The territory

To study territorial resilience

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Population</td>
<td>795,937 inhab</td>
</tr>
<tr>
<td>Surface</td>
<td>2,118 km²</td>
</tr>
<tr>
<td>Counties</td>
<td>29</td>
</tr>
<tr>
<td>Cities &amp; villages</td>
<td>82</td>
</tr>
</tbody>
</table>
The project

- Find a «resilience index» for a territory face to major natural and industrial hazards in the future: other risks and threats...
- A qualitative «index»
- Mixing prevention, planning, preparedness, risk education, emergency management, economical and social resilience and recovery
- Based on «global view» on a territory
- Objectives: optimize a costly system of “reparation”
Feb 2010 Xynthia Storm: 53 Deaths
Bad prevention “implementation”
Good emergency response
Poor resilience response
Population unhappy
Law suits….. – big losses
How to implement Societal Resilience?
Searching for an Index:
How do we proceed?

Defining a « gravity » mark for the territory including:

- natural and technological hazards (occurrence & intensity)
- stakes at risk (importance & vulnerability)
Defining an “ability to react” mark for the territory:

Studying all kind of prevention process – emergency planning & preparedness - education – assurance – communication – relationship between stake-holders...

<table>
<thead>
<tr>
<th><strong>ANTICIPATION (Risk prevention &amp; education)</strong></th>
<th><strong>REACTIVITY (Response of all kinds)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>DDRM – Major hazard document on the Dept.</td>
<td>PCS – Emergency plan for cities</td>
</tr>
<tr>
<td>DICRIM – Risk education document for population (city &amp; school)</td>
<td>POI - PPI – Emergency plan – industrial hazards</td>
</tr>
<tr>
<td>PPRN (prevention plan for major natural risk)</td>
<td>PPMS - School emergency plans</td>
</tr>
<tr>
<td>PPRT (prevention plan for major industrial risk)</td>
<td>White (Hospital) plan</td>
</tr>
<tr>
<td>SDACR (Planning organization for fire and rescue responders)</td>
<td>ORSEC response framework</td>
</tr>
</tbody>
</table>
Searching for an Index: How do we proceed?

Resilience index:

- “Ability to react” mark
- “Gravity” mark

If $> 1$ Resilience positive

If $< 1$ territory still at risk.

But an index $>1$ does not mean all the work is done!
Beyond the Index: Increasing territorial resilience

Beside rating the resilience, we also focus on highlighting the ways to reinforce resilience with the best economic efficiency.

So the territorial resilience index must be a qualitative index!
The ability to react mark

CONSCIOUSNESS
Risk education
Risk information

ABILITY TO REACT

ANTICIPATION
Prevention planning
Vigilance
Warning

PREPAREDNESS
Intervention planning
Exercises
Training / Formation

GOVERNANCE
Politician commitment
Budgets
Inter-actor relationship
Skills
Financial cover
Social cohesion
Beyond the Index:

Reactivity = 24

Resilience Index would be 1.5

Gravity = 16
Beyond the Index:

Less and more
We need to be less vulnerable and more reactive
How do we collect data:

The inquiries

Interview with the persons in charge of major natural and technological hazards in:

<table>
<thead>
<tr>
<th>cities</th>
<th>The Regional Environnement Administration (DREAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>the Prefecture and its specialized services</td>
<td>The Regional Health Administration (ARS)</td>
</tr>
<tr>
<td>the FireDepartment (SDIS 44)</td>
<td>the local Education Administration (Académie de Nantes)</td>
</tr>
<tr>
<td>the industrial complexes</td>
<td></td>
</tr>
</tbody>
</table>

Of course, beside our own research.
First study (2010-2011): The area
First study (2010-2011): The results

- Unequal level of preparedness between stakeholders. Low for cities, higher for local administration.
- Low level of communication on natural and technological hazards matters.
- Weak governance. Not enough intercourse between actors. Low budgets dedicated.
Second study (2011): The area
Second study (2011):

Course of action:

- Upgrading the methodology.
- Collecting information by questionnaire and inquiries.
- Information processing (November-December 2011).
- Final report redaction (December 2011).

Study is on going!
• Second Study Delivery: January 2012
• Second approach to see « validity » of the concept facing field reality
• Supported by the Ministry of Ecology and Sustainable Development
10 key points to achieve Resilience

**Reduce Gravity**

1. Risk and vulnerability assessment
2. Taking care of risks in economic development
3. Insurances policy
4. Prevention & Preparedness
5. Risk education

**Reinforcing Response**

6. Warning People may be affected
7. Safety of people and goods
8. Business continuity
9. Manage Emergency/Crisis Management (and post)
10. Planning economic resilience
• Risque, aléas (p+i), Enjeux (I+V)
• Risque mesuré (=qualifié) de 0 à 100 soit (5+5)*(5+5)
• Le risque est classifié (selon une échelle de 1 à 6) qui donne des appréciations sur la gravité
• La gravité se mesure par le produit (p+i)*(I+V)

• Pour réduire la gravité : renforcer la réactivité
• Réactivité = « anticipation » (= vigilance et préparation) & « culture du risque » (= conscience et confiance)
• On a donc réactivité = (v+p) * (c+c), à savoir 5+5 * 5+5
• On a donc 2 indicateurs : GRAVITE et REACTIVITE, données chiffrables.

• Indice de résilience : REACTIVITE/ GRAVITE

• Si indice > 1 alors résilience positive pour le territoire
• Si indice < 1 risque pour le territoire

• Rôle de « ERIS » ?