

# GOVERNMENT APPROACH TO STRENGTHEN THE RESILIENCE OF CRITICAL SYSTEMS IN QUEBEC



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# CRITICAL SYSTEMS RESILIENCE APPROACH

## ● BACKGROUND:

- Modern societies depend on Critical Resources (CR): credit/financing, drinking water, electricity, oil, gas, telecommunications, transportation etc.;
- Their safety and economic prosperity, and the welfare of their people arise from the effective functioning of Critical Systems (CS) that produce the CR.



# ***CRITICAL SYSTEMS RESILIENCE APPROACH***

## **BACKGROUND:**

- (2004) Initiation of the discussion with the provinces and territories to elaborate the National Strategy for Critical Infrastructure
- (2005) Hyogo Framework for Action - UNISDR
- (2008) Quebec Government initiate the Critical Systems Resilience Approach
- (2009) National Strategy for Critical Infrastructure was adopted

# *CRITICAL SYSTEMS RESILIENCE APPROACH*

## ▲ STRATEGIC OBJECTIVES:

- Protect Quebec society from the effects of any failure or disruption of CS;
- Engage government, municipal and private partners in pursuing these objectives;
- Maintain, at all times, acceptable CR service to other CS and the people;
- Contribute to the development of a CS prevention/mitigation approach.



# ***CRITICAL SYSTEMS RESILIENCE APPROACH***

## **● GUIDING PRINCIPLES:**

- Responsibility shared among public and private stakeholders;
- Partnership;
- Sharing relevant information in a timely manner and in a secure environment;
- Coherence and complementarity with the principles in the Emergency Management Framework for Canada and the National Strategy for Critical Infrastructure (FPT).



# CRITICAL SYSTEMS RESILIENCE APPROACH

## GUIDING PRINCIPLES:

- All-hazards perspective;
- Integration of the pillars of emergency management: prevention, preparedness, response and recovery;
- Consideration of human, material, informational and financial resources.

# CRITICAL SYSTEMS RESILIENCE APPROACH

## GOVERNANCE:

- Under the leadership of the Government of Quebec;
- Coordinated by the Quebec Emergency Management Organization (OSCO);
- Led by the OSCO subcommittee on CS resilience;
- Structured in 10 sectorial tables.

# CRITICAL SYSTEMS RESILIENCE APPROACH

## STRUCTURE OF THE APPROACH:

SECTORS (10)	SECTORAL TABLES (10) D/A RESPONSIBLE
Government activities and citizen services/governmental communications	TBS
Food	MAPAQ
Buildings	RBQ, SHQ and SIQ
Water and waste management	MDDEP
Energy	MRNF and HQ
Finance	MFQ
Health	MSSS
Safety	MSP and SQ
Telecommunications and information technologies	CSPQ
Transportation	MTQ



# CRITICAL SYSTEMS RESILIENCE APPROACH

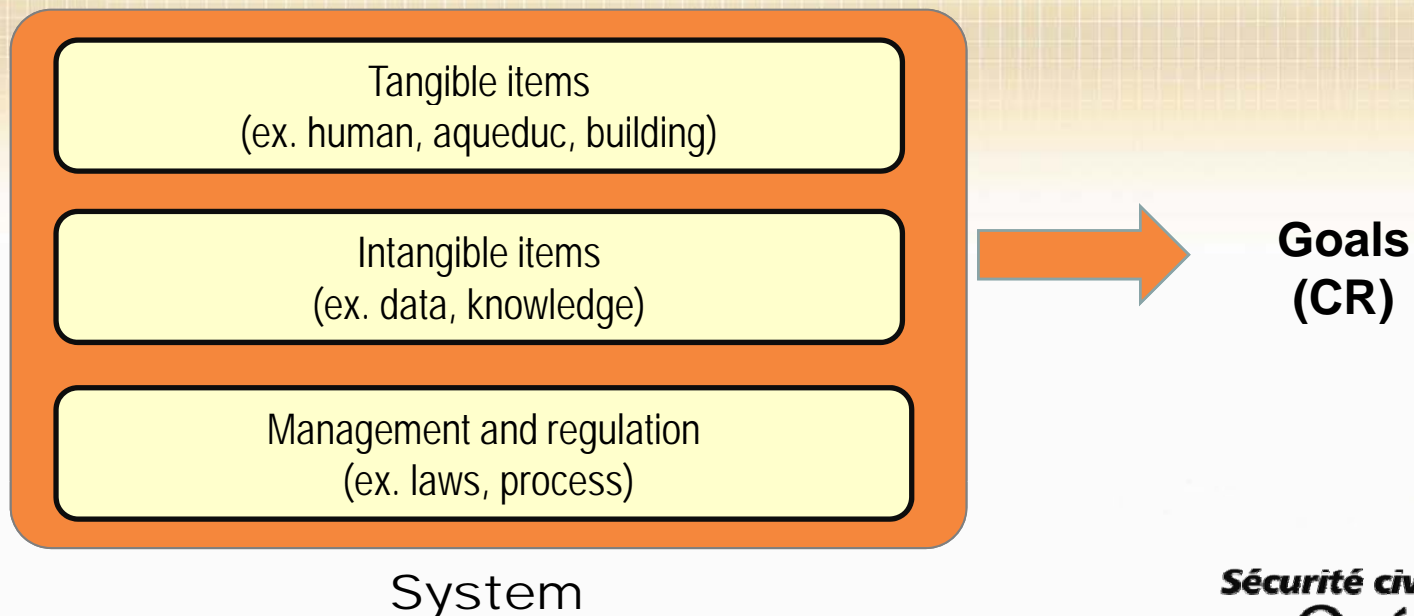
## ● APPROACH

- *Centre risque & performance* from École Polytechnique de Montréal;
- Organizational Resilience;
- System-based approach.

# CRITICAL SYSTEMS RESILIENCE APPROACH

## ● Systems are:

- Coordinated sets of tangible or intangible items and elements of management and control organized according to common goals;
- Complex, interdependent and interconnected.



# *CRITICAL SYSTEMS RESILIENCE APPROACH*

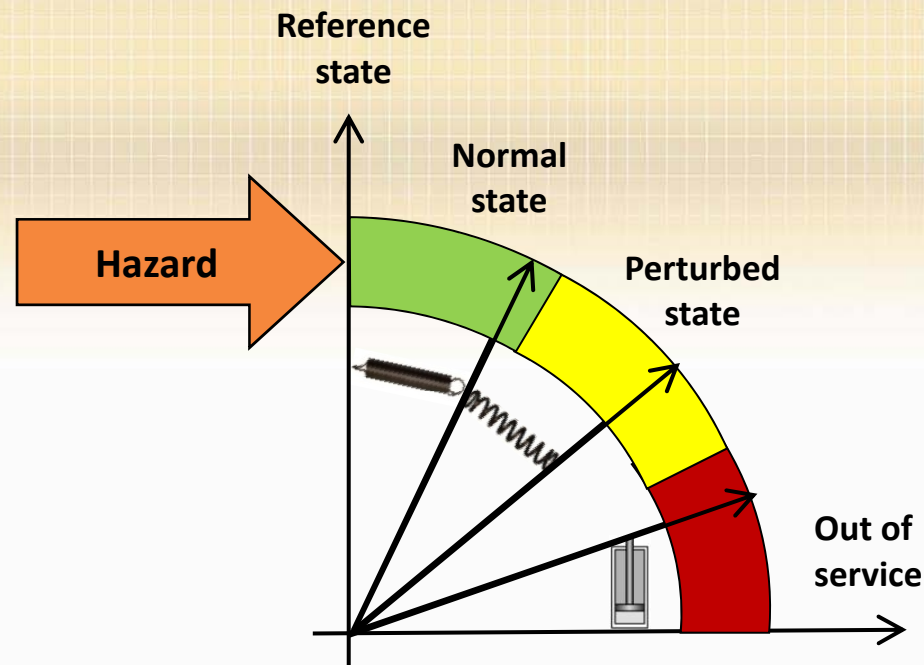
## ▲ CRITICAL RESOURCES:

- Critical resources are resources whose unavailability, even momentary, can result in major consequences on the health, safety, and welfare of the people, the economy and effective functioning of the Government and institutions (National Assembly, judicial system);

# CRITICAL SYSTEMS RESILIENCE APPROACH

## RESILIENCE

- Resilience is a system's ability to maintain or re-establish an acceptable level of functioning despite perturbations.



# CRITICAL SYSTEMS RESILIENCE APPROACH

## ● SPECIFIC OBJECTIVES:

- Identify CS and characterize them;
- Identify the potential consequences of their disruption or failure;
- Identify and propose measures to decrease the vulnerability of CS and strengthen their resilience;
- Ensure the consistency and compatibility of these measures.



# CRITICAL SYSTEMS RESILIENCE APPROACH

## IDENTIFY AND CHARACTERISE CS :



# CRITICAL SYSTEMS RESILIENCE APPROACH

## IDENTIFY AND CHARACTERISE CS :

### Finance System characterisation example

Resource	Actor	Role
Large Value Transfer	Canadian Payroll Association	To operate Large Value Transfer System (LVTS) Evaluate conformity of LVTS once a year
	Financial institution participating in LVTS	To guarantee LVTS payments
	Bank of Canada	To regulate financial flux
		To grant liquidity
		To manage warranty
		To monitor
	Ordinary payments: electronic payments (automatic bill payments, and debit card transactions)	Canadian Payroll Association
Financial institutions participating in the ACR and STPGV		ACSS: To compensate Automatic Data Processing, Inc. (ADP) members STPGV: Font office d'agent de paiement électronique
Interac		Établit et exploite le réseau de débit Interac
Visa, MasterCard, AMEX		Établit et exploite les réseaux de paiements par carte de crédit
Visa et MasterCard (debit)		Établit et exploite les réseaux de paiements par carte de paiement Visa débit et Maestro
Bank of Canada		Surveillance



# CRITICAL SYSTEMS RESILIENCE APPROACH

## IDENTIFICATION OF CONSEQUENCES:

- **Consequences on population:**
  - welfare
  - security
  - health
- **Consequences on government:**
  - executive
  - legislative
  - judiciaries
  - administration
- **Consequences on economic activities**



# CRITICAL SYSTEMS RESILIENCE APPROACH

## IDENTIFICATION OF THE CONSEQUENCES:

### 72 hours criteria

“Individual Canadians also have a responsibility to be prepared for a disruption and to ensure that they and their families are ready to cope for at least the first 72 hours of an emergency”

(National Strategy for Critical Infrastructure 2009)



# CRITICAL SYSTEMS RESILIENCE APPROACH

## IDENTIFICATION OF THE CONSEQUENCES:

### Finance System example

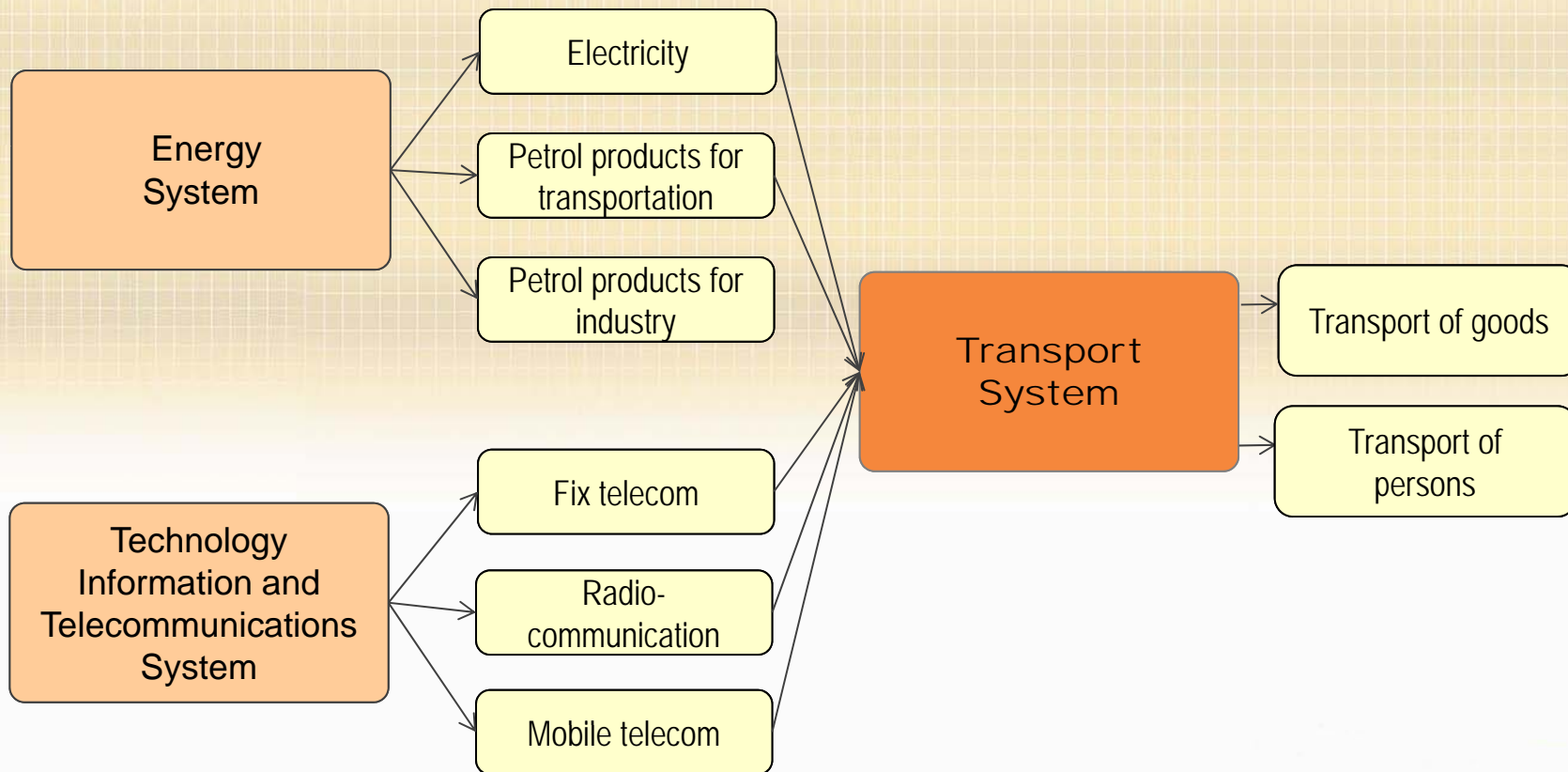


Ressource	< 72h								> 72 h								>1 month	
	Population			Economy	Government				Population			Economy	Government				Economy	
	Health	Security	Welfare	Economic activity	Administration	Executive	Legislative	Judiciary	Health	Security	Welfare	Economic activity	Administration	Executive	Legislative	Judiciary	Economic activity	
Large values transfer																		
Monney payment																		
Ordinary Payment																		
Securities dealing																		
Foreign exchange dealings																		
Derivatives transaction																		
Property insurance																		
Personal insurance																		
Insurance business																		
Reinsurance																		
Corporate credit/financing																		

- Consequence on population
- Possible consequence on population
- Consequence on economic activity
- Possible consequence on economic activity
- Consequence on government
- Possible consequence on gouvernement
- t.d. To document
- No significant consequence

# CRITICAL SYSTEMS RESILIENCE APPROACH

## ● INTERDEPENDENCIES:





# CRITICAL SYSTEMS RESILIENCE APPROACH

## PROGRESS

- Identification of CR provided;
- Identification of the actors and their role;
- Identification of interdependencies among CS;
- Identification of the consequences, in the time, of the failure of a critical system on population, economic activity and functioning of the Government and institutions.

# CRITICAL SYSTEMS RESILIENCE APPROACH

## Next

- Validate of the results;
- Scale down to the regional level;
- Identify and propose measures to decrease the vulnerability of CS and strengthen resilience;
- Consider climate change.

# *CRITICAL SYSTEMS RESILIENCE APPROACH*

THANK YOU FOR YOUR PARTICIPATION

**QUESTIONS?**