

Integration of Psycho-Social Aspects into Risk Assessment & Management and Decision –Making in a Population Health Approach

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Perceptions Matter :South Korea...



http://www.daylife.com/photos/04sw1U0gCvbm/South_Korea_AND_Mad_Cow



<http://news.bbc.co.uk/2/hi/asia-pacific/7432681.stm>



http://www.daylife.com/photos/01X9W9dewR/South_Korea_AND_Mad_Cow

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Starting from 'An Event' (so-called Physical Reality:E)
adding
'the Perception' (so-called Psychosocial Reality: E')

Expert:

Risk Assessment → Risk Guidelines → Risk Mitigation

Public:

Risk Perception → Risk Acceptability → Risk Behaviours

Risk Evaluation

Risk Tolerance

Risk Management

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$Risk = f (p(Hazard) , p (Damage))$

Hazard= f (E, E')

Damage = f (p (mortality +morbidity + psycho-social ripple)

Traditional Risk Assessment: emphasis on Hazard,

GAP-Santé: emphasis on Damage/Consequences/Ripples

→ Multi-damage, multi-level, multi-phases

→ time analysis (pre-event, brought-forward analysis)

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Types of Disasters/ Crises/ Hazards

Characteristics

- Familiarity
- Maliciousness
- Predictability
- Recurrence
- Warning period
- Preventable
- Magnitude
- Duration
- Effects
- Response

Technological



Terrorism



Natural



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Expanding Our Focus: A Population Health Interdisciplinary Approach

Traditional

- Mortality, Morbidity
- Hazard
- Occurrence
- Individual vulnerability
- Response
- Treatment
- Decision-Making

Population Health

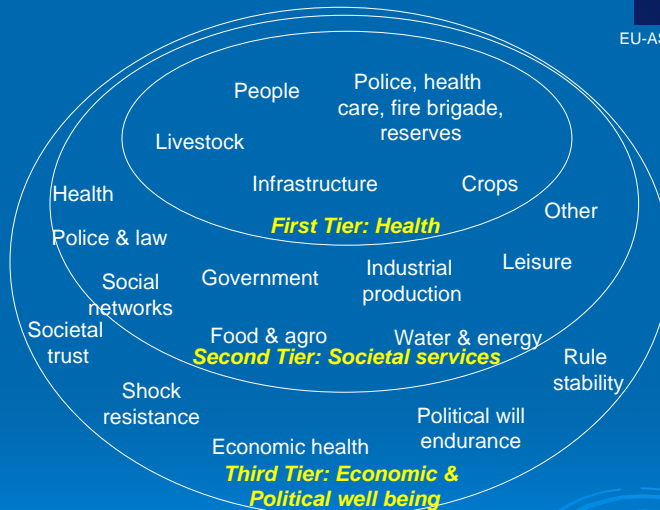
- + Social, Resilience
- + Consequences
- + Continuous Pre&Post
- + Community capacity
- + Preparedness
- + Prevention
- + Shared Governance

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Tier model – impact areas in society

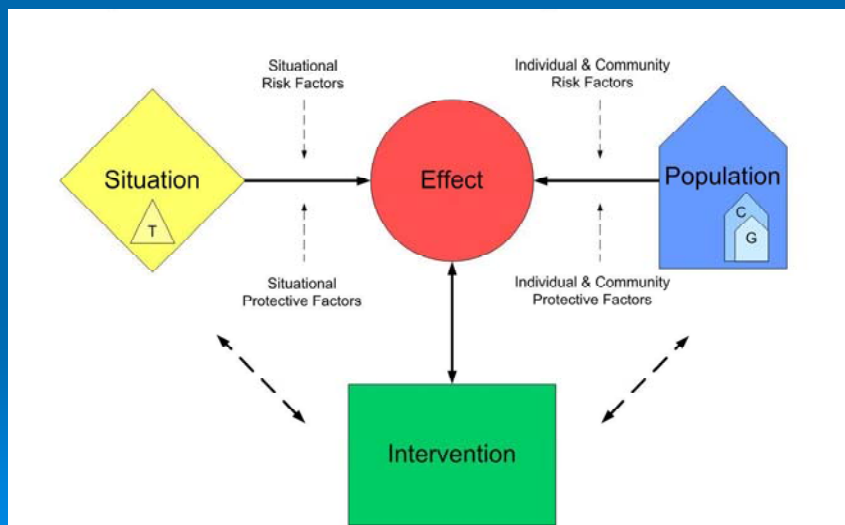


EU-ASSRBCVUL, 2006

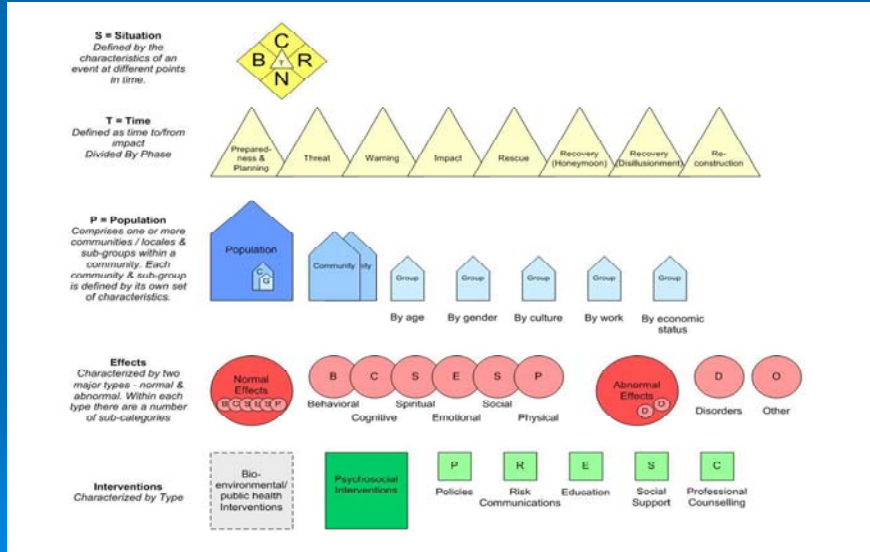


- Tier 1 is direct damage to health (human mortality, casualty, food chain)
 - Tier 2 is damage to services and functions (business continuity, surge, supplies)
 - Tier 3 is damage to economic, political, social fabric (trust, social order, societal vitality)
- Lemyre, 2008

The Psychosocial Risk Assessment & Management (P-RAM) Framework

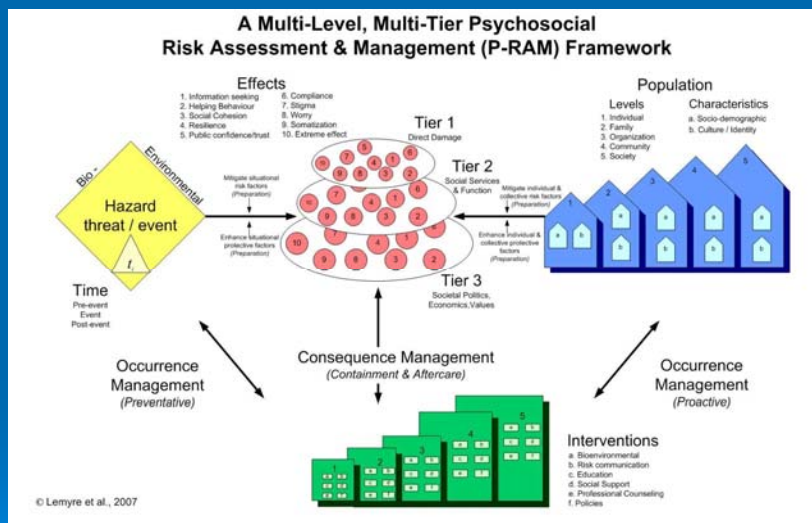


Elements of the P-RAM Framework



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Version 2.2... Multi-Tier Multi-level

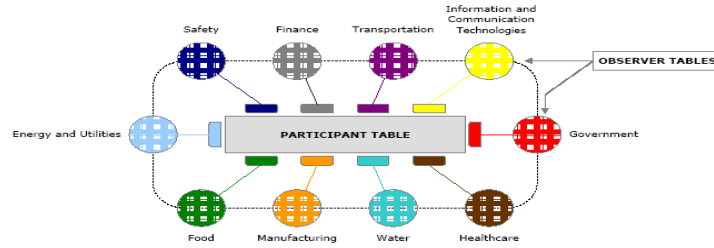


Policy characterization by Function, Tier, by level, by time

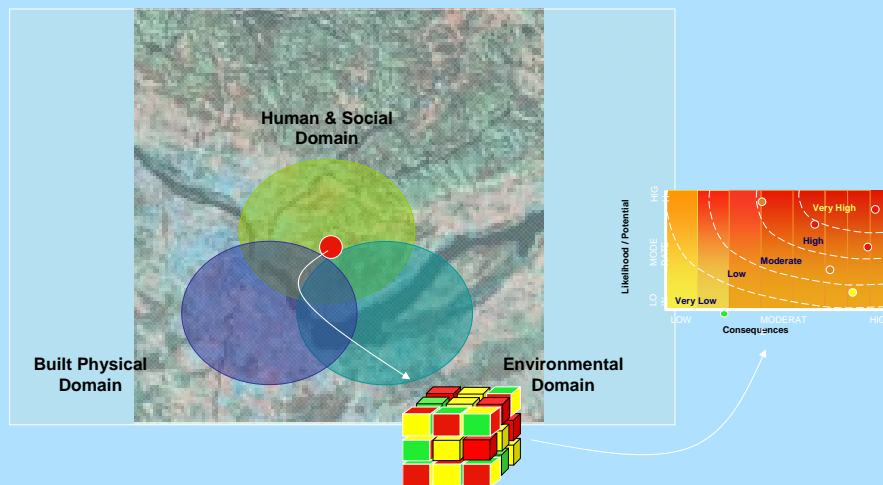
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In Vivo simulation

APPENDIX A: LAYOUT



With DRDC- CSS (Defence R&D Centre for Security Science)
and the Clusters (CBRNE- F)^{P-S}
Mapping Risks and Risk Elements Across Domains



From Goudreau et al. DRDC, 2008

Threat Scenarios Vignettes

Threat Scenario
Identification



From Goudreau et al. DRDC,2008

Relative Technical Feasibility Matrix

Score	Material / Agent	Equipment to Manufacture & Deliver	Technical Expertise	Knowledge
9 8	material readily available	no specialized equipment	low level	readily available
7 6 5	material easily produced	standard laboratory and dissemination equipment	bachelor degree or technical school level	standard open literature
4 3 2	material difficult to produce	some specialized equipment	advanced technical training	specialized scientific literature or declassified military documents
1 0	material very difficult to produce or acquire	custom designed / manufactured equipment	advanced specialized technical training	closely held military information

From Goudreau et al. DRDC,2008

High 28 – 36
Medium 19 – 27
Low 9 – 18
Very low 0 – 8

Impact Matrix

	Dead/ Injured	Scale of Response	Disruption and/or Replacement of Capability and or Capacity (facilities, environmental, health, food supply, security)	Economic loss (\$CDN)
9 8	10,000+ / 100,000+ [8 = 5,000 / 50,000]	International	Extensive international disruption; Restoration / recovery on the order of decades	\$1,000 B [8 = \$200 B]
7 6 5	[7 = 2,000 / 20,000] 1,000 / 10,000 [5 = 500 / 5,000]	National	Extensive national disruption; Restoration / recovery on the order of years	[7 = \$50 B] \$10 B [5 = \$2 B]
4 3 2	[4 = 200 / 2,000] 100 / 1,000 [2 = 50 / 500]	Provincial	moderate – Provincial disruption; Restoration / recovery on the order of months	[4 = \$500 M] \$100 M [2 = \$20 M]
1 0	[1 = 20 / 200] 10 / 100 or fewer	Local	Minimal impact on capability or capacity, ; Restoration / recovery on the order of days	[1 = \$5 M] \$1 M

From Goudreau et al. DRDC,2008

Catastrophic	28 – 36
Critical	19 – 27
Moderate	9 – 18
Low	0 – 8

Vulnerability Matrix Factors (Impact vs. Relative Technical Feasibility)

Impact	Relative Technical Feasibility			
	High	Medium	Low	Very Low
Catastrophic	Extreme	Extreme	High	Moderate
Critical	Extreme	High	High	Low
Moderate	High	Moderate	Moderate	Low
Low	Moderate	Low	Low	Low

From Goudreau et al. DRDC,2008

Risk Assessment Matrix

(factors Vulnerability and Intelligence Judgement to establish a risk prioritization rating)

Vulnerability	Intelligence Judgement			
	Severe	Substantial	Moderate	Low
Extreme	Immediate	Immediate	High	Emerging
High	Immediate	High	High	Discretionary
Moderate	High	Emerging	Emerging	Discretionary
Low	Emerging	Discretionary	Discretionary	Discretionary

From Goudreau et al. DRDC,2008

Capability Analysis & Investment Strategy on Event Chronology

Security



Safety

Seven phases of a security / safety event ranging from -3 to +3 in time.

DRDC CSS Adopts an "All-Hazards" Approach

From Goudreau et al. DRDC,2008

