

Master Plan for Reduction of
Earthquake and Tsunami Disaster
in APEC for 21st Century
(EQTAP Master Plan)

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EDM

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EQTAP Challenges

High Seismicity in APEC region

Earthquakes and tsunamis will happen

Increasing Social Vulnerability in APEC region

High Population Expansion

Many People would be Killed

High Economic Expansion

World Influences

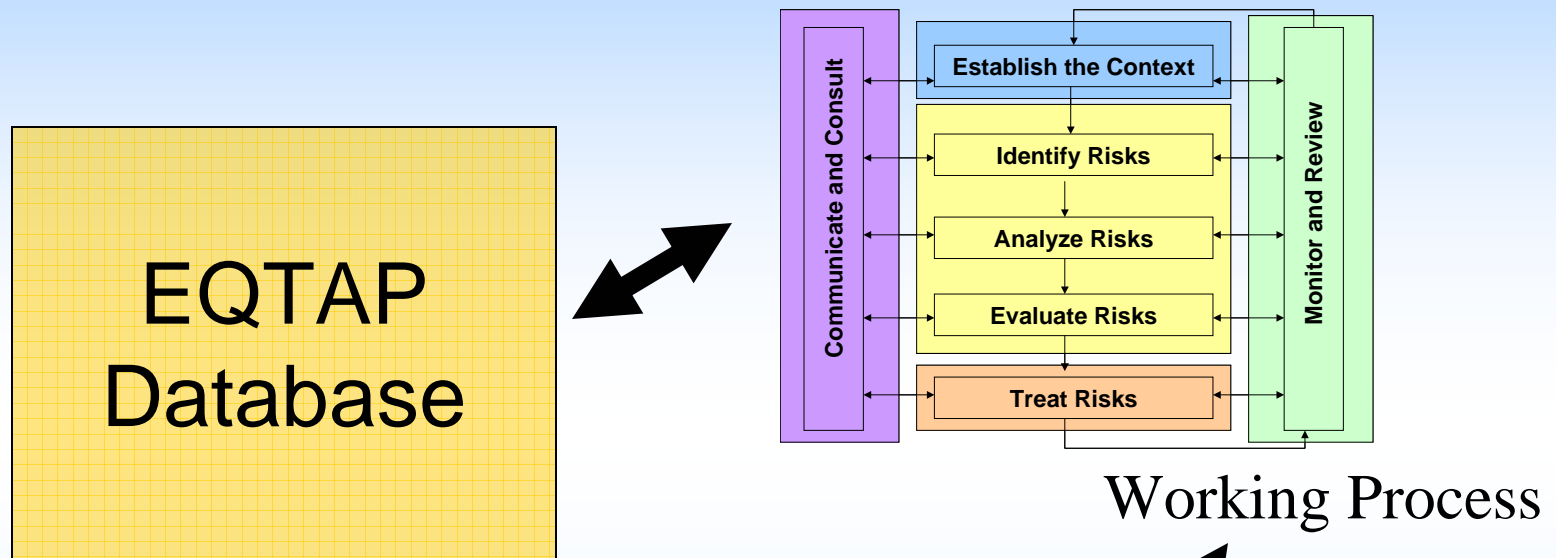
A Greater Earthquake and Tsunami Risk

EQTAP GOALS

**Promoting
Safety and Sustainability
of Asia-Pacific region
through
earthquake and tsunami
disaster reduction**

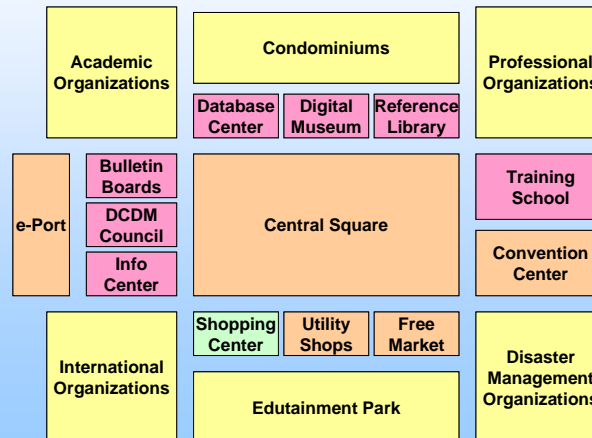
EQTAP OUTPUTS

EQTAP Master plan



Achievements

EQTAP Digital City



Communication Tool

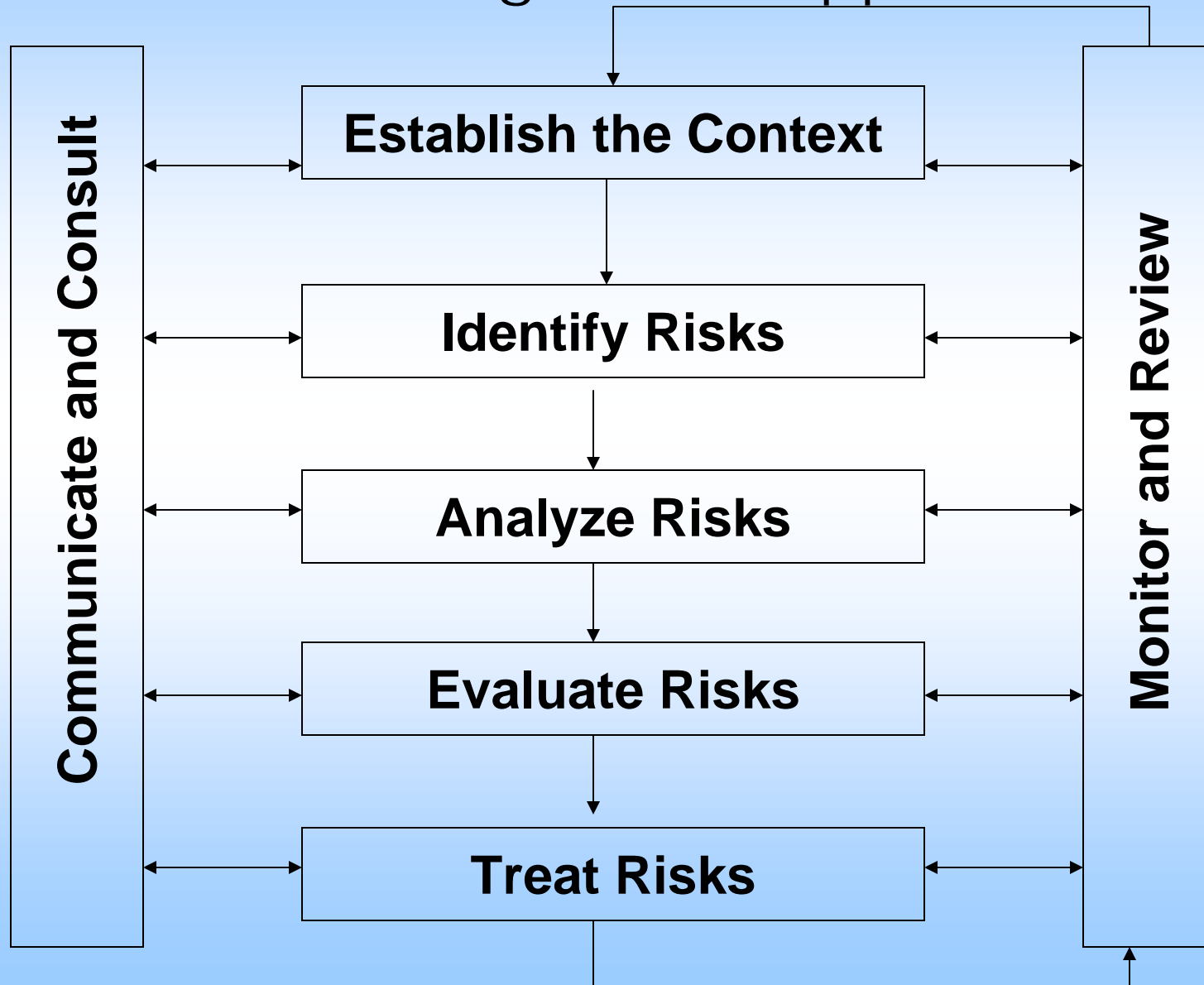
For effective earthquake and tsunami disaster reduction

By

- Sharing understanding among all stakeholders in Asia-Pacific Region
- Using a standardized disaster management guidelines born in Asia-Pacific Region
- Using proper long-term land use planning and management

EQTAP Master Plan

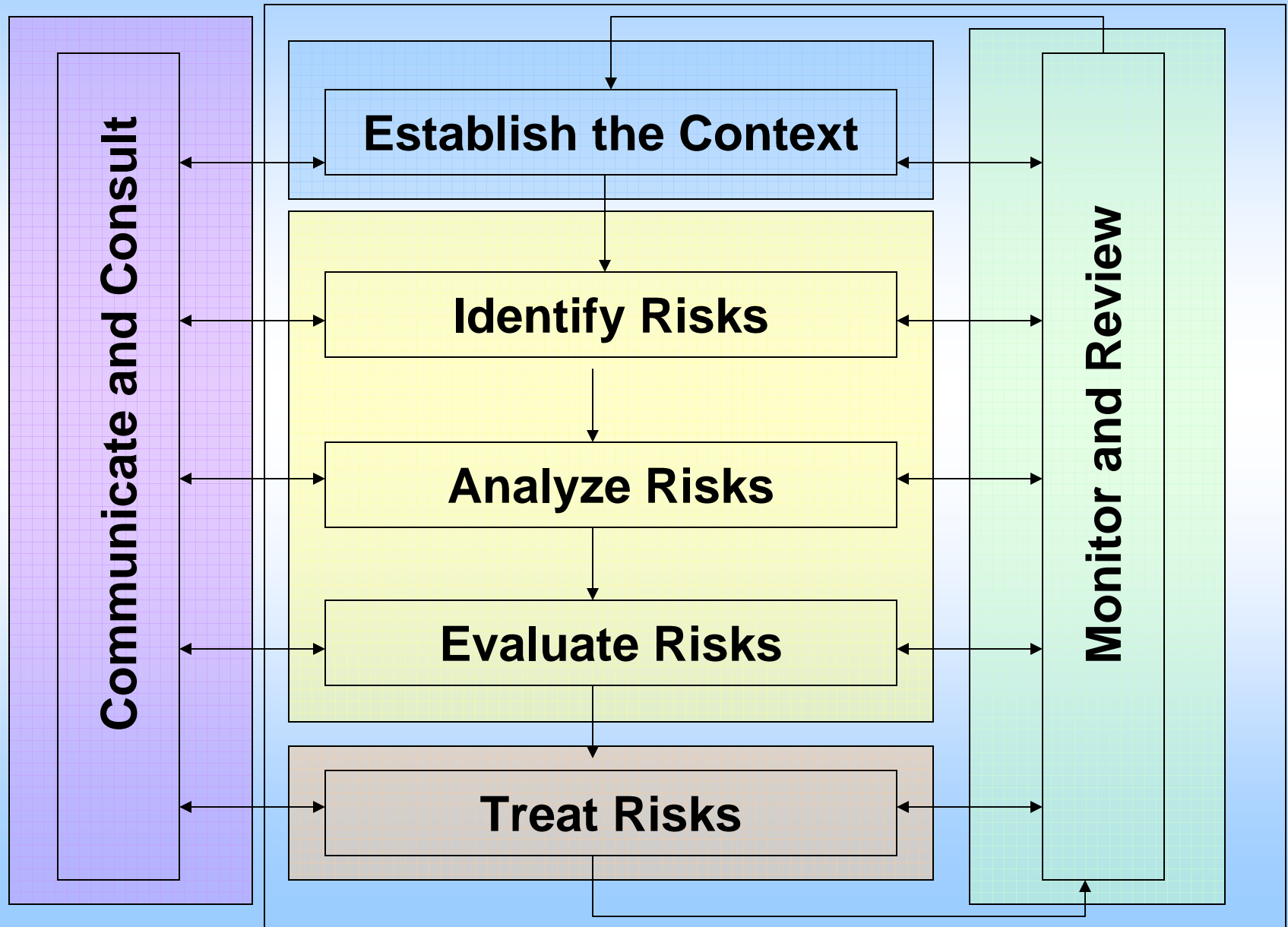
EQTAP APPROACH: Risk Management Approach



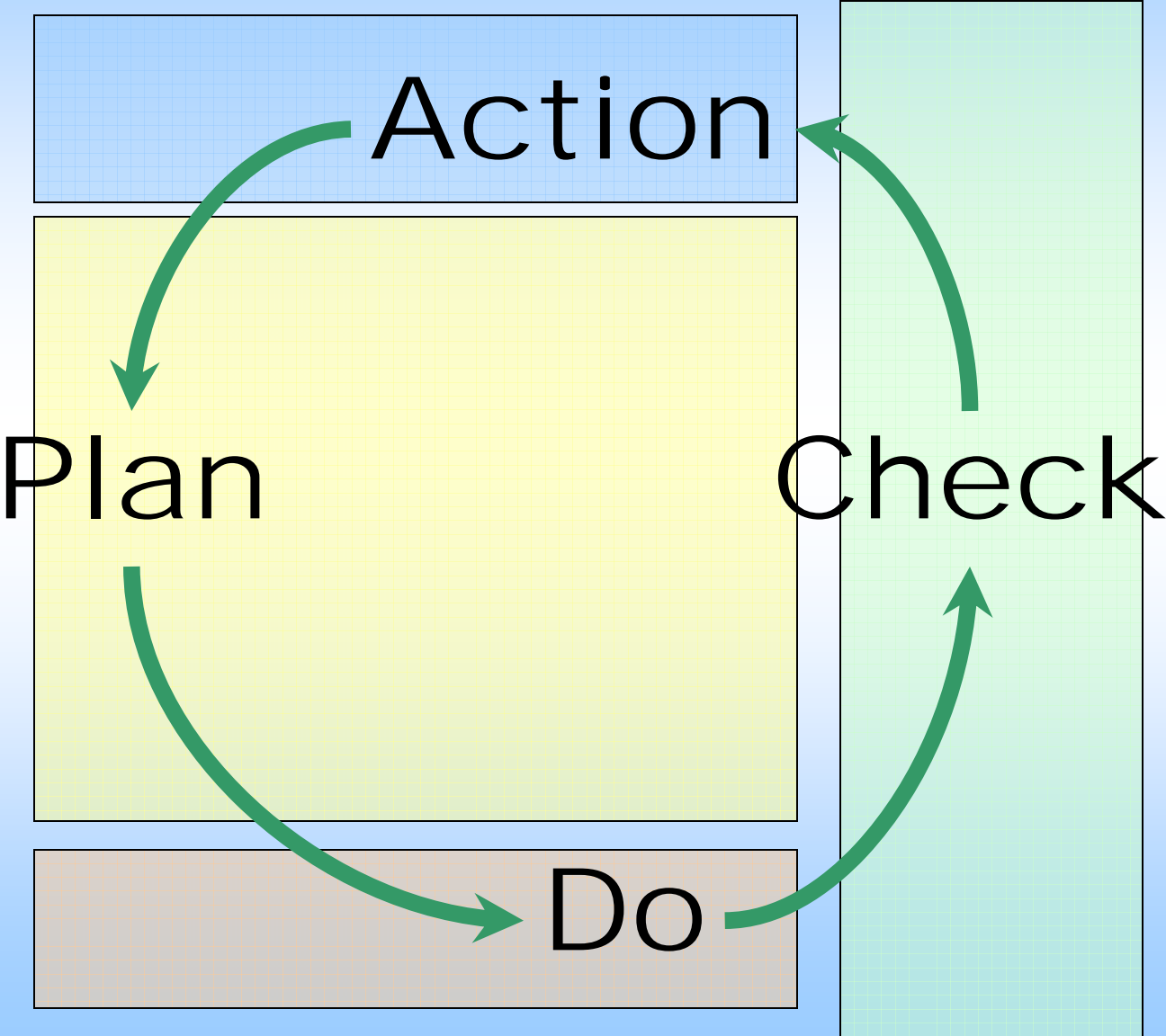
Five Steps of Risk Management

- Establishing the context
- Identifying, Analyzing, and Evaluating Risks
- Treating Risks
- Monitoring and reviewing
- Communicating and consulting

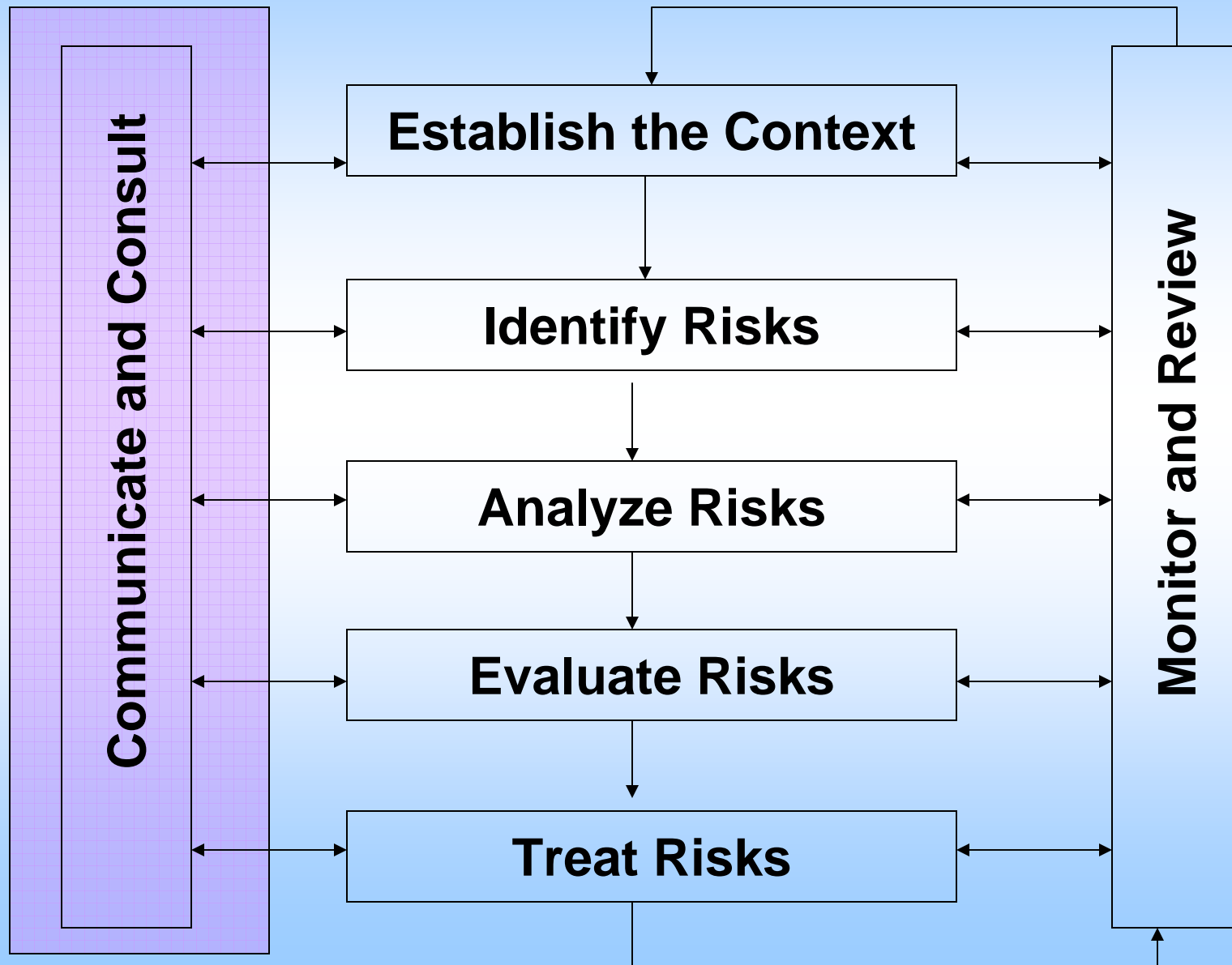
Risk Management Approach



PDCA Cycle for Disaster Reduction



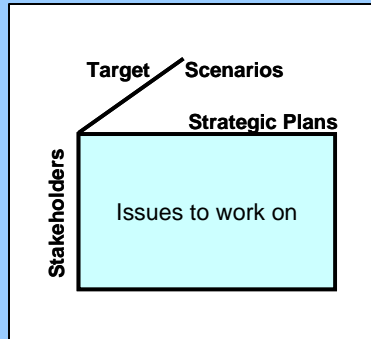
+ Information Sharing



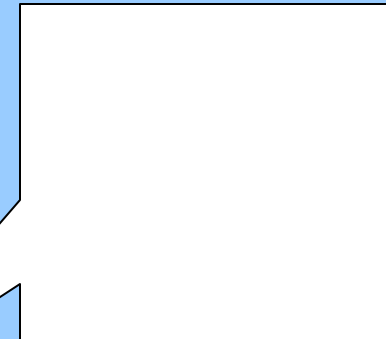
Risk Management as a Continuous Process

- Progressive Process
- Setting Measurable Goals
- PDCA cycle (Plan, Do, Check, and Action) for the treatment of risk
- Standardized Approach
- High Accountability
- Needs for Documentation
 - ISO9000s like setup-

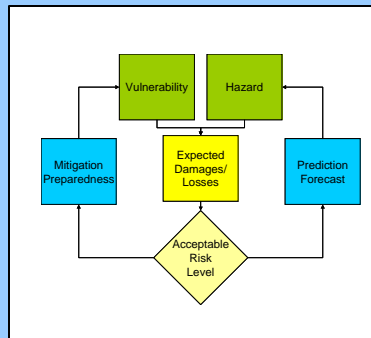
Action Box



Check Box



Plan Box



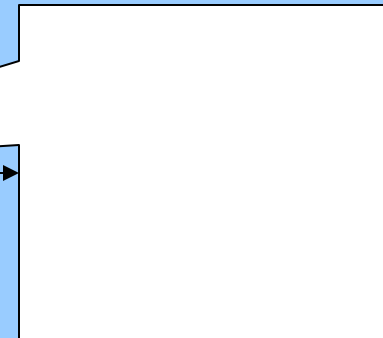
Action

Plan

Check

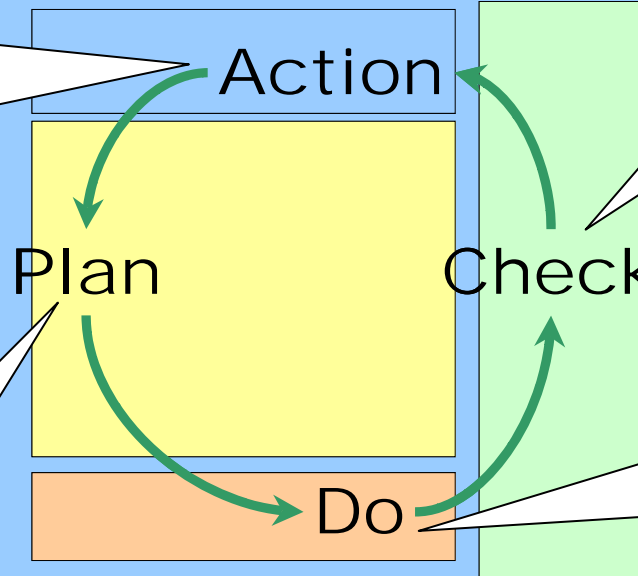
Do

Do Box

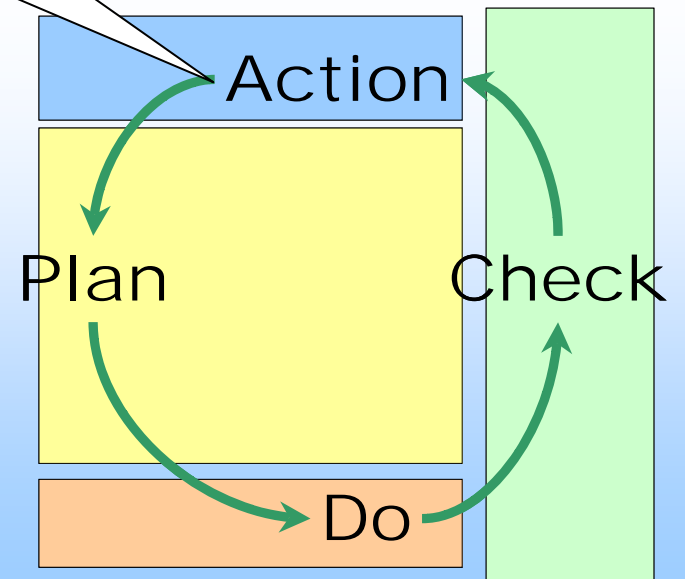


EQTAP DATABASE

Digital City



Action Box: Establishing the Context



Establishing the Context

- Strategic Context
 - Clarify the Crucial Elements of the Project
 - Identify Stakeholders of the Project
- Organizational Context
 - Capabilities of Organizations
 - Goals/Objectives of Organizations
- Risk Management Context
 - Goals, Objectives, Strategies, scope, parameters of the project to which the RM process – costs, benefits, opportunities

Establishing the Context for EQTAP Master Plan

- Who Stakeholders
- Whom Target Populations
- What Strategic Plan
- How Risk Management Approach

Who are our stakeholders?

Important Potential Direct Stakeholders

- **Policy Makers**
- **Administrators**
- **Professionals**
 - **Engineers/scientists/researchers**
- **Entrepreneurs**
- **Educators**
- **Community Leaders**

CHILDREN AS OUR ULTIMATE TARGET

- With the Usefulness and Effectiveness That Children Could Survive and Maintain Their Sustainability
- With the Clarity That Children Could Understand Easily
- With the Fun That Children Would Enjoy Very Much

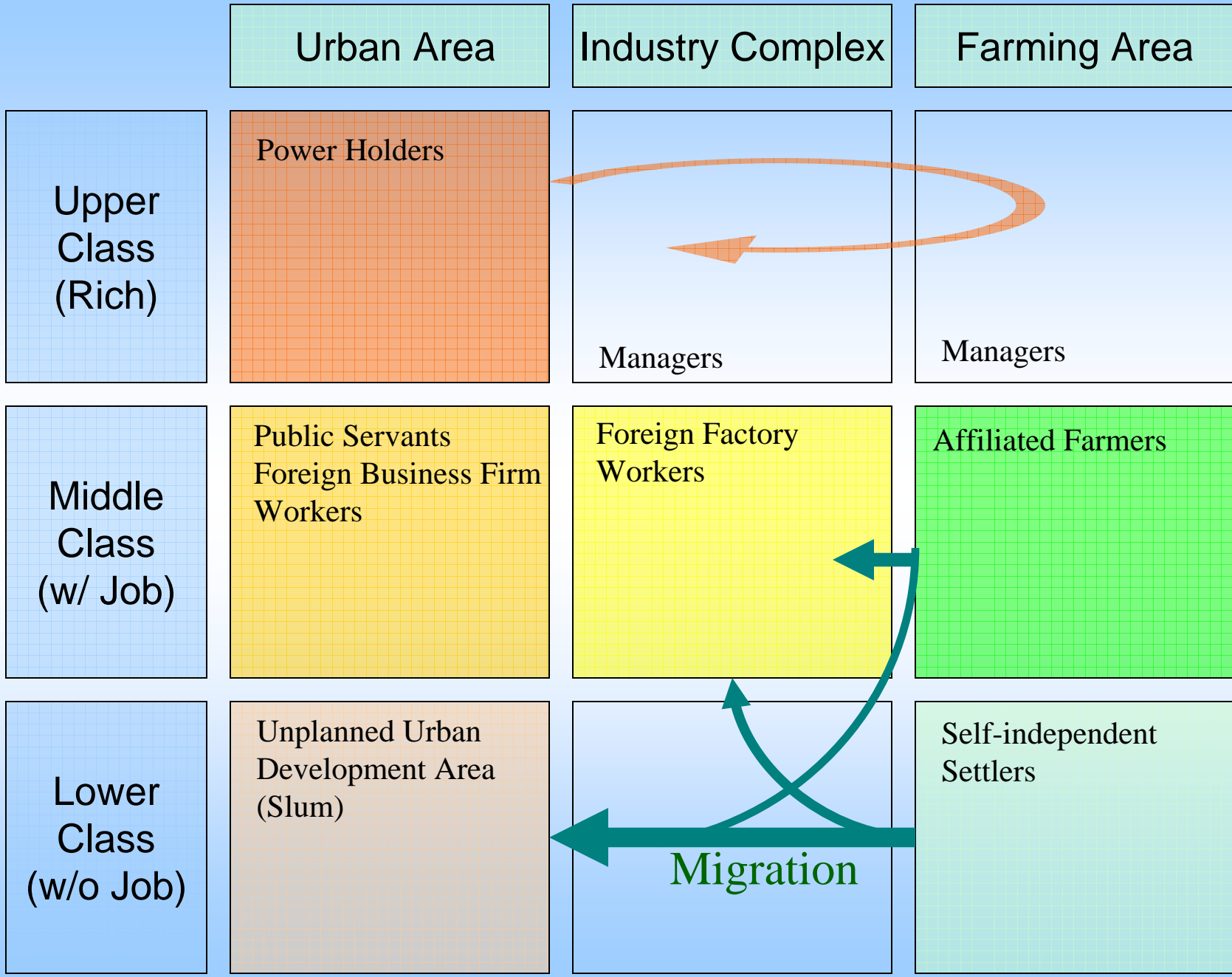
It one plan OK?

Do we need separate plan for
different sectors of society?

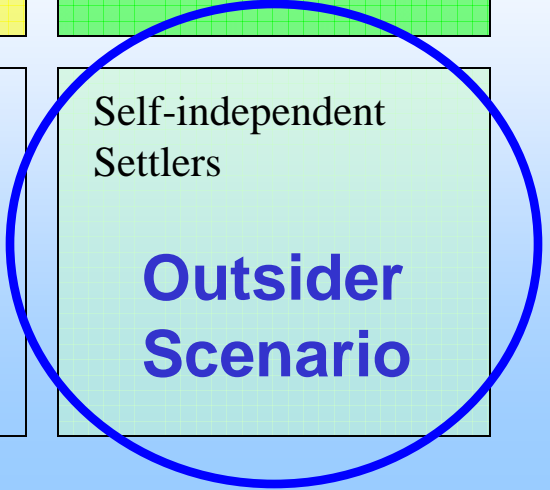
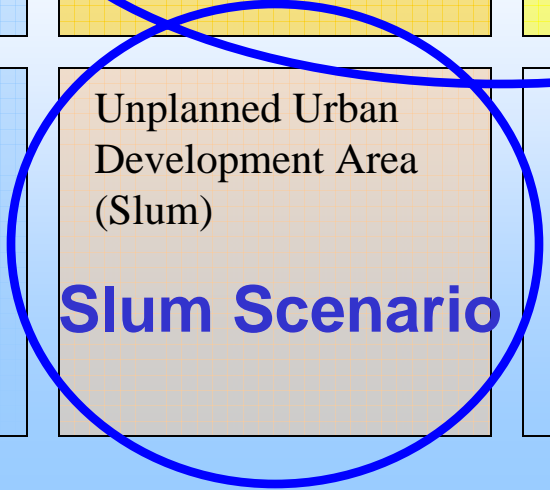
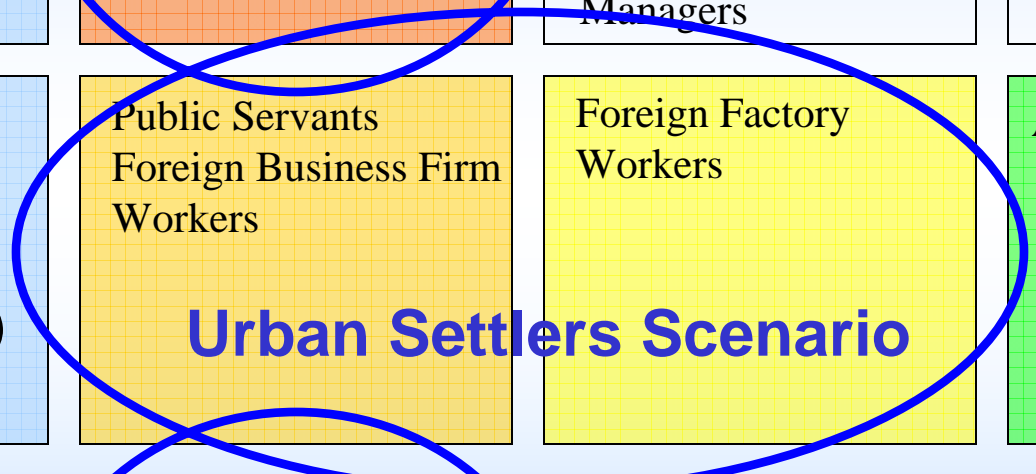
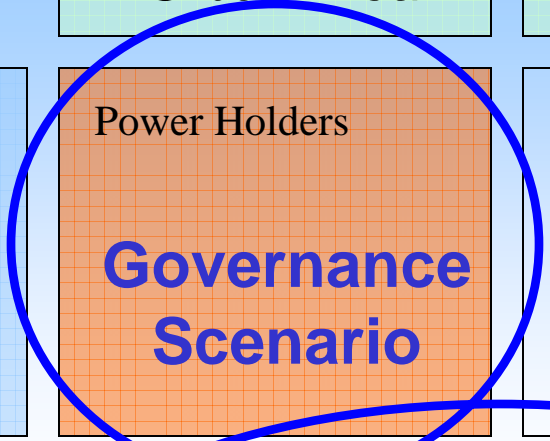
Whom do we apply our plan to?

Target Segmentation

- Area
 - Urban Area
 - Industry Complex Area
 - Farming Area
- Population Class
 - Upper Landlord
 - Middle Workers
 - Lower People without Steady Job

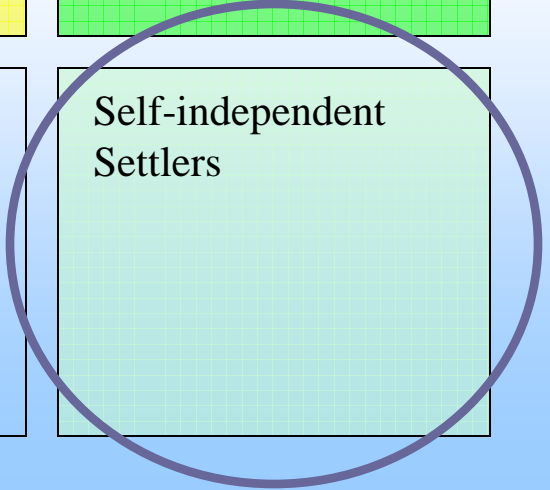
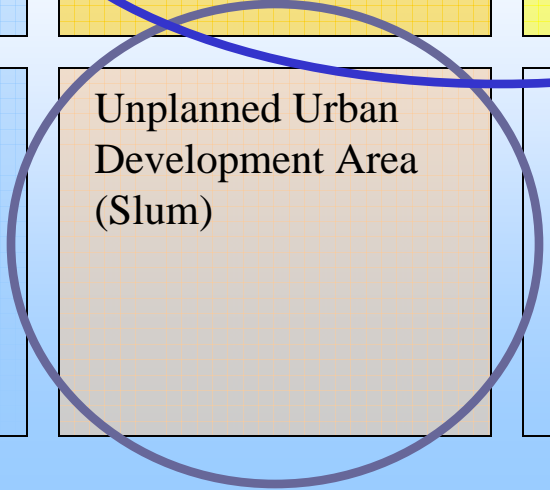
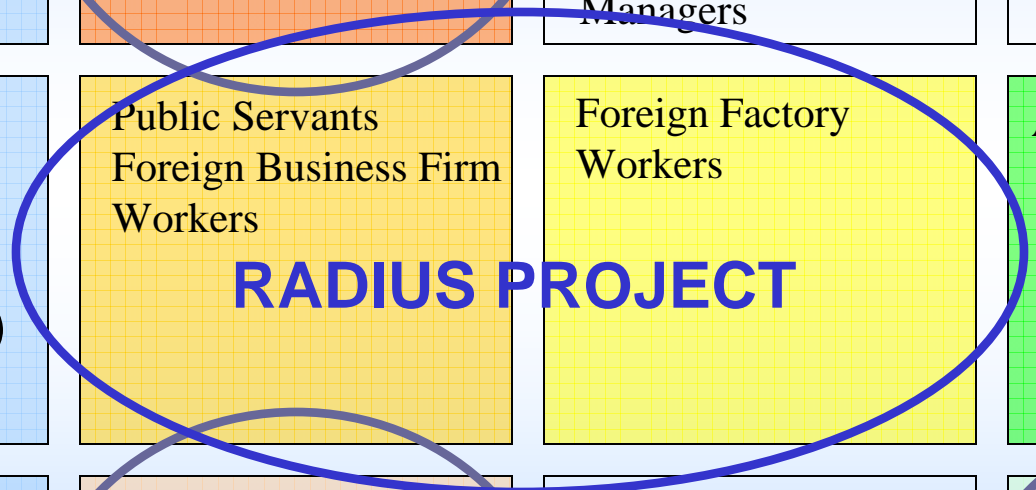
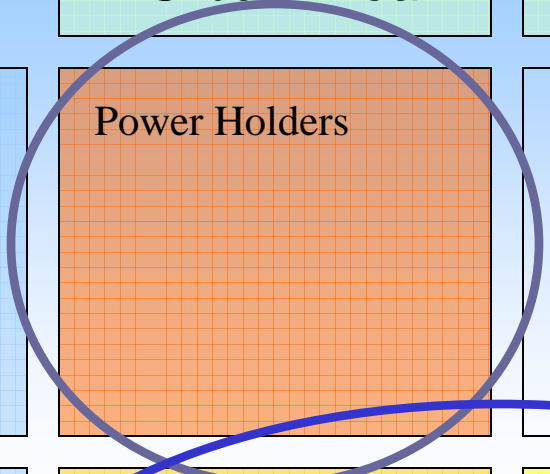


	Urban Area	Industry Complex	Farming Area
Upper Class (Rich)	Power Holders Governance Scenario	Managers	Managers
Middle Class (w/ Job)	Public Servants Foreign Business Firm Workers Urban Settlers Scenario	Foreign Factory Workers	Affiliated Farmers
Lower Class (w/o Job)	Unplanned Urban Development Area (Slum) Slum Scenario		Self-independent Settlers Outsider Scenario



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RADIUS PROJECT



Resulting Four Scenarios

- Governance Scenario
- Urban Settlers Scenario
- Slum Scenario
- Outsiders Scenario

Need for Preparing Four Scenarios for
More Effective Disaster Reduction

We can not take care of everything

We must focus our efforts on critical issues
for the reduction of earthquake and
tsunami disasters

Strategic Plan

What are the crucial issues?

EQTAP TASKS

Reduction of

- 1) Preventable Deaths and Injuries**
- 2) Social and Economic Disruption**
- 3) Psychological Impacts**
- 4) Environmental damage**

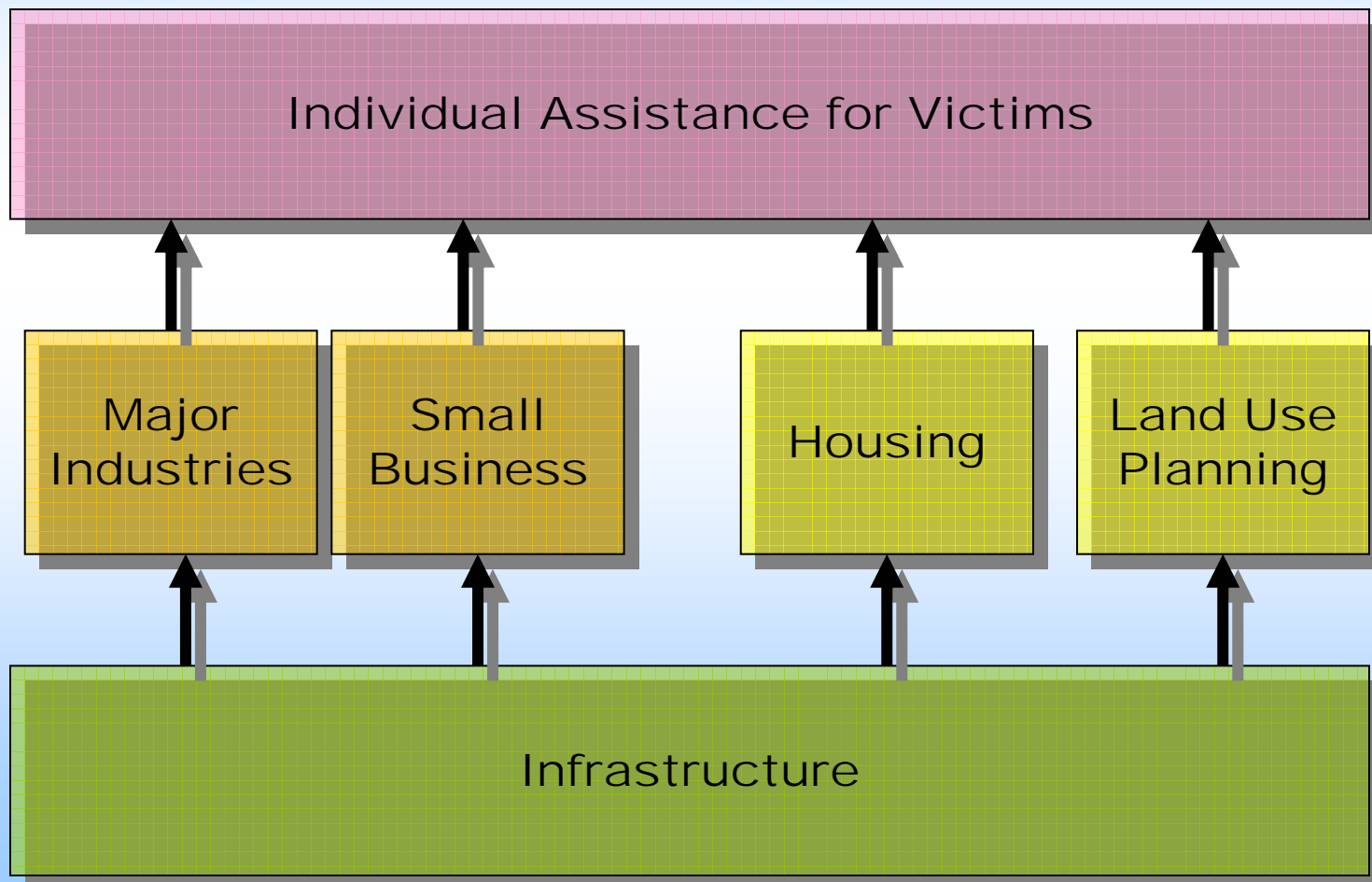
Reduction of Preventable Deaths and Injuries

- Reducing the death and injury caused by
 - Building Collapse
 - Tsunami
 - Land Failure

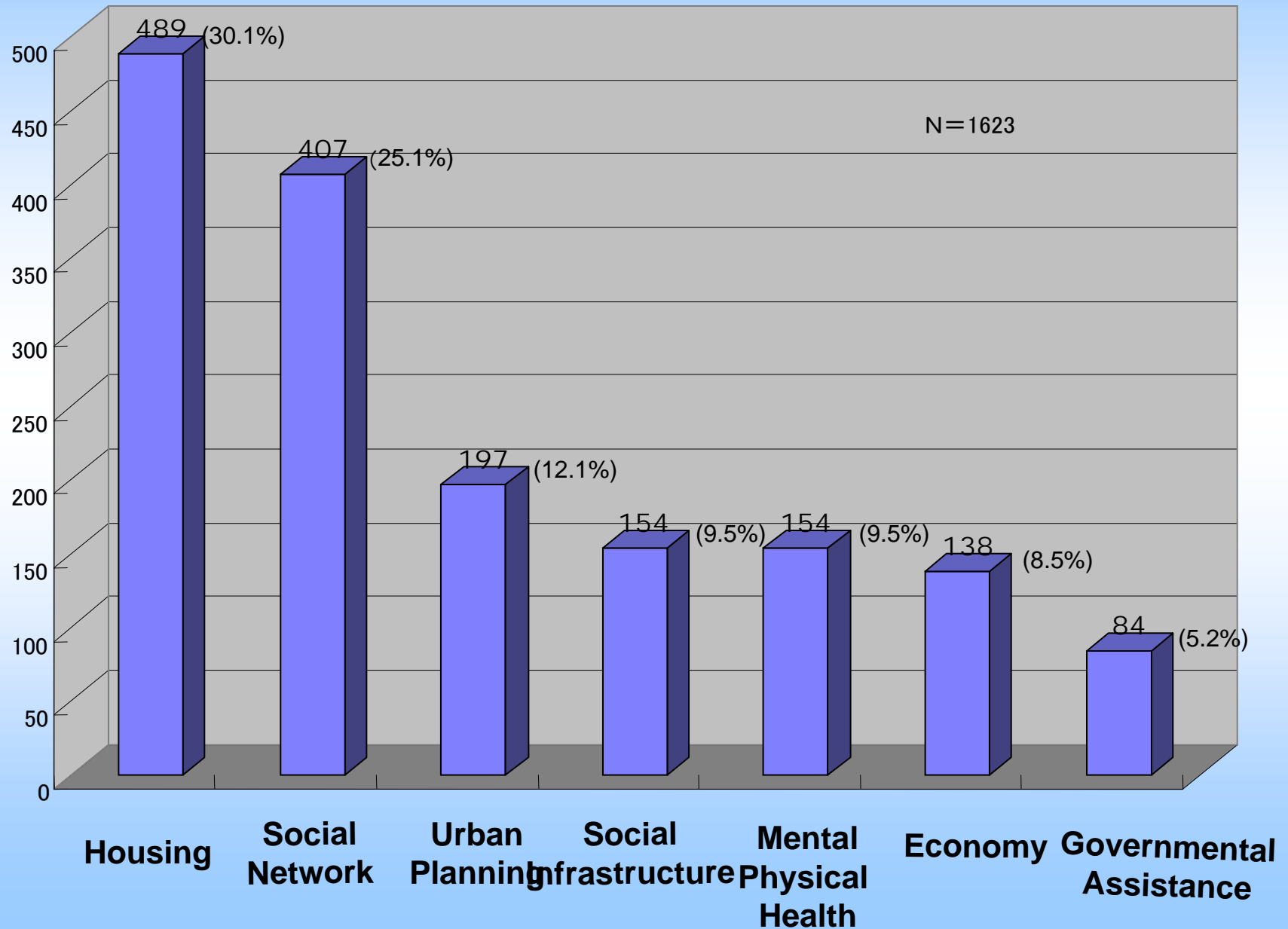
Reduction of Social and Economic Disruption: Production, Distribution, and consumption

- Communication/Isolation
 - Road, Postal Service, Telephone, TV, etc.
- Utility
 - Fuel, Electricity, Urban Gas, Water, Waste Management
- Monetary System
- Social Services
 - Medical, Educational, Legal Assistance, Repair etc.
- Production and Distribution
 - Manufacturing
 - Household Goods:
 - A) Large Durable Goods
 - House, Furniture, Car, Cooking Equipment, Sewing Machine
 - B) Daily Goods
 - Utensils, Detergent, Cloth, Book, Decorative
 - Food

Reduction of Psychological Impacts



Seven Elements of Social Vulnerability



Reduction of Psychological Impacts

Focusing on

Housing Recovery

Social Network Enrichment

Reduction of Environmental damage

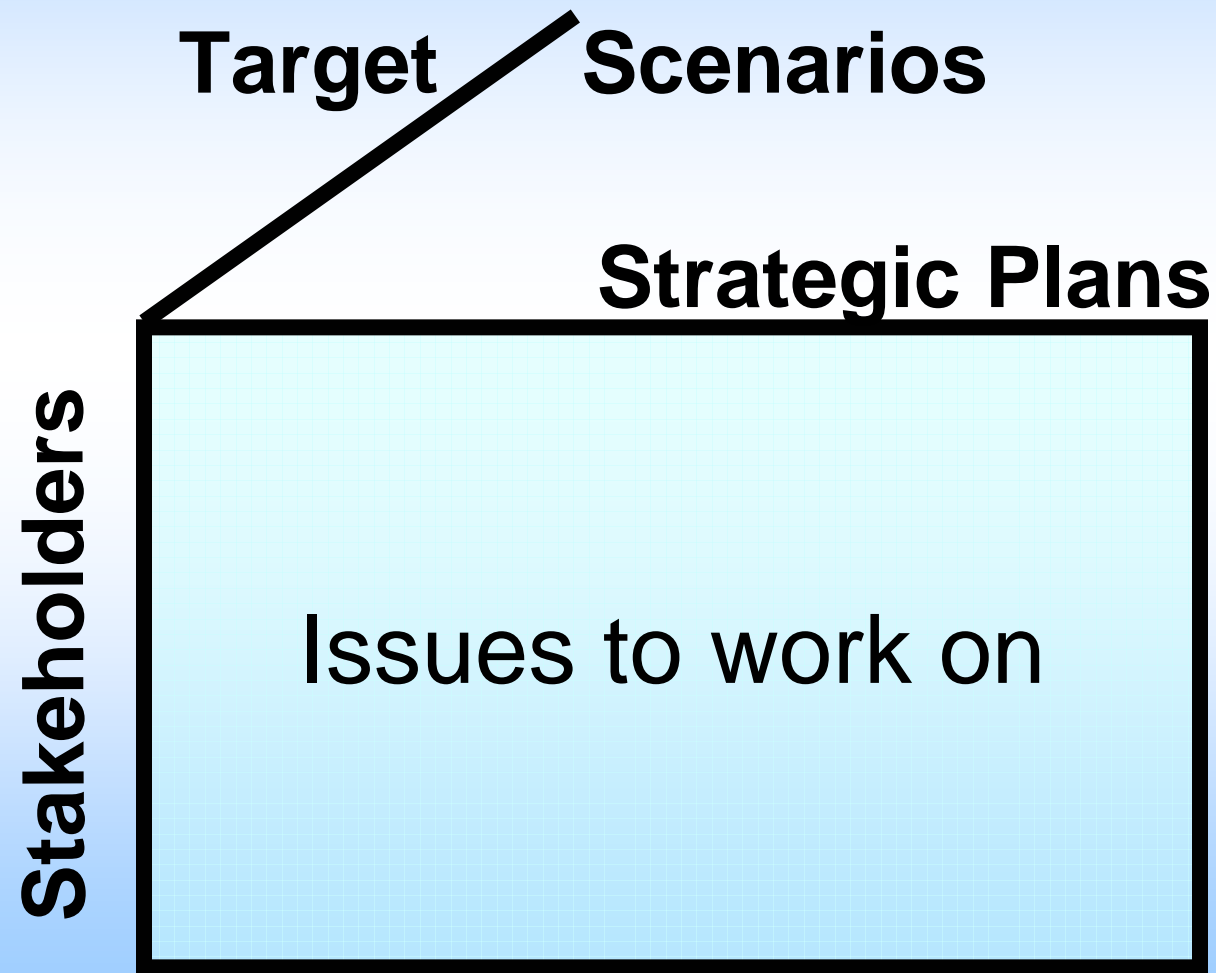
Proper Land Use Planning & Management
Ecologically Sustainable Recovery

Before the event
Use of Local materials

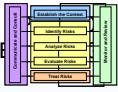

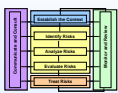
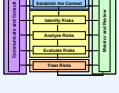
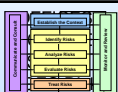

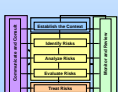

After the event
Debris Recycle

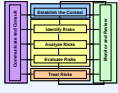
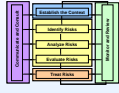
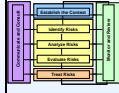
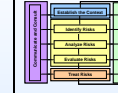
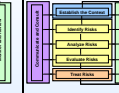
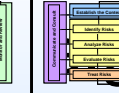
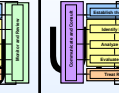
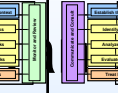
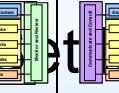
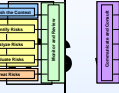
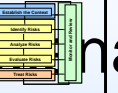


Put These Three Dimensions Together



EQTAP GOALS		REDUCTION OF PREVENTABLE DEATH AND INJURY			REDUCTION OF SOCIAL AND ECONOMIC DISRUPTION						Reduction of Psychological Impacts	Reduction of Environmental Damage
		Building Collapse	Tsunami	Land Slide	Communi-cation	Social Services	Goods	Utility	Food	Money	Housing Recovery, Social Network	Debris Clearance
Critical Control Point		Preventing Builg Collapse, Avoiding to live in the collapsed stories	Evacuating from sea shore to a higher ground after earthquake		Road, Postal Service, Telephone, TV etc	Medical, Educational, Legal Assistance, Repair etc.	A) Durable Goods: House, Furniture, Car, Cooking Equipment, Sewing Machine B) Daily Goods: Utensils, Detergent, Cloth, Book, Decorative	Fuel, Electricity, Urban Gas, Water, Waste Management		Economy	Housing, Social Network, Health, Governmental Support	Urban Planning
Stakeholders	Policy Makers									○		○
	Adminis-trators	PUBLIC BUILDINGS			○	○	△	○	○	(HACCP)	○	○
	Engineers		○				e.g. Urban Settlers Scenario					
	Entre-preuners	OFFICES, FACTORIES, SHOPS (OES Risk managementtoolkit)			○	Repair	○	○	○	(HACCP)	○	
	Educators	SCHOOLS	○					○	○		○	
	Community Leaders	IDVIDIDUAL HOUSES	○				Repair				○	○

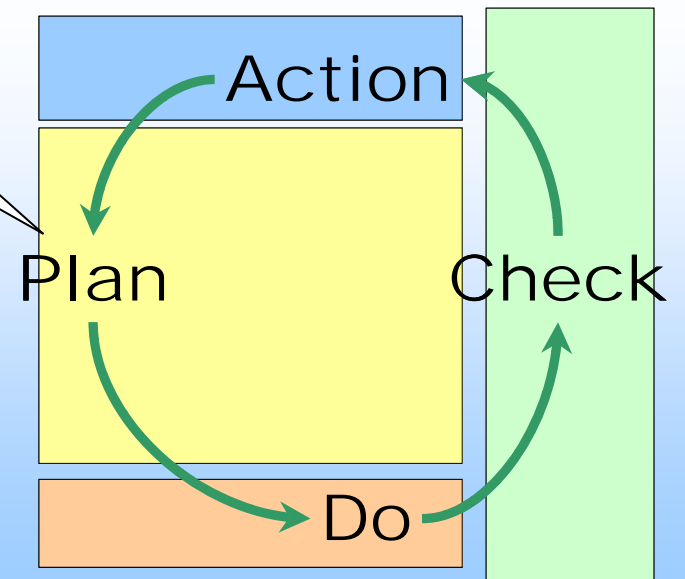
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	Engineers		○				e.g. Urban Settlers Scenario					
	Entre- preuners	 management too (kit)				Repair						
	Educators		○					○	○		○	
	Community Leaders	IDVIDIDUAL HOUSES	○			Repair			○		○	○

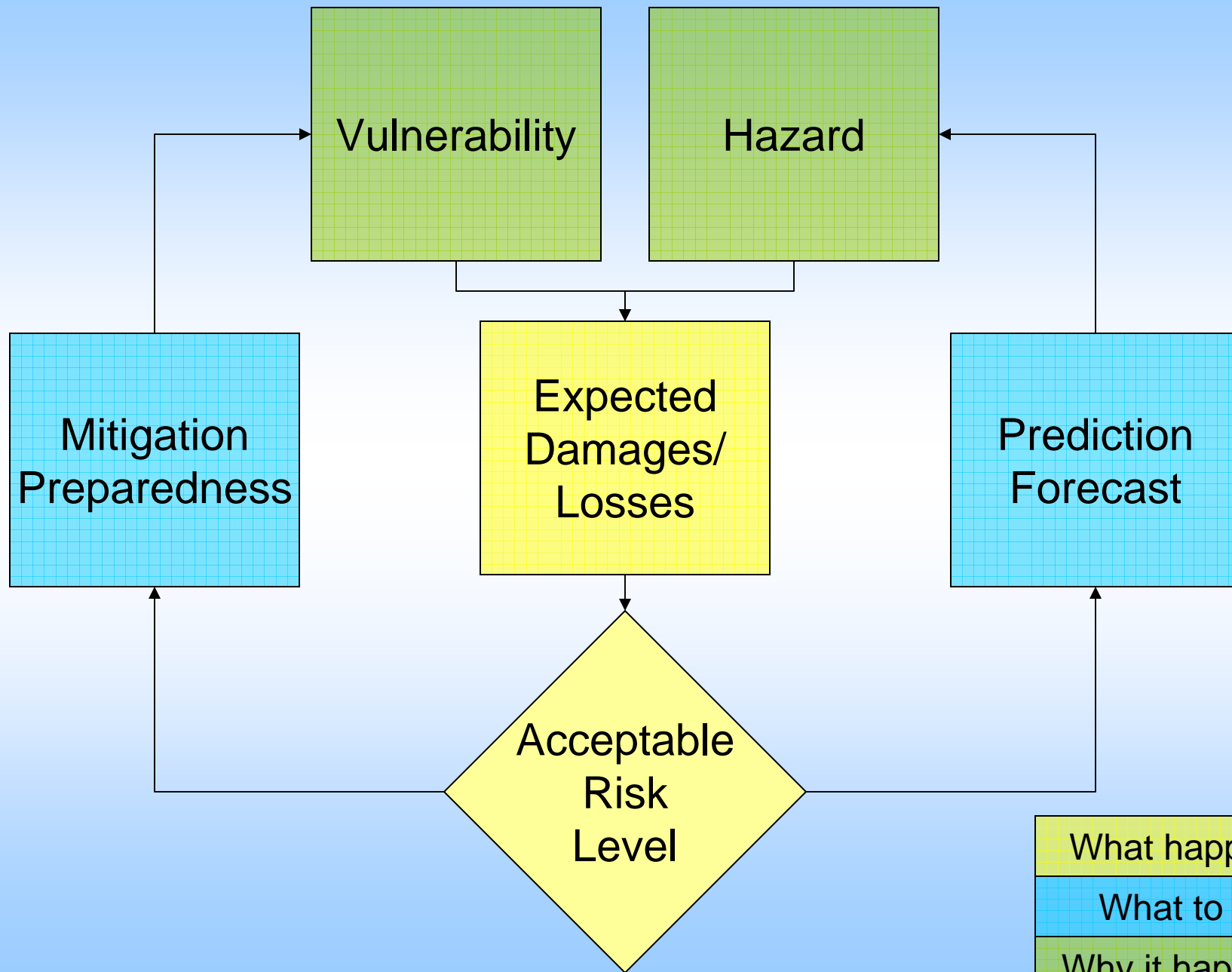
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Stakeholders	Policy Makers									○		○
	Adminis-trators	PUBLIC BUILDINGS			○	○	△	○	○	(HACCP)	○	○
	Engineers											
	Entre-preuners	OFFICES, FACTORIES, SHOPS (OES Risk managementtoolkit)			○	Repair	○	○	○	(HACCP)	○	
	Educators	SCHOOLS	○						○	○	○	
	Community Leaders	IDVIDIDUAL HOUSES	○				Repair			○	○	○

How to Use This Matrix

- Evaluating Individual Projects
 - Different Issue Setup
 - Different Cycle Period
- Forcing to have horizontal or vertical perspective rather than focusing on single cell
- Suggesting which cells should be included next

Plan Box:
Identifying Risks
Analyzing Risks
Evaluating Risks





Vulnerability

Hazard

Mitigation
Preparedness

Expected
Damages/
Losses

Prediction
Forecast

Acceptable
Risk
Level

What happens

What to do

Why it happens

Identifying Risks: EQTAP Hazards Assessment

- Earthquake Risk
- Tsunami Risk

By

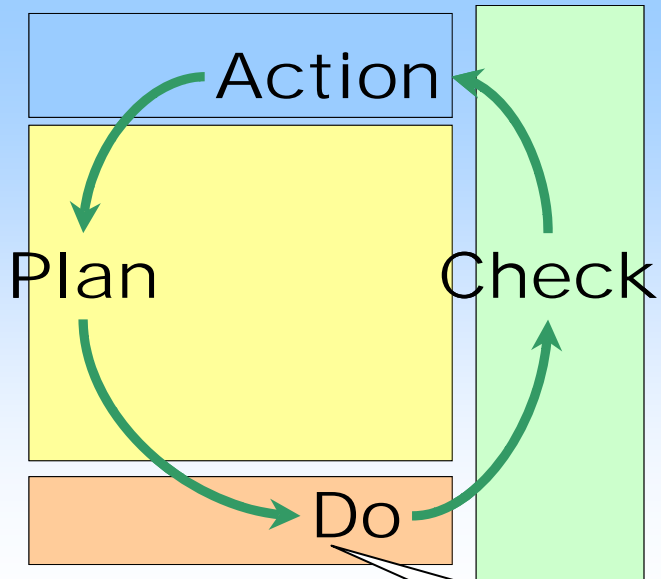
- Creating the Catalogue
- Source Effect: Seismic Observations
- Site Effect: Fault Linement
Soil Amplification
Liquefaction
- Making Prediction/Forewarning
 - Hazard Maps

Analyzing Risks:

- Vulnerability Assessment
 - To Grasp Where & How People Live
- Showing Rather Common Problems for Many Area
 - Common Checklist for Comparative Understanding
 - A Set of Questions to be Asked
 - A Set of Steps to be Taken for Investigation
 - Example: GSI by Shah, H.
- Needs for Counterpart or Friends

Evaluating Risks: EQTAP Risk Assessment

- Risk = Probability X Consequences
 - Probability: Seismic Hazard Potential
 - GSHAP: World Seismic Hazard Map
 - Consequences: Damage Potential
 - DMSP Stable Lights
- Choosing Acceptable Risk Level
- Choosing Proper Countermeasures
 - EqTAP Countermeasure Database



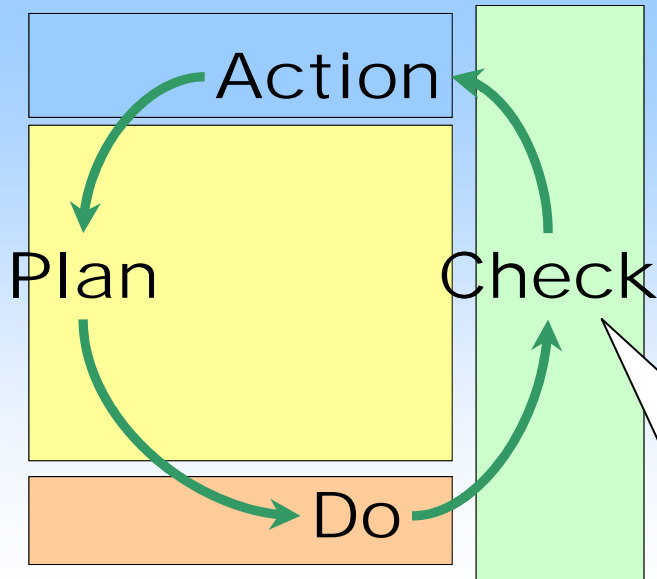
**Do Box:
Treating Risks**

Treating Risks:

- Selection of proper countermeasures
- Guidelines
- Standards
- Proper land Use Planning & Management

- Implementation
 - Lessons from RADIUS

- Increasing
 - Resistance of Community
 - Resilience of Community



**Check Box:
Reviewing and Monitoring**

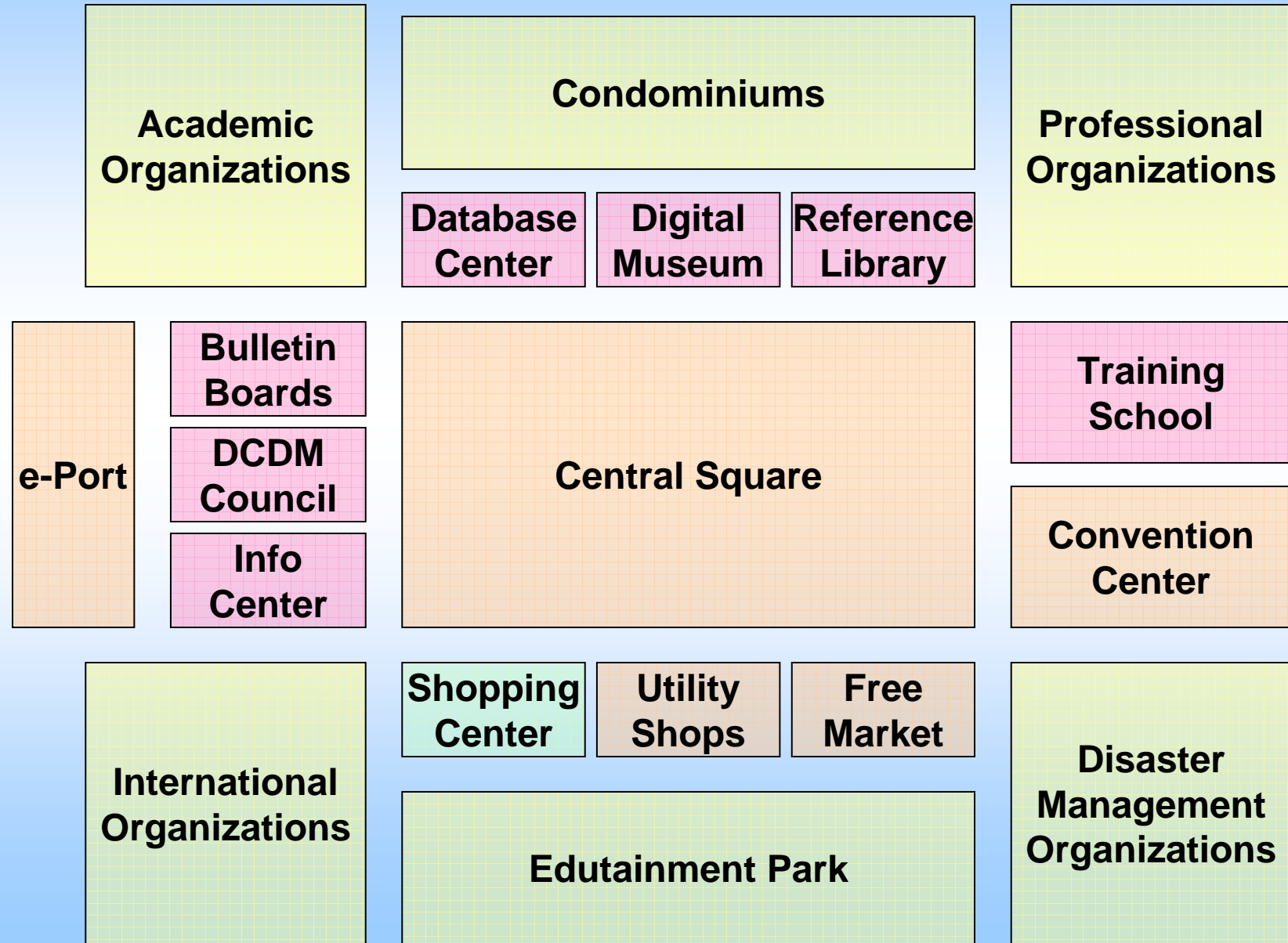
Reviewing and Monitoring

- Internal Review
 - Daily Monitoring: Database Based Operations
 - Top Management Review
- External Review
 - Check by Stakeholders
 - EQTAP Council: Non-Government Organization
 - International Body for Implementing EQTAP Master Plan

Communicating and Consulting

- **EQTAP Digital City**
 - Providing a common platform for communication and knowledge accumulation
- **EQTAP Virtual Museum of Earthquake and Tsunami Disaster Reduction**
 - EQTAP Challenges

EQTAP Digital City



YAMAZAKI
SCHEME

Seismicity

High

Low

Highly
Developed

Japan
United States
New Zealand

Korea
Singapore

Developed

Taiwan
Chile

Malaysia
Thailand

Developing

Philippine
Indonesia
China

Vietnam
China

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Stakeholders	Policy Makers								○		○
	Administrators	PUBLIC BUILDINGS		○	○	△	○	○	(HACCP)	○	○
	Engineers		○								
	Entrepreneurs	OFFICES, FACTORIES, SHOPS (OES Risk management tool kit)		○	Repair	○	○	○	(HACCP)	○	
	Educators	SCHOOLS	○				○	○		○	
	Community Leaders	INDIVIDUAL HOUSES	○			Repair			○	○	○

