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BARCELONA

Building Resilience Strategies



**Ajuntament
de Barcelona**

M. VALDÉS CEO Infraestructures & Urban Coordination

2009. TISU: Infrastructure Urban Resilience

ORGANIZED:

-8 clusters

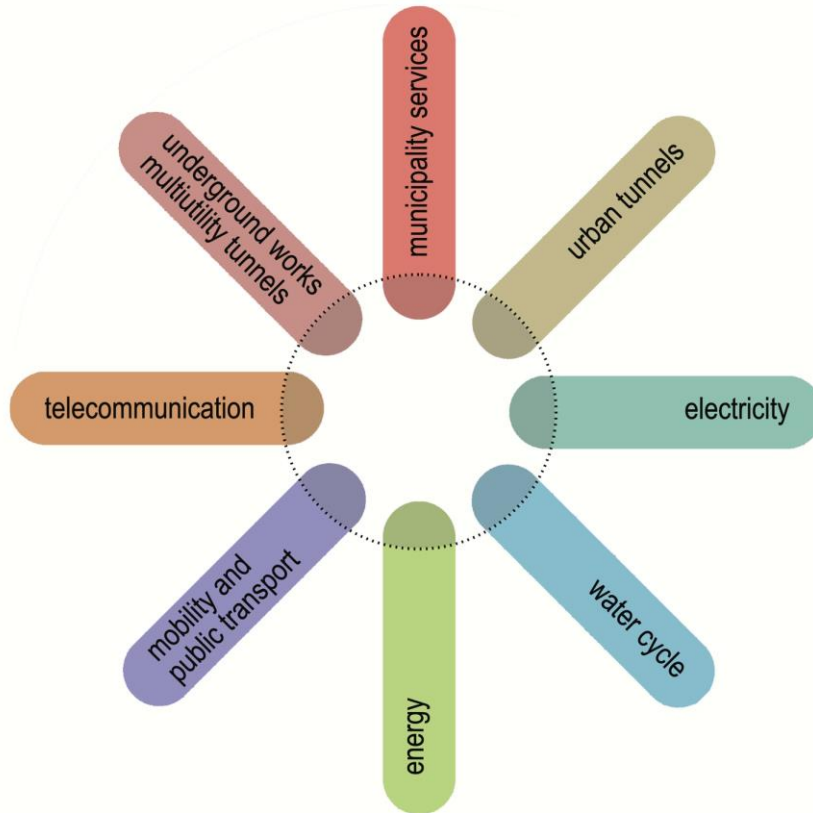


First Projects

- TISU: Barcelona Urban Resilience Board
- Concept
- Project monitoring
- Projects

Where are we?

- Project update
- Exporting the model



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BARCELONA URBAN RESILIENCE BOARDS – Projects & Strategy

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- 8 clusters
- A coordination team

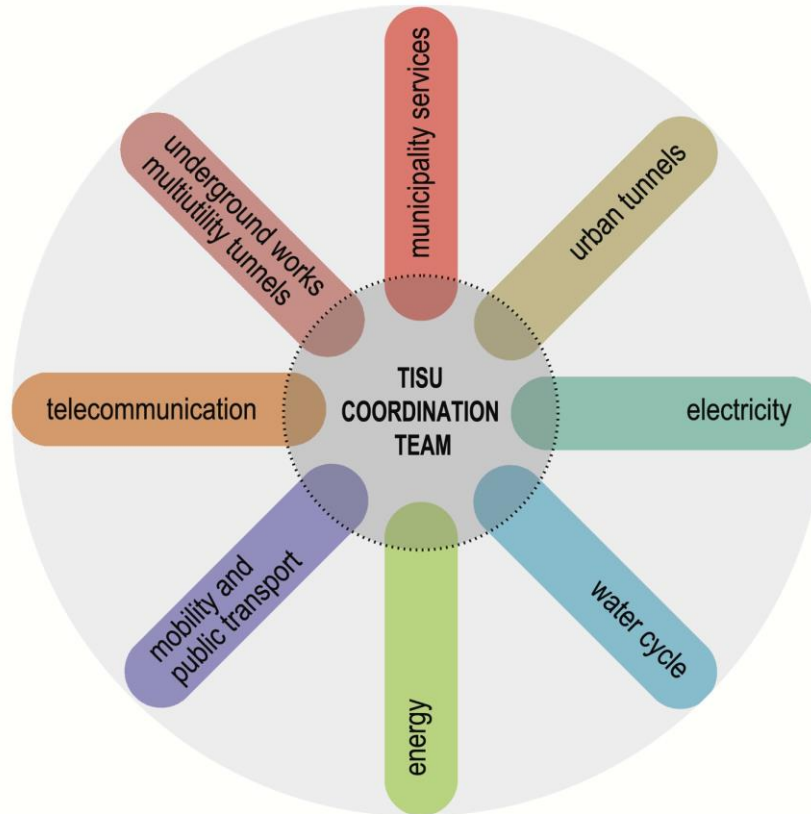


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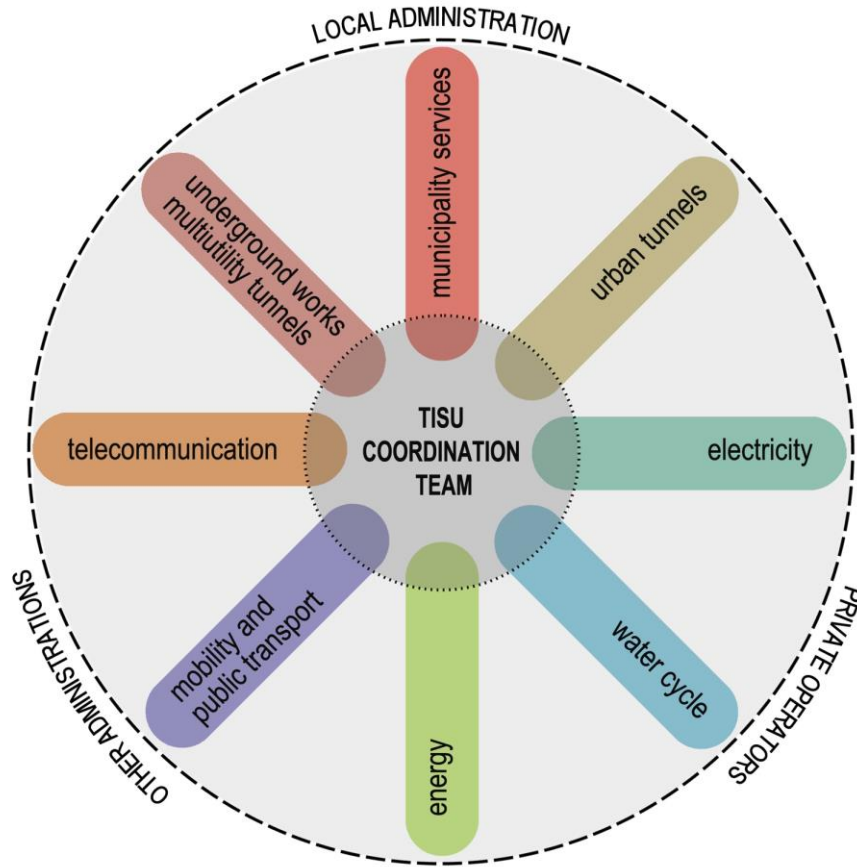
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EFFICIENT:

47 improvement projects

COORDINATED:

Between the different areas of local administration, private operators and other administrations

GLOBAL:

72 professionals from 37 entities



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BARCELONA URBAN RESILIENCE BOARDS – Projects & Strategy

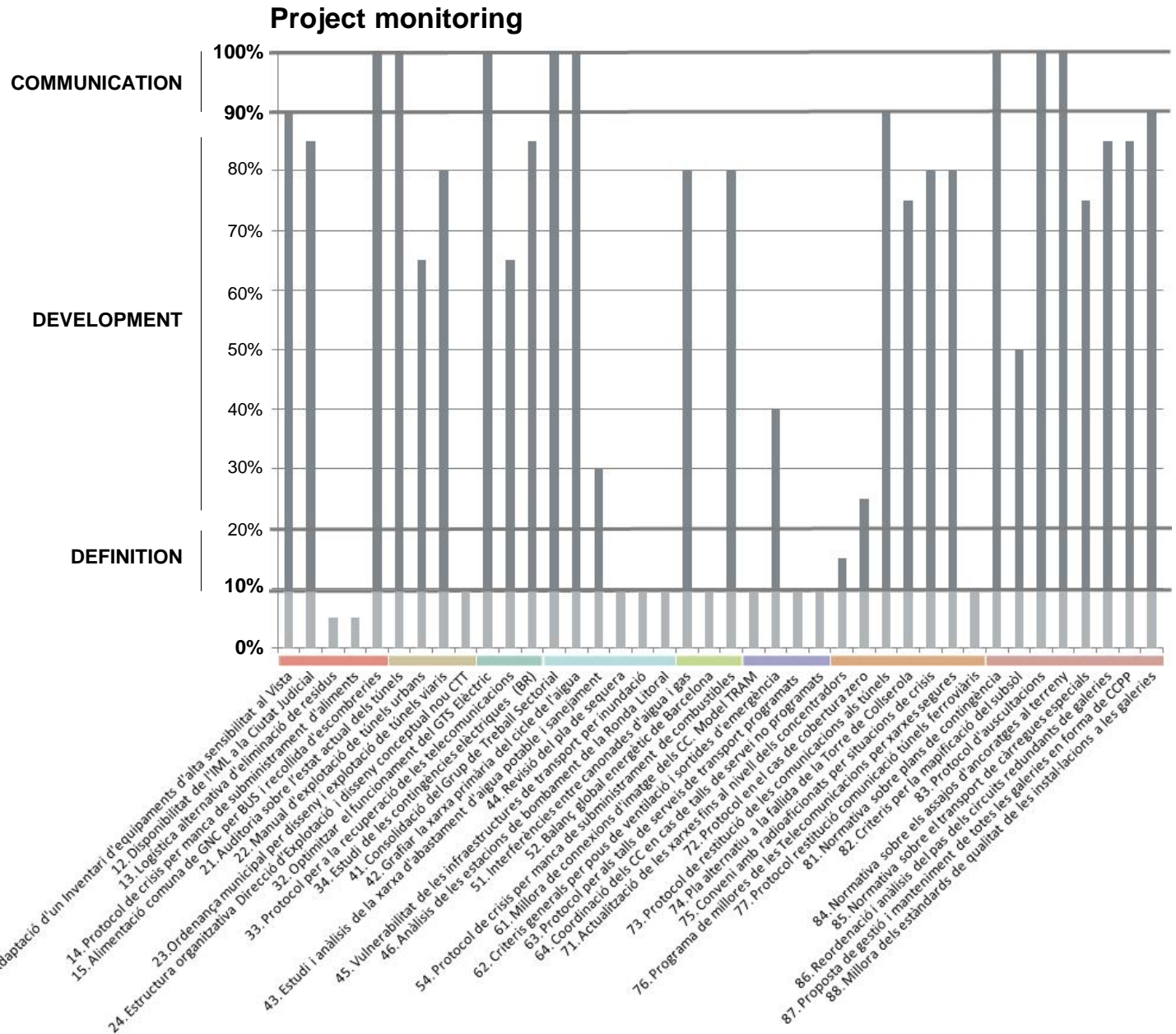


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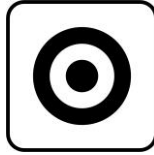
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PROJECT: Monitoring protocol



DETECTED RISK

- Possible variations of soil condition derived from the execution of infrastructure works that might have caused harm to other services and/or close buildings.



TARGET

- To improve global safety where subsoil works take place, to set up a regulatory framework for the monitoring of works of municipal promotion during the project and execution stages.



WORKING PROCEDURE

- Elaboration of a Monitoring Protocol that:
 - Establishes the procedures that will be carried out by the operator.
 - Defines the minimal information that the project must provide for the development of a proper Monitoring Plan.
 - Determines work typology and elaborates a Contingency Plan.
 - Defines a specific monitoring method in the execution phase.
 - Defines a follow-up procedure in the monitoring process.
 - Decides on the measures to be taken if tolerances are surpassed
- Future Actions:
 - The communication stage is being prepared to address all the participants of public and private agencies.



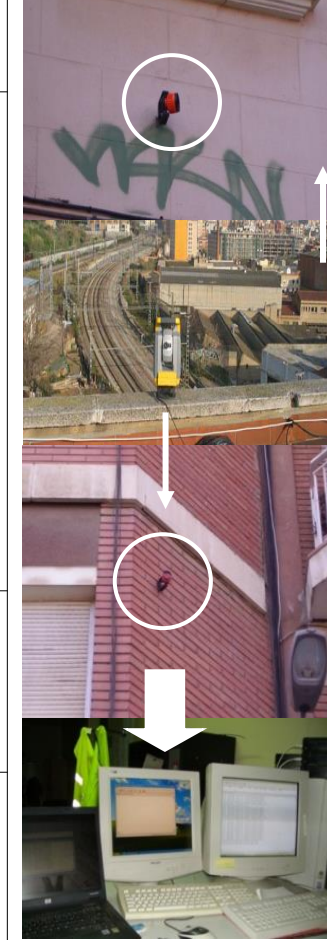
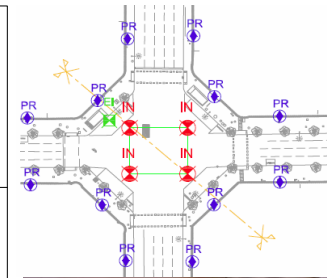
WORKING GROUP

- Environment and Urban Services , Infrastructure and Public Space Departments of the City Council of Barcelona.
- Private company: BCNSIT.



PROJECT STATUS

- Resolution and Development Stages are completed.
- The Monitoring Protocol Council Order has been passed.



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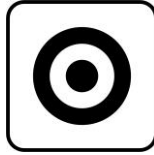
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PROJECT: Water and gas pipes interferences



DETECTED RISK

- The densification of infrastructures that lie in the subsoil can generate interference in the services causing incidents and failure.



TARGET

- To improve communication and coordination mechanisms on underground service networks in order to reduce incident risk or reaction time for a solution.



WORKING PROCEDURE

- Approval of a Coordination Protocol among Companies:
 - Definition of Scope of Application: canalization works.
 - Detection of problems aroused from service congestion in the subsoil.
 - Improved communication and coordination mechanisms of operations.
 - Resolution of a working operational for each company.
 - Coordination before a service group incident and/or other services.
 - Resolution of the installation of protections for the different networks.
- Future Actions:
 - To carry out the communication of the project to the service operators.
 - To carry on with the effective implantation of the Coordination Protocols.
 - To hold follow-up meetings with aim of incorporating improved processes.
 - To homogenise and standardise subsoil working procedures.



WORKING GROUP

- DGEM Department of Energy and Mining of the Generalitat de Catalunya.
- Fuels Group.



PROJECT STATUS

- Resolution and Development stages are completed.



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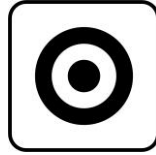
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PROJECT: Audit of the current condition of the tunnels



DETECTED
RISK

- Lack of awareness and information about the current condition of the tunnels which, in case of a serious incident on this kind of road network infrastructure, may cause no coordination and inefficiency of the rescue and evacuation.



TARGET

- To prevent critical situations, to keep users safe if there is an incident and to check the proper working of the present methods in case of an emergency.



WORKING
PROCEDURE

- Current situation analysis:
 - Current regulation gathering.
 - Information gathering in order to establish the type and condition of tunnels.
 - Current administration and working system analysis.
- Suggestions to improve the system:
 - A list of specific and general suggestions for every tunnel.
 - A new organization chart that make the current administration simpler.
- Future Actions:
 - Definition of a tunnel development manual.
 - Organization of a Department of Development and conceptual design of a new Tunnel Control Centre.



WORKING
GROUP

- Departments of: Infrastructure, Energy, Investment and Road Area, Mobility Services, Police Force and Fire of Barcelona.
- Council, Zona Franca Consortium.
- Project Engineer (ESTEyCo).



PROJECT
STATUS

- Resolution, development and communication stages are completed.
- Approval steps are starting for the Regulation of the Design and Exploitation of Road Tunnels of Barcelona.





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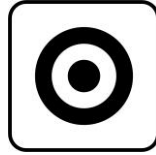
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PROJECT: Common power supply of CNG for buses and cleaning service



DETECTED RISK

- Lack of alternative supply of Compressed Natural Gas (CNG) in the bus garages of the Free Trade Zone (Zona Franca) and in the Waste Collection and Public Area Cleaning truck garages.



TARGET

- To assure that the transportation fleet and the garbage service vehicles are supplied so as to guarantee the service in case of emergency or eventuality in the city.



WORKING PROCEDURE

- Current situation analysis:
 - Premises conditions, vehicle demand and fuelling time.
 - To establish the necessary time to fuel vehicles in other premises.
- Loading tests in situ:
 - To apply the correction coefficient that resulted from the fuelling tests: fueling simultaneousness.
 - To increase the fuelling time of buses in a 100%.
 - To determine a new effective fuelling time.
 - To write and pass a coordination and action protocol among the public area cleaning companies, waste collection services and metropolitan transport in order to supply all the vehicles in case of emergency or eventuality in the city.



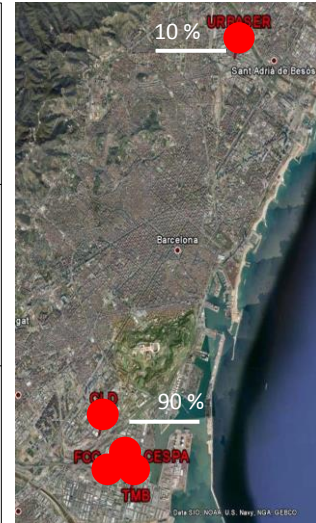
WORKING GROUP

- Municipal Services of the City Council of Barcelona.
- Metropolitan Transport of Barcelona.
- Allottee companies of waste collection services and public area cleaning. (FCC; Cespa; Urbasser; CLD)



PROJECT STATUS

- Resolution, Development and Communication are completed.
- Protocol that obliges each company to assign the use of its premises at a set timetable. Carry out refurbishments in case an emergency is declared by the City Council of Barcelona.





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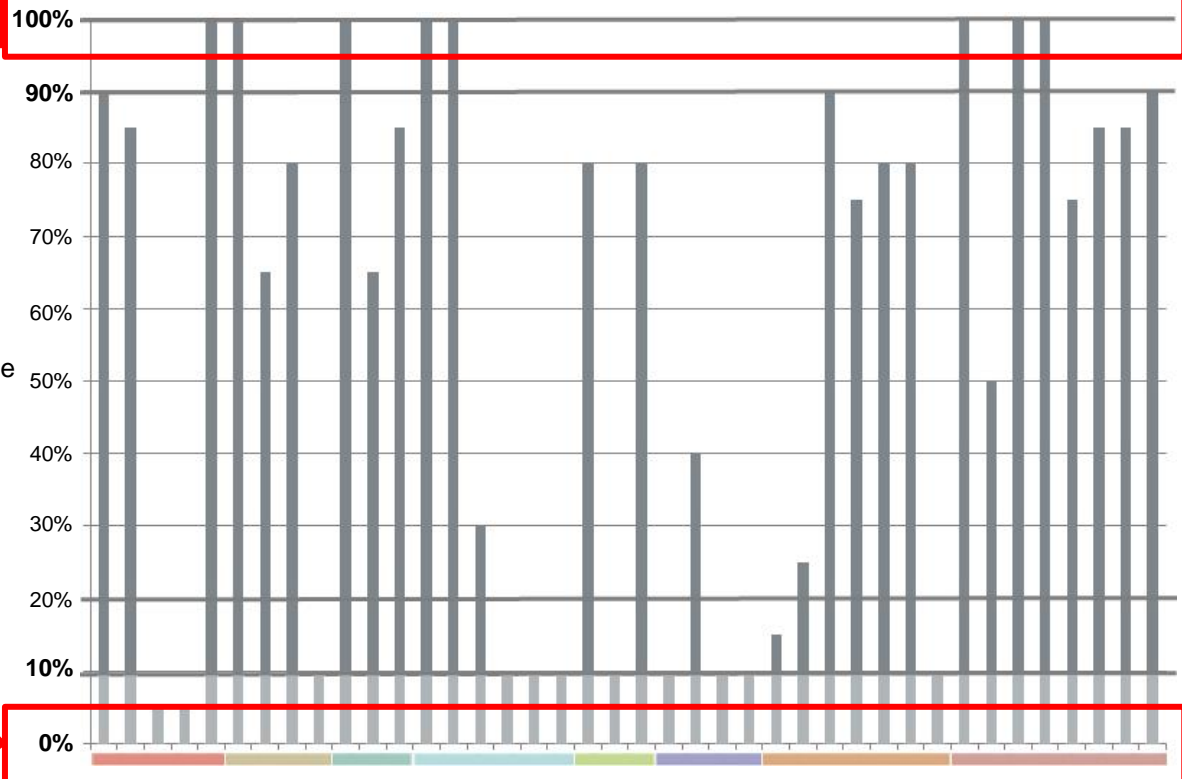
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CONTINUITY OF PROCESS

projects updated over time

TRANSVERSAL PROJECTS



1. **Diagnose/assessment** is the first **necessary** step, but is **not enough**: without any action the add value is minimum
2. Development of **resilience projects** have to be proportional to the **competence** of local administration
3. Each improvement project generated by this process, needs to **complete the cycle**: from definition to communication and update
4. **Colaboration** with the rest of the **administrations** and private **enterprises** (owners or operating in the city) is essential



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BARCELONA URBAN RESILIENCE BOARDS – Projects & Strategy



First Projects

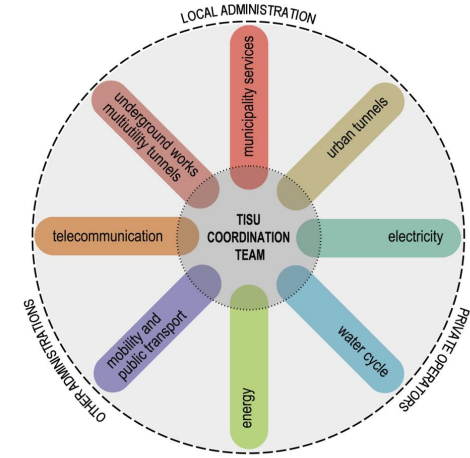
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- Resilience Working Methodology

1. Detection of Risks.
2. Evaluation of Risks.
3. Evaluation of Resilience.
4. Building Resilience.





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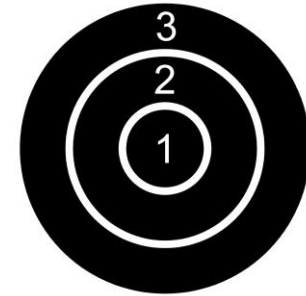
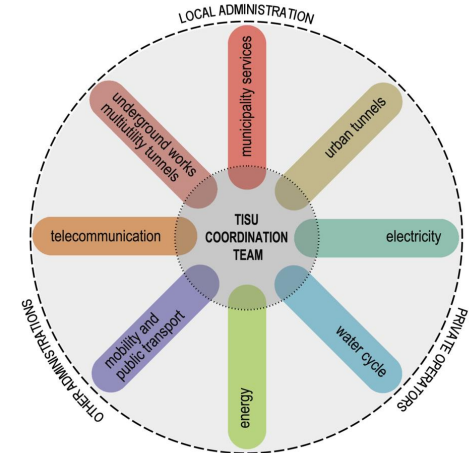
- Resilience Working Methodology

1. Detection of Risks.
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- Apply the Working Methodology

Already tested and proved successful to a wider scope of Resilience related Projects:

1. Create a coordination team.
2. Identify all stakeholders involved.
3. Engage stakeholders: Resilience boards.



- | | |
|---|---|
| <p>1: Core promoter</p> <p>2: TISUS</p> <p>3: Coordination</p> | <p>tourism
mobility
energy
public Health
water cycle
clean and waste
beaches
urban Planning
communication
(and more...)</p> |
|---|---|



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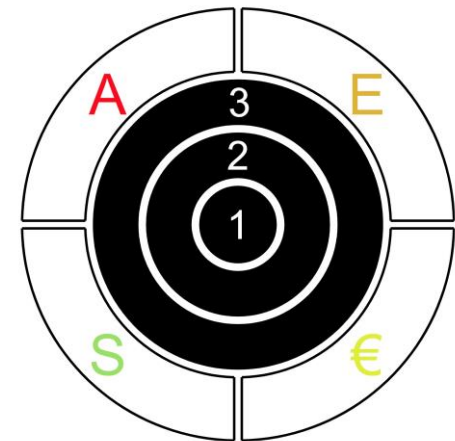
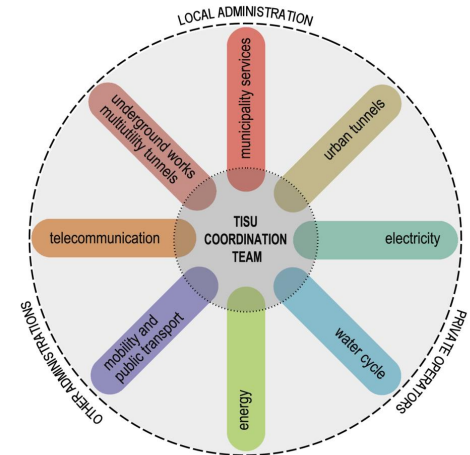
- Apply the Working Methodology

Already tested and proved successful to a wider scope of Resilience related Projects:

1. Create a coordination team.
2. Identify all stakeholders involved.
3. Engage stakeholders: Resilience boards.

- Projects currently under development:

1. Situation Room.
2. Barcelona Resilience and Climate Change Adaptation Plan.
3. Participation in International Campaigns and Programs (UNISDR, UNHabitat, ICLEI)
4. Exchanging knowledge, by joining International Networks and creating an Exchange Platform: URB-IS.



- | | | |
|--------------------------|--|---|
| 1: Core promoter | | tourism
mobility
energy
public Health
water cycle
clean and waste
beaches
urban Planning
communication
(and more...) |
| 2: TISUS | | |
| 3: Coordination | | |
| A: Administration | | |
| E: Education | | |
| S: Social world | | |
| €: Economic world | | |



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Introducing the City Protocol & Urban Resilience

First Projects

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C/P is a delivery-focused **network of global cities** that, in partnership with Industry, Academia, Agencies and other organizations is **developing common approaches and solutions** to help cities build a **sustainable future** by leveraging knowledge and experiences.

City Protocol refers to both a **program of activity** and to an **organization** that is being set up to manage it.

In **July 2012** over 200 participants, representing 33 cities, 20 major businesses, 14 universities and 20 other organizations, convened in **Barcelona, Spain to learn about, discuss, and infuse life into the idea of a City Protocol Society**. After a successful assembly, an Interim Steering Committee (ISC) was created.

Meeting regularly over several months, the ISC convened again in a face to face workshop in **October 2012 in San Francisco, USA** to work through the components of the society. The official launch of the City Protocol Society at the **November 2012 Smart City World Congress in Barcelona** set out the roadmap for the society to be **fully operational by April 2013**.





CityProtocol.org

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STRUCTURE

Environment

Infrastructure

Public space

Nodes

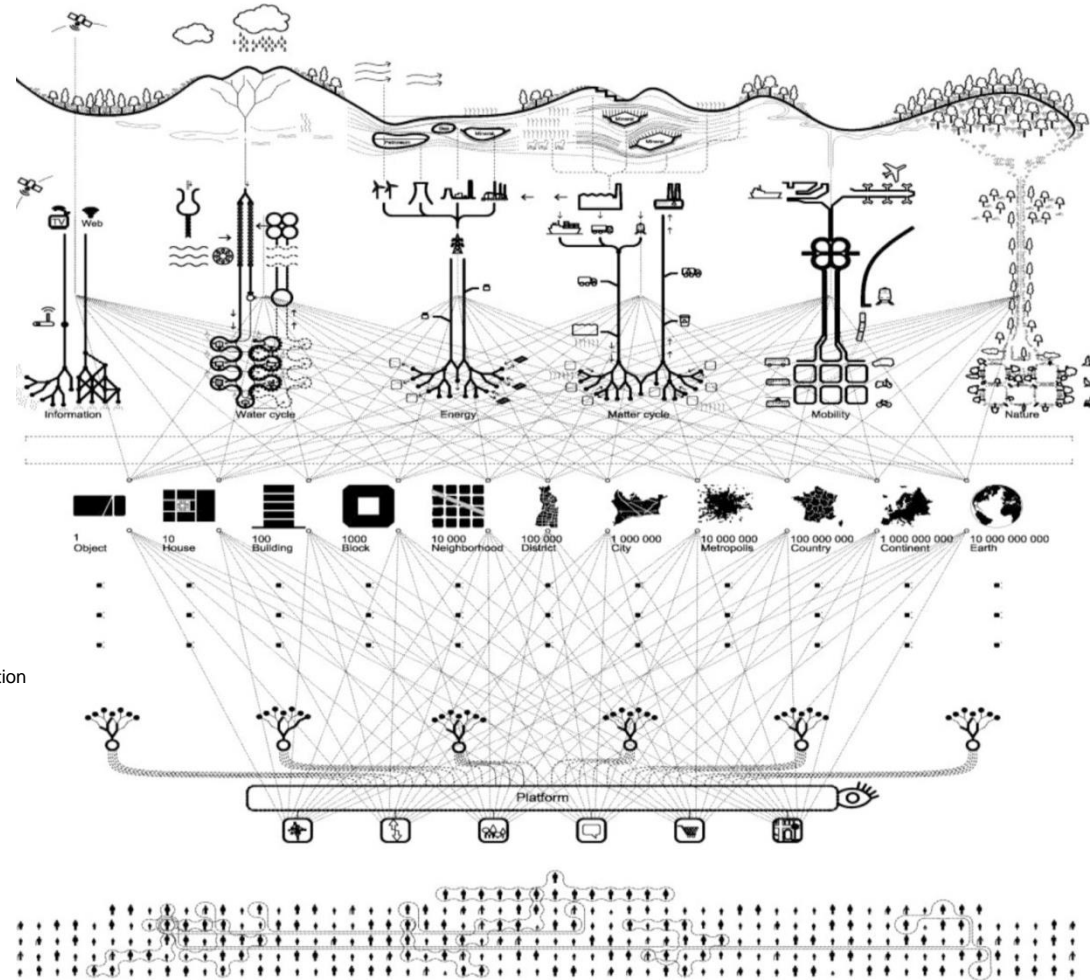
housing
industry
offices
shopping
economy
leisure
health
education
culture
sports
administration
security

INFORMATION

Information

CIVITAS

People



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BARCELONA URBAN RESILIENCE BOARDS – Projects & Strategy

How are we implementing the Ten Essentials for Making BCN Resilient?

MILESTONE PHASES AND STEPS. UNISDR

BARCELONA PROCESS

Phase One Organizing and preparing to apply the Ten Essentials

1. Prepare institutional setting, raise awareness
2. Convene actors, formalize participatory process
3. Plan and execute the process

Phase Two Diagnosis and assessment of the city's risk

4. Be acquainted with the city's risks
5. Conduct a risk assessment
6. Analyze the local environment and actors
7. Prepare an assessment report

Phase Three Developing a safe and resilient city action plan

8. Define vision, objectives and main actions
9. Define programmes and projects
10. Institutionalize and sustain the disaster risk reduction plan

Phase Four Implementing the plan

11. Implementation and resource mobilization
12. Ensure broad participation and ownership

Phase Five Monitoring and follow-up

13. Monitor, follow up and evaluate the plan
14. Disseminate and promote the plan

- Establish a legal framework at local level to jumpstart the process; pass a resolution to adopt a policy on disaster resilience: **Creation of Barcelona Resilient Board in 2009 for permanent transversal work.**

- Assess the political will of the city council and local authorities to integrate disaster risk reduction into Development: **The new government gave continuity and restarted this board, Directed by 3rd Deputy Mayor**

- Designate a technical entity or team in the municipality, charged with leading the work and implementing actions: **Infrastructures and Urban Coordination Department, in collaboration with Fire Department.**



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- Identify and convene all actors and create strategic alliances: **Proposed the creation of a cluster for Barcelona Resilience in a collaborative (not competitive) way**

- Appoint (or strengthen) a multi-stakeholder task force to implement the process: **37 stakeholders working in projects of TISU board**

- Establish sector or thematic working groups: **8 sectorial groups were created.**



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- Define the methodology to be used and alliances, resources and capacities required: **Five phases for each project to guarantee business continuity. Diagnosis, prioritization, Development, Communication and Update**
- Create a work plan: **Associate to each project once development phase begin**
- Build technical capacities to implement the process: **Each project have a coordinator and a task force.**
- Solicit technical support from relevant agencies to move the process forward: **Are integrated in the process**
 - Mobilize resources for implementation: **Associated to each project before the implementation**
 - Step up communication efforts by publishing resolutions and work plans: **Communication phase have to be implemented when project is finished**



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- Collect and systematize information on disaster risk, existing national and local legal frameworks, and the city's development plans, programs and strategies: **All Technical Departments are in task forces**
- Review the existing territorial development plan and study in detail its programmes and projects: **Collection, allegations and consideration of territorial and sectorial plans**



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- Carry out a general study or diagnosis of the city, which will serve as a baseline of knowledge upon which to conduct a risk analysis: **Diagnosis made in 2008. Actually dynamic process for needs and priority determination process proposed.**

- Promote discussion among all actors to reach consensus on priorities: **New methodology for projects prioritization is under implementation**



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- Conduct an internal and external analysis of the situation city-wide, identifying strengths, weaknesses, opportunities and threats: **actualization of 2008 diagnosis proposed for 2014**

- Analyze the resources, the capacities and the key actors and stakeholders in the city in relation to disaster risk reduction: **All they involved in the Resilient Board or in Resilience Cluster proposed**



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- Prepare the final version of the report, incorporating the comments and recommendations stemming from the review: **White book of BCN infrastructure was written as a result of the assessment**



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- Define the vision of the disaster risk reduction action plan and its mission:

Under redaction the basis of “Resilience and Climate Change Barcelona Strategic Plan”

- Establish the principles that guide the plan: **Formalize the global strategy and actions, related to risk reduction of the city originated by nature, technology or anthropics factors**



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- Identify programmes to be developed and implemented by the plan: **in process the inclusion of Climate Change in addition to Infrastructures and Services**

- Select which projects—within each programme—will be carried out, based on the priorities established for the short, medium and long term: **Actually around 35 projects ongoing and 6 finished. New inclusions in order of priority index.**

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- Prepare a final plan in easy-to-understand language: **Include a task force of resilience in the City Protocol Society.**

- Give legal validity to the plan to ensure that it serves as the city's guiding policy for disaster risk reduction: **TISU board is approved by Municipal Decree**

How are we implementing the Ten Essentials for Making BCN Resilient?

MILESTONE PHASES AND STEPS. UNISDR

BARCELONA PROCESS

Phase One Organizing and preparing to apply the Ten Essentials

1. Prepare institutional setting, raise awareness
2. Convene actors, formalize participatory process
3. Plan and execute the process

Phase Two Diagnosis and assessment of the city's risk

4. Be acquainted with the city's risks
5. Conduct a risk assessment
6. Analyze the local environment and actors
7. Prepare an assessment report

Phase Three Developing a safe and resilient city action plan

8. Define vision, objectives and main actions
9. Define programmes and projects
10. Institutionalize and sustain the disaster risk reduction plan

Phase Four Implementing the plan

11. Implementation and resource mobilization
12. Ensure broad participation and ownership

Phase Five Monitoring and follow-up

13. Monitor, follow up and evaluate the plan

- Develop an implementation strategy for the plan with short-, medium- and long-term activities and priorities: **tools for prioritization of projects are practically ready**

- Define and clearly organize the structure, responsibilities and roles of all city agencies, actors and the community: **The inclusion of the community is pending**

How are we implementing the Ten Essentials for Making BCN Resilient?

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Phase Five Monitoring and follow-up

13. Monitor, follow up and evaluate the plan
14. Disseminate and promote the plan

- Establish and guarantee the validity of formal and informal institutional mechanisms that will allow all actors to take ownership of the plan: **Ongoing**
- Establish partnerships and alliances at the local, national and international level for implementation of the plan: **Ongoing**
- Enlist the support of all sectors and actors city-wide in the preparation of the projects under each the disaster risk reduction plan's programmes: **Ongoing**



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- Define who is responsible for follow up and monitoring, including the role of the local community and the social/economic sector:
Implemented in the resilient Board

- Establish indicators to measure progress and achievement of the plan's objectives: **Partially implemented**



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- Develop a communications strategy (internal and external) to promote and inform local authorities, the community and different actors about the gaps, problems, and achievements: **Communicates project by project once finished**







UNISDR
The United Nations Office for Disaster Risk Reduction

Certificate of Recognition

Barcelona

*Role model for infrastructure
and services*

Making Cities Resilient Campaign

Margareta Wahlstrom
UN Special Representative of the Secretary-General for Disaster Risk Reduction
The United Nations Office for Disaster Risk Reduction
April 2013



**Ajuntament
de Barcelona**

UNISDR TEN ESSENTIALS: "Make your City Resilient"

CITY RESILIENCE PROFILING PROGRAMME

Providing national and local governments with
tools for measuring and increasing resilience
to multi-hazard impacts including those
associated with climate change



UN HABITAT
FOR A BETTER URBAN FUTURE

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UN – HABITAT: CITY RESILIENCE PROFILING PROGRAMME



How resilient is your city?

UN HABITAT
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www.unhabitat.org

**I'M A CITY
CHANGER**
imacitychanger.org

 **UNISDR**
The United Nations Office for Disaster Risk Reduction



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UN – HABITAT: CITY RESILIENCE PROFILING PROGRAMME

City Resilience Profiling Programme

With 50% of the world's population already in cities and substantial projected urban population increases over the coming decades, the rationale for new tools that better protect human, economic and natural assets of our towns and cities is strong. In order to achieve this, UN-Habitat launched the **City Resilience Profiling Programme (CRPP)** to support local governments to build their capacity to improve resilience by developing a comprehensive and integrated urban planning and management approach for measuring and profiling city resilience to all types of hazards.



Deliverables

- An adaptable urban systems model
- A set of indicators and profiles for calibrating urban resilience
- Software systems that produce city resilience profiles
- Global standards for building urban resilience

How resilient is your city?

The Programme will be implemented through partnerships with international agencies, academic and research institutes, private sector actors, NGOs, and representatives from a number of partner cities around the world.

The partner cities of the programme are:



'Urban Resilience' refers to the ability of any urban system, to withstand and recover quickly from any plausible hazard.

UN-Habitat support programmes and activities

- **Sub-regional Centre for Disaster Mitigation and Sustainable Reconstruction (DIMSUR)**



A technical centre for reducing risk, climate change adaptation and urban resilience in Southern Africa.

- **A Resilient Cities Initiative in Pakistan**
31 cities of Pakistan are engaging their provincial and local government authorities in disaster risk reduction activities using the Local Government Self-Assessment Tool (LGSAT)



- **Resilience, disaster risk reduction and territorial planning for local and urban sustainable development**
Classroom and virtual learning for planners and urban managers.



- **Cities and Climate Change Initiative**
Helping secondary cities in developing countries become more climate resilient and mitigate their greenhouse gas emissions





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de Barcelona**

UN – HABITAT: CITY RESILIENCE PROFILING PROGRAMME

BONN RESILIENT CITIES 2012

Barcelona City Council offers to create a **Task Force**, in collaboration with another cities, to **develop a Protocol of Urban Resilience related with the Infrastructures and Services**, based on the existing experiences.

Thanks for your attention


Infrastructures Resilience Board of Barcelona (TISU)
Infrastructures Department. City Habitat
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de Barcelona



City Habitat
Infrastructures




URB-is
URBAN RESILIENCE BOARD
for infrastructures and services supply

Home Boards Cities Entities Resources Members




Urban resilience

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- Barcelona guide

Home



How resilient is your city?

URB-is welcomes and supports the City Resilience Profiling Programme of UN-HABITAT & UNISDR:

How resilient is your city?

Welcome to URB-is!

From Barcelona we launch this information spreading website related to the **resilience** of infrastructures. The target is to create an information exchange platform for those who are interested in developing a new concept of urbanism, capable of self-improving in order to cope with its vulnerabilities.

The current website is the first stage to a more ambitious project, the creation of a network of organizations that share an interest in **resilience**.

The second phase will develop a synergic environment that will allow cities, governments, universities, research centres, and private enterprise to share information and develop different aspects of **resilience** in the shape of projects, joint efforts, research, etc. Their common denominator is the *necessity of current cities to reinvent themselves in order to resist the collapse of infrastructures and services supply facing detected risk situations.*

This website is open to all people who wish to participate. For this reason, we offer here our contact page where you could send us your opinions and suggestions.

Your opinion is important to us! Please, help us improve!

Share 8

Users

Username:

Password: [Forgot password](#) [Log in](#)

REGISTER
Be a member

Contact us

Last contents

- [City Resilience Profiling Programme and Urban Systems Model for Resilience, Dan Lewis](#)
- [UN-Habitat](#)
- (22/05/13)
- [The Government updates the general duties of water industry in the UK to reflect resilience priorities](#)
- (21/05/13)
- [Water and gas pipes interference](#)
- (15/04/13)

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Publish new content

Urban Resilience Board
A Barcelona city council initiative for improve the Urban Systems Resilience.
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LESSONS LEARNED

Specific

1. **Diagnose/assessment** is the first **necessary** step, but it is **not enough**: Without action, the added value is minimum
2. Methodology is the result of a process focused on ensuring business continuity: **Share our experience!**
3. Every improvement project generated by this process, needs to **complete the cycle**: from definition to communication and update
4. The development of **resilient projects** has to be proportional to the **competences** of local administration



LESSONS LEARNT

Global

1. The first step was the result of a crisis: **Don't expect it to happen** for start working! Recovery is very expensive.

1. **Don't wait for planning**: start building resilience now!

2. **Collaboration** with the rest of the **stakeholders** (private sector and other administrations) is essential.

3. **Global proceeding** vs. Isolated projects: Strategic value.

1. **Collaborative model** vs. Competitive: Common action in global urban scene.

2. Adopt an **universal standard for sharing knowledge**: Integration in the city protocol society; adopt and apply the UN terms and collaborate with experience: Cities, Academy and Enterprises.

