



### SMART CITY ACCORDING TO TECHNOLOGISTS

# (B)

### SMART CITY ACCORDING TO URBAN PLANNERS/ARCHITECTS

### RESILIENCE: TYPES OF DISTURBANCE FACING THE BUILT ENVIRONMENT:



### RESILIENCE: TYPES OF DISTURBANCE FACING THE BUILT ENVIRONMENT:

### ENVIRONMENTAL/NATURAL

- EARTHQUAKE
- VOLCANIC ERUPUTION
- TSUNAMI
- AVALANCHE
- TYPHOON
- TORNADO
- CYCLONE
- HURRICANE
- STORM
- FLOOD
- LANDSLIDE
- FOREST FIRE
- DROUGHT
- PESTILENCE
- TEMPERATURE RISE
- SEA-LEVEL RISE

### SOCIAL/MAN-MADE

- HAZE/POLLUTION
- WATER SHORTAGE
- BLACKOUT/POWER SHORTAGE
- SANITATION DISRUPTION
- REFUSE REMOVAL DISRUPTION
- COMMUNICATIONS FAILURE
- CIVIC UNREST/RIOT/WAR
- TERRORIST ATTACK
- CRIME
- FINANCIAL CRISIS
- STRUCTURAL FAILURE
- FIRE
- EPIDEMIC/PANDEMIC (covid-19)
- FOOD SHORTAGE
- FUEL SHORTAGE
- NUCLEAR MELTDOWN



What is a Resilient City?

A resilient city is one that has developed capacities to hep absorb future shocks and stresses to its social, economic and technical systems and infrastructures so as to still be able to maintain essentially the same functions, structures, systems and identity within a short time.

- Urban transportation systems need to become more sustainable
- Nature-based solutions must work for the people
- Community networks should support urban disaster resilience
- Smart solutions which can improve urban livelihoods
- Cities, countries and international bodies need to collaborate

### What is a Resilient City?

1. Reflectiveness	ability to learn form the past and act in times of crisis
2. Resourcefulness	ability to recognize alternative ways to use resources in times of crisis to meet needs or achieve goals
3. Robustness	qualities that help to conceive systems and assets that withstand shocks and stresses
4. Redundancy	spare capacity purposely created to accommodate disruption due to extreme pressures
5. Flexibility	willingness and ability to adopt alternative strategies in response to changing circumstances or sudden crisis
6. Inclusiveness	need for broad consultation and many 'seats at the table' to create a sense of shared ownership or joint vision to build city resilience
7. Integration	process of bringing together systems and institutions to catalyze additional benefits and resources

### **RESILIENCE:** The RELi Resilience Action list

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		PA	PANORAMIC APPROACH TO PLANNING, DESIGN, MAINTENANCE & OPERATIONS			
S	С	Reg 1	Study: Project Short-Term Hazard Mitigation and Adaptation Needs Including Climate	Required	Y	RELI
s	c	Reg 2	Integrative Process, Development & Community Stakeholder Involvement	Required	Y	IP LLEED   Envision
S	C	Poly-Reg 3	Commissioning & Long-Term Monitoring / Maintenance	Required	Y	LEED LEnvision
s	C	Poly-Credit 1	Rusiness & Community Case Analysis. Post-Development Evaluation and Reporting	TRD		Varies
s	c	Credit 2	Establish a Sustainability & Resiliency Management System	TRD		Envision
S	C	Credit 3	Address Conflicting Regulations & Policies	TBD		Envision
S	C	Credit 4	Third Party Leadershin & Next Generation Certifications and Programs	TBD		RELI
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s	c	Poly-Credit 6	Study & Design for Improved Project Element & Infrastructure Integration	TRD		Adapted - Envision
s	c	Poly-Credit 7	Study & Design for I one.Term Arlantability Diversity & Redundancy	TRD		RELI
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			RISK ADAPTATION & MITIGATION FOR ACUTE EVENTS			
		HP	HAZARD PREPAREDNESS			
S	С	Req 1	Fundamental Emergency Planning & Preparedness for Common Hazardous Events	Required	Y	RELI
S	С	Req 2	Fundamental Access To: First Aid, Emergency Supplies, Water, Food, Communications	Required	Y	RELi
S	С	Poly-Credit 1	Enhanced Emergency Planning for Common Hazards & Extreme Events	TBD	Y	RELI
S	С	Credit 2	Enhanced Access: Emergency Care & Supplies, Water, Food, Communications	TBD	Y	RELi
S	С	Poly-Credit 3	Additional Emergency Provisions For the Community & for Longer Timeframes	TBD	Y	RELI
S	С	Credit 4	Community Education: Authentic Dialogues on Ever-Increasing Weather, Safety & Resiliency Risks	TBD		RELi
		НА	HAZARD ADAPTATION & MITIGATION			
S	С	Reg 1	Sites of Avoidance & Repair: 500-Year Flood Plain, Storm Surge & Sea Rise	Required	Y	RELi
S	С	Req 2	Fundamental Emergency Operations: Back-Up Power & Operations	Required	Y	RELi
S	С	Req 3	Fundamental Emergency Operations: Thermal Safety During Emergencies	Required	Y	RELi
S	С	Req 4	Safer Design for Extreme Weather, Wildfire & Seismic Events	Required	Y	Fortified
S	С	Poly-Credit 2	Adaptive Design for Extreme Rain, Sea Rise, Storm Surge & Extreme Weather, Events & Hazards	TBD	Y	RELI
S	С	Poly-Credit 3	Advanced Emergency Operations: Back-Up Power, Operations, Thermal Safety & Operating Water	TBD	Y	RELI
S	С	Poly-Credit 4	Passive Thermal Safety, Thermal Comfort & Lighting Design Strategies	TBD	Y	2030 Palette
S	С	Poly-Credit 5	Transit & Transportation System Protection & Continuous Operations	TBD	Y	RELI
S	С	Poly-Credit 6	Provide Environmental Protection & Remediation for Parks & Preserves	TBD		RELI

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S C Poly-Credit 4 Energy Optimization, Near Zero / Carbon Neutral, Net Zero, Net Positive Energy Flows TBD Y Multiple	
S C Poly-Credit 5 Edible Landscaping, Urban Agriculture & Resilient Food Production TBD Y RELI	
S C Poly-Credit 6 Reduced Site Environmental Impacts: Lighting, Heat-Island, Airborne Toxins TBD Y LEED   Envision	
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S C Poly-Reg 1 Minimum Material Effectiveness & Life Cycle Planning Required Multiple	
S C Credit 1 Safer, Non-Toxic Materials (SMaRT or Equivalent Certified) TBD Y RELI	
S C Credit 2 Material & Artifact Effectiveness: Full Life Cycle Design for Durability, Adaptability, Flexibility TBD Y Adapted - Autodesk	
S C Credit 3 Material & Artifact Effectiveness: Design for Disassembly, Reuse, Recycling & Composting TBD Y Adapted - AutoDesk	
S C Poly-Credit 4 Material Effectiveness: Use Recycled Content Materials, Salvaged Materials & Local Materials TBD LEED	
S C Credit 5 Use Legally Logged Wood from Ecologically Managed Forests (FSC Certified) TBD Y RELi I LEED	
S C Credit 6 Reduce Net Embodied Energy & Carbon, Water and Toxins TBD Y Adapted - LEED I SMJ	
S C Poly-Credit 7 Divert Waste from Landfills, Reduce Excavated Soils Taken from Site TBD LEED I Envision	
APPLIED CREATIVITY AND CONTEXTURAL FACTORS FOR RESILIENCY	
AC APPLIED CREATIVITY, INNOVATION & EXPLORATION	
S C Poly-Credit 1 Applied Creativity in Resiliency & Integrative Design	
S C Poly-Credit 2 Contextual Factors & Project Responsive Topics	
S C Poly-Credit 3 Exemplary Performance	

# IBU KOTA NEGARA





### **Smart City Disaster Resilience**



## THANK YOU