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#### **Introduction**

All the experts through the world are nowadays convinced that Climate Change is taking place.

The conclusions of the ONERC (French National Observatory on Climate Warm-up Effects) report on this subject are clear: "Simulations anticipate a general worsening of large scale extreme weather events in France", and the vulnerability of transport infrastructures has to be studied, when facing an increase of heat waves, floods, storms, etc....

#### **Research Program**

Therefore, French Ministry for Infrastructure decided to finance a few research actions about this topic. A consortium managed by Scetauroute has won with the GeRiCi Project.

#### **GeRiCi Project organisation**

GeRiCi is an applied Research Program involving seven partners:

- Scetauroute, Project leader and integrator,
- BCEOM, in charge of Hydraulics Expertise,
- SANEF and ASF, tow major motorway concessionaire company,
- Météo France (French National Weather Service), for its knowledge of meteorological phenomenon and relevant data;
- LCPC (Central Road and Bridge Laboratory depending of Ministry),
- ESRI France, for the GIS tool.

#### **Project description**

Facing the climate change, which is ineluctable, and its consequences, that can't be precisely quantified, the GeRiCi project will help infrastructure owners with:

- Identifying major risk factors,
- Determining the vulnerability of the infrastructure components (bridges, pavement, culverts' capacity, canopies, sign gantry, etc ...), to wind, rain, floods, heat, etc...
- Designing a GIS-based tool for Climate Risks Management and their impact on infrastructures.

This open and adaptable tool will allow:

- **Infrastructure managers** to be aware of the most vulnerable components of their infrastructure, and then avoid serious problems with the means of a rational programming of palliative or curative arrangements.
- **Operations managers** to simulate a virtual (case study) or forecast (weather warning) extreme weather event and thus, anticipate consequences of this situation by managing the crisis at best when it occurs.
- Public Grantor and **Regulatory Agencies** to take into account on-coming data related to climate change and their consequences in order to adapt the best infrastructure **design rules**.

#### **Project Status**

GeRiCi Project is scheduled to be completed by the end of 2006.

#### **Keywords**

Climate change – research program – risk – vulnerability – GIS – crisis – bridge – pavement – hydraulics –

#### **Biography of the presenting author**

Hervé GUERARD is a Technical Expert in bridges structures.

He has been working for 23 years in SCETAUROUTE, a Groupe EGIS company. Groupe EGIS is focused on three core businesses: engineering, project development in public-private partnerships and infrastructure operation.

Hervé GUERARD is responsible for the GeRiCi project.