2006

IUMI

東TOKYO京

How to prevent theft? By applied Environmental Criminology

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PRESENTATION OUTLINE

+ NEW CALCULATION METHOD OF CRIME PML

+ NEW METHOD OF THEFT/PILFERAGE PREVENTION

- **Outline of Method**
- **Case Study**

STATISTICS

Samples of Forcible theft from Warehouse in Europe

Warehouse near Lo De Ra sh we sa tw

Airport warehouse in Germany

Electronics Products

Valuable **Lighter** **Smaller**

forcibly stolen from the carriers' warehouse (EUR70,000)

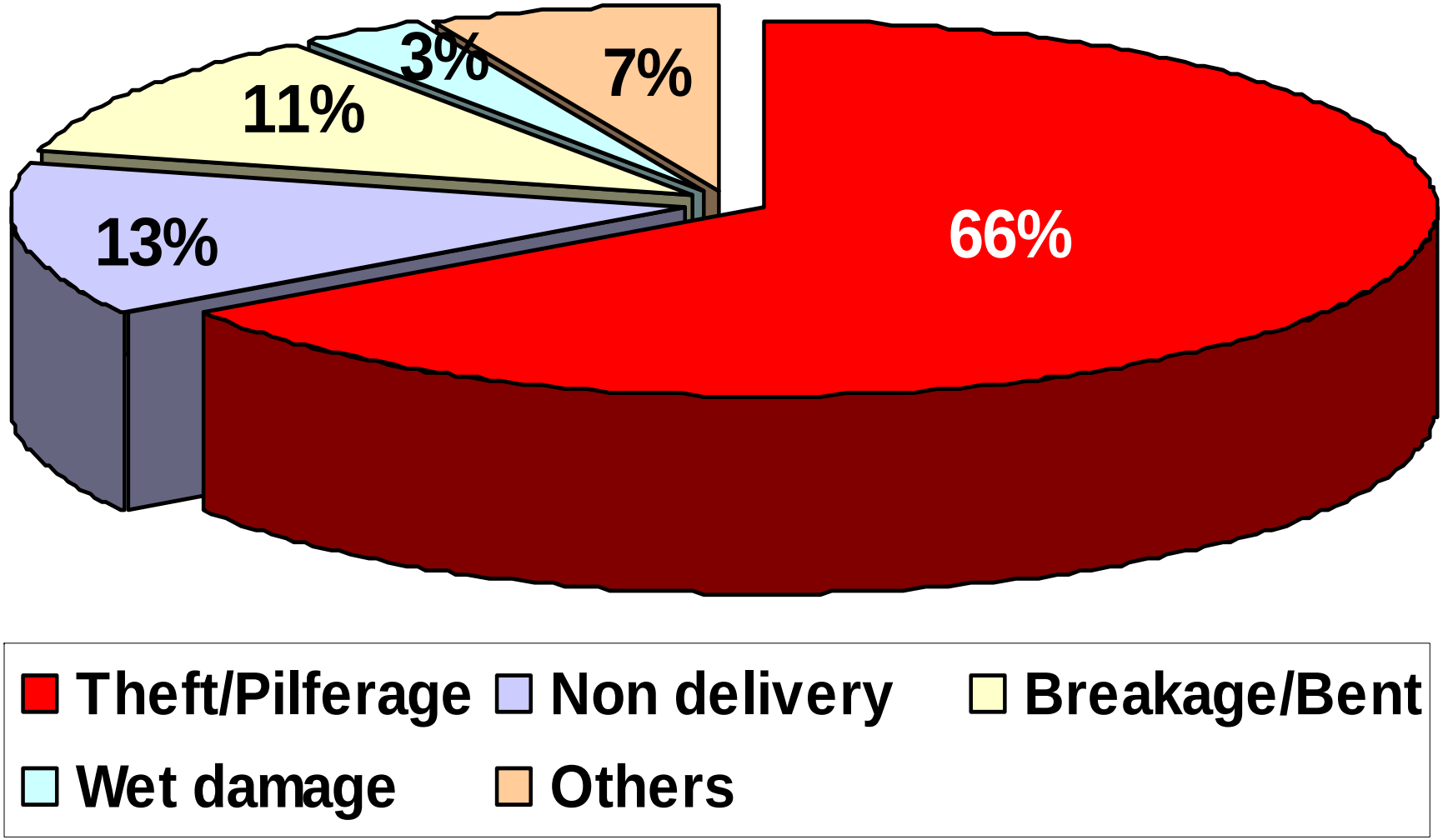
Warehouse in Austria Airport Terminal Window was broken and

more attractive to organized culprits

exposure becomes much higher

STATISTICS

Proportion of amount of claims by kind of loss
A sample data of an electronics company 2005



NECESSARY COST

TOTAL COST REDUCTION

New Approach

THEFT PREVENTION
APPLIED ENVIRONMENTAL CRIMINOLOGY

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Calculate current cargo crime PML

Maximum PML Reduction with Minimum Cost

Consider Reinforcement

Cargo Crime PML

Value of Asset (A)

Location Crime Density (N)

Facility Vulnerability (F)

Environmental Criminology

$$PML = (\Sigma N \times Fi \times A) \times \text{site area}$$

Cargo Crime PML

Location Crime Density

Outbreak density of a crime at the location (cases/year/ha)

Facility Vulnerability

Vulnerability on *defensible lines* with "*CPTED*" strategies

Cargo Crime PML

CPTED

Crime Prevention Through Environmental Design

"The proper design and effective use of the built environment can lead to a reduction in the fear of crime and the incidence of crime, and to an improvement in the quality of life."

Dr. C. Ray Jeffery

Cargo Crime PML

Four basic overlapping strategies for crime prevention

Physical

Target Hardening

Physical protection against intruders, which makes them discouraged. Harden lock or window are good example.

Access Control

Decrease crime opportunity by denying access to crime targets and make offenders perceive the risk

Psychological

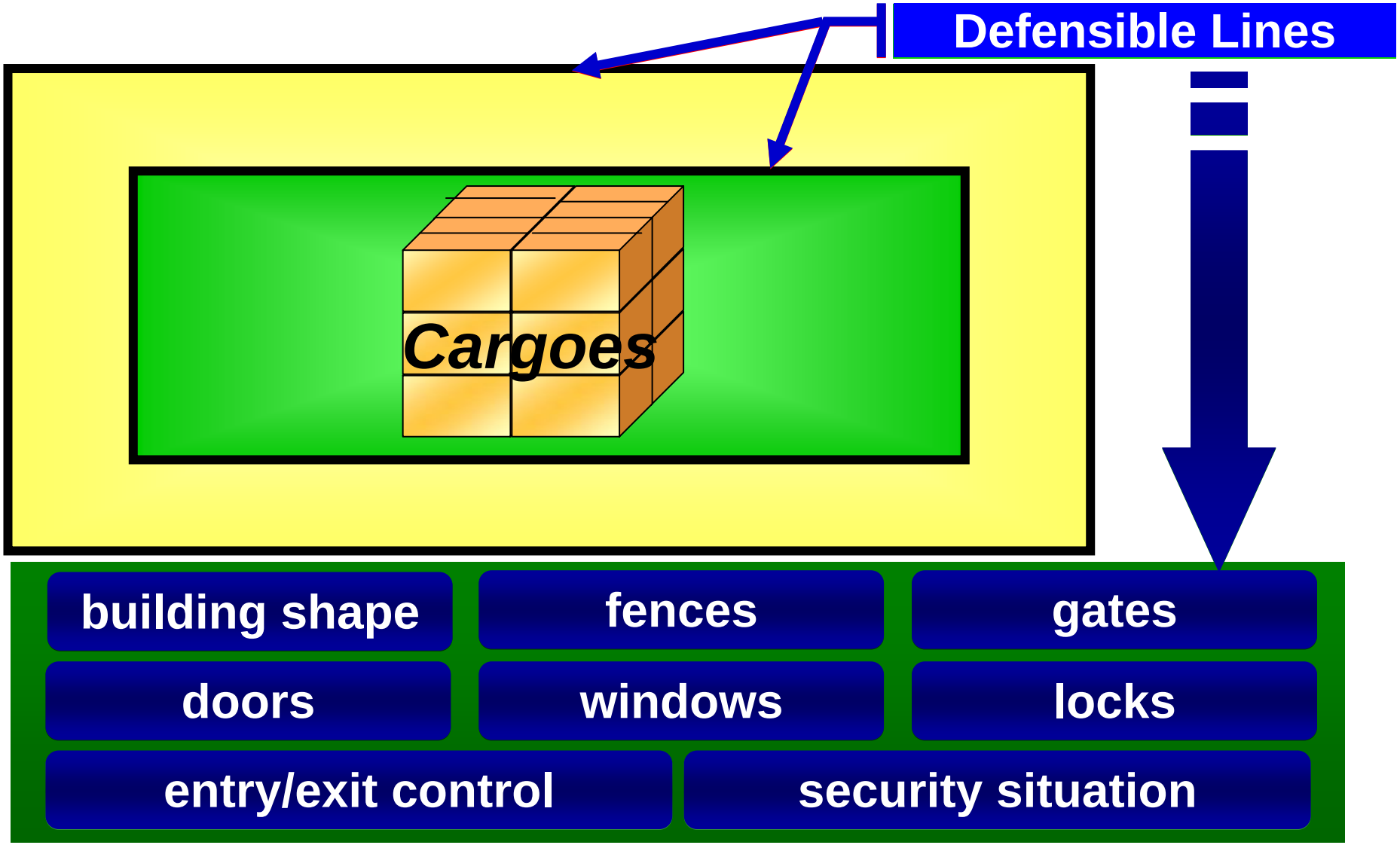
Territorial Reinforcement

develop sense of territorial control to make potential offenders perceive this control and discouraged by distinguishing private spaces from public space.

Natural Surveillance

keep intruders easily observable by features that maximize visibility of people. An example is adequate nighttime lighting.

Cargo Crime PML



Cargo Crime PML

ex) CHECK ITEM : Security Guard

LEVEL 5 ; security guards are posted at the facility 24 hours a day, and patrol the inside of the facility at appropriate time intervals.

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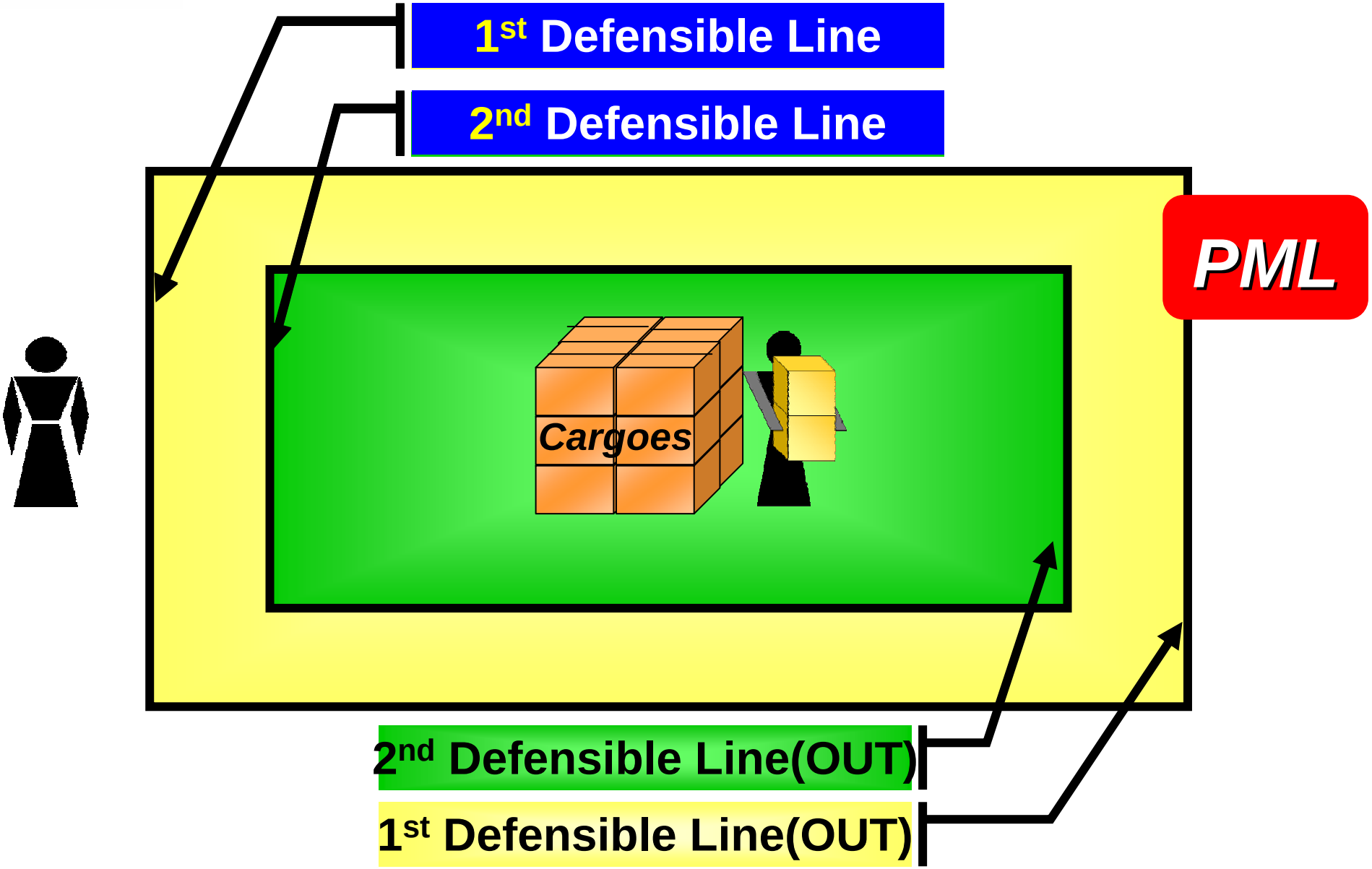
LEVEL 1 ; No Security Guard

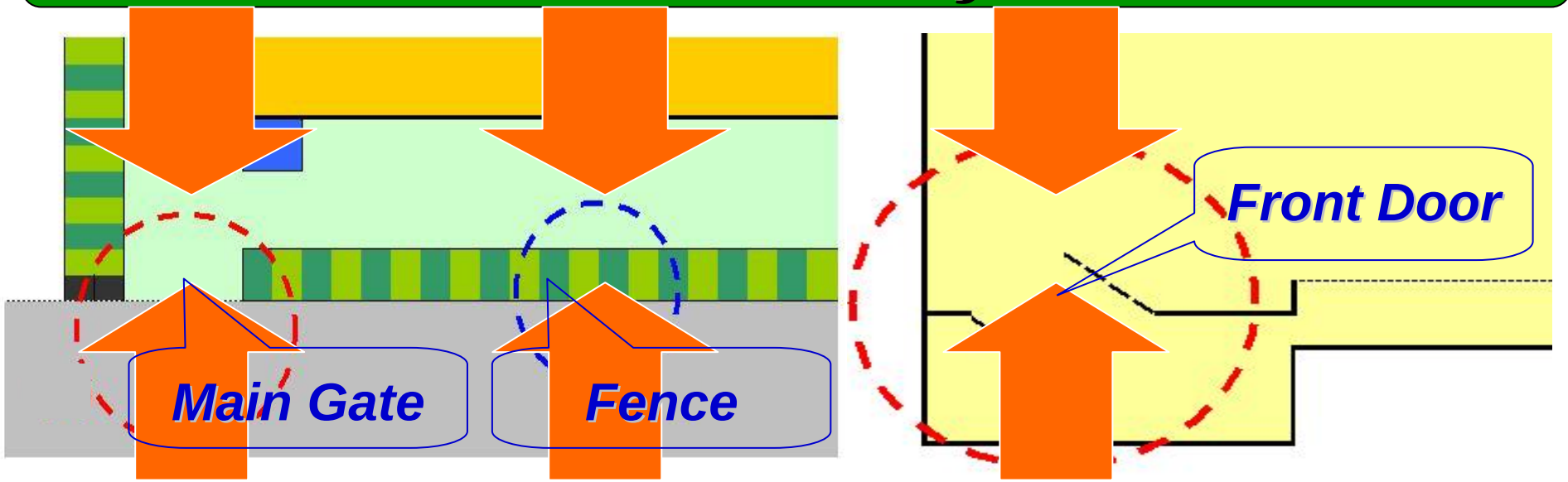
THEFT PREVENTION
APPLIED ENVIRONMENTAL CRIMINOLOGY



Cargo Crime PML

[1st Defensible Line (OUT)] [2nd Defensible Line(OUT)]

Surveillance / Key Control



Physical Protection

[1st Defensible Line (IN)] [2nd Defensible Line (IN)]

Calculate current cargo crime PML

Calculate
PML Reduction

Calculate
Reinforcement Cost

Consider Reinforcement

Reinforcement Cost

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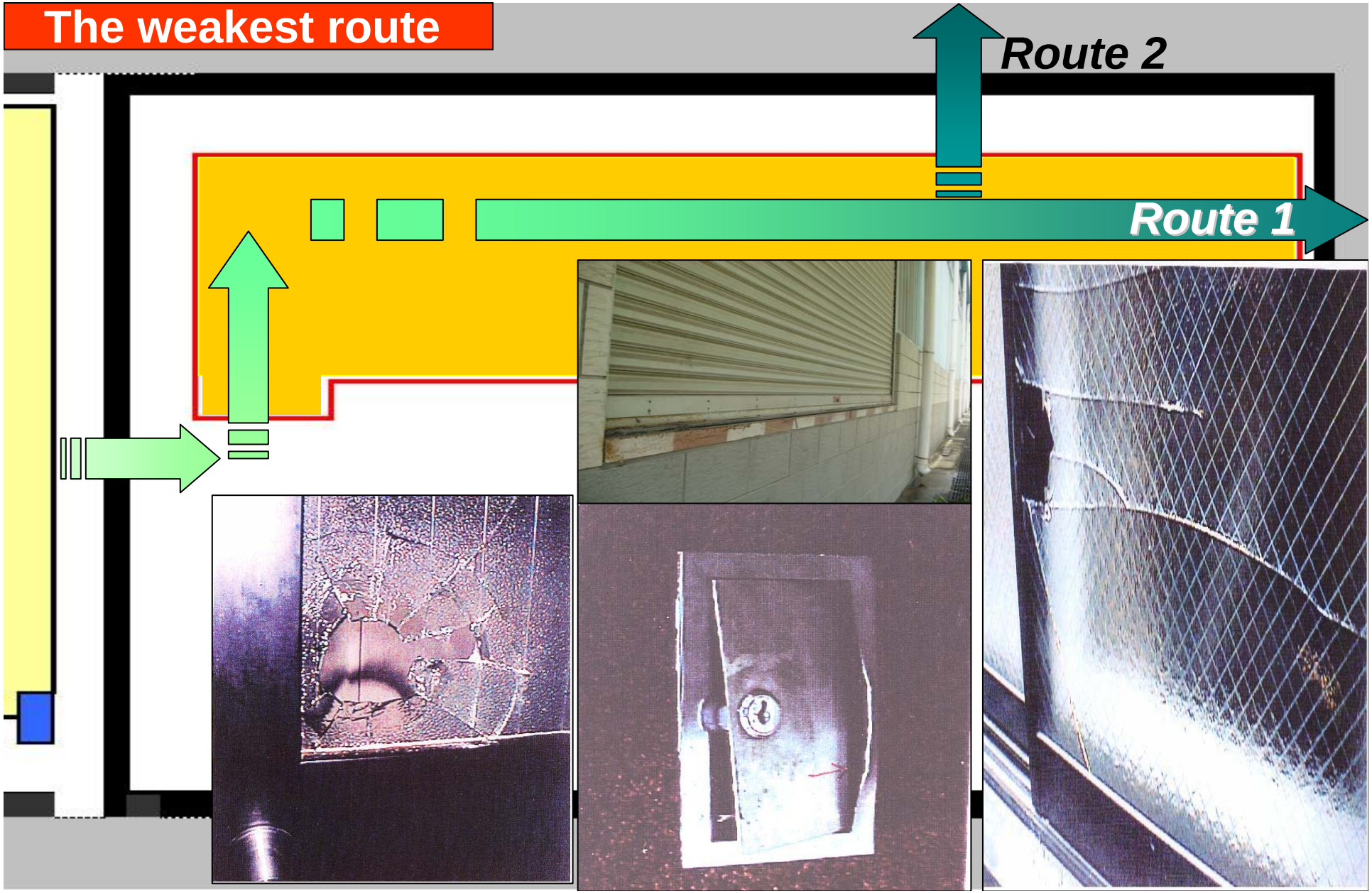
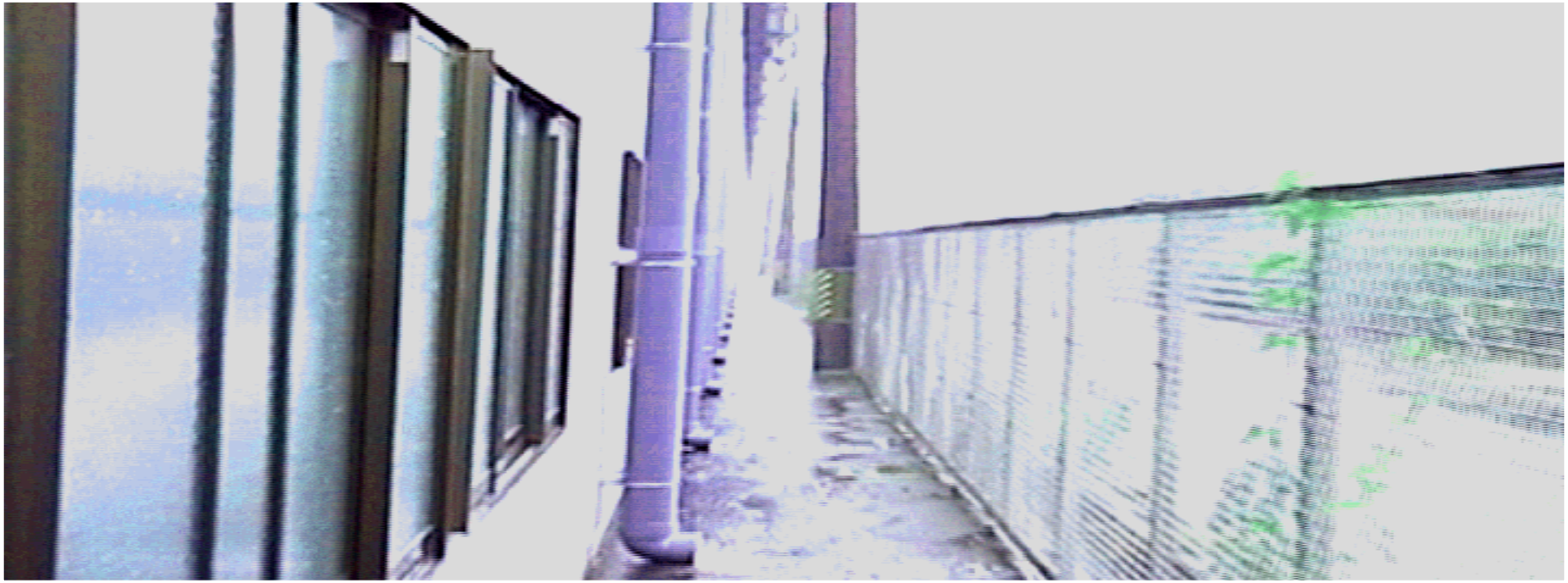




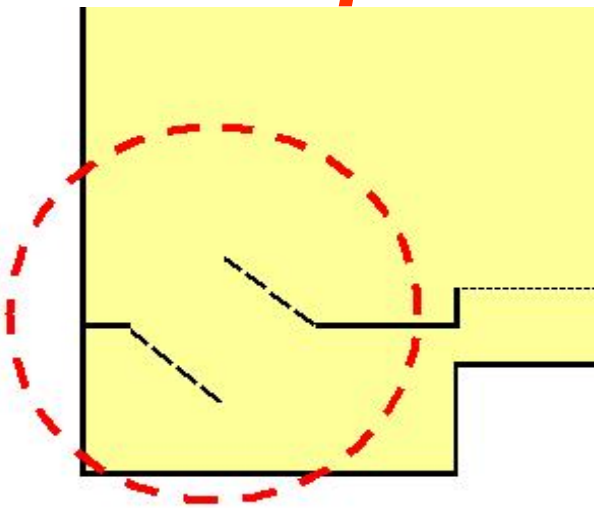
Reinforcement Cost

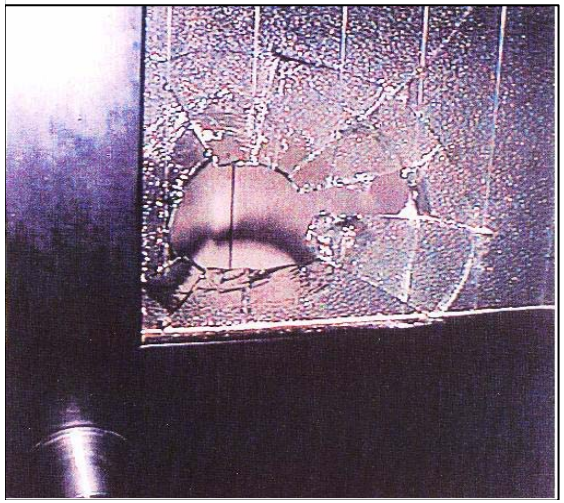
ROUTE 2

Reinforcement Cost

<One of the weakest points>

+ Outer Front Door





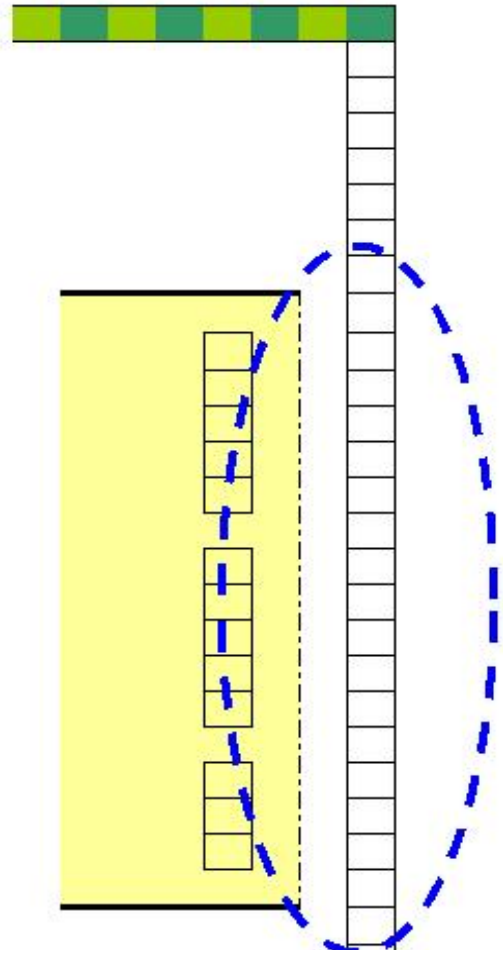
<Reinforcement plan>

+ Steel Door / Double Lock
+ Anti-Crime Glass
  - Necessary cost is to be calculated.

Reinforcement Cost

<One of the weakest points>

+ Back Side Window



<Reinforcement plan>

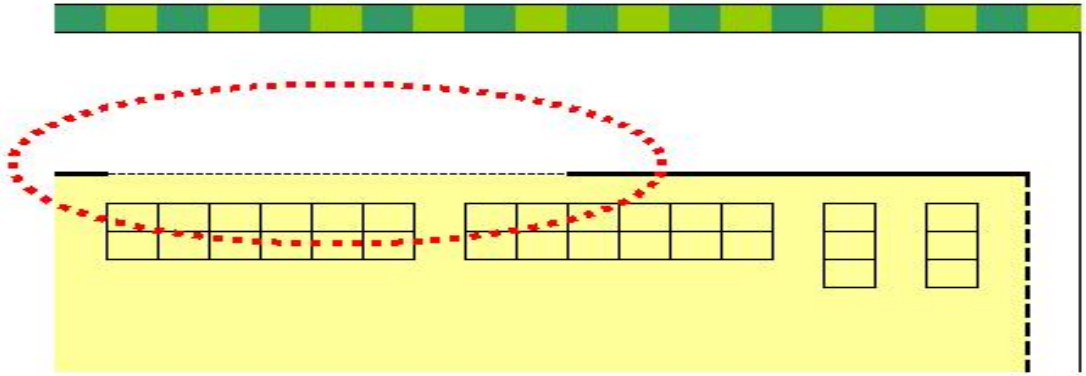
+ Magnet Sensor, Siren
  and Rotary Beacon Light

- Necessary cost is to be calculated.

Reinforcement Cost

<One of the weakest points>

+ Shutters at the back side of the warehouse



<Reinforcement plan>

+ Improve key control
+ Alter layout of the stored cargoes

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Calculate current cargo crime PML

Calculate PML Reduction

Calculate Reinforcement Cost

Consider Reinforcement

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BEST SOLUTION SELECTION SYSTEM

COST RANGE JPY ▼ 0 => JPY ▼ 3000000 Search

Note	1st Line (IN)				2nd Line (In)				2nd Line (OUT)				1st Line (OUT)				PML	Cost (/Year)	Net Less ↓
	A	B	C	D	a	b	c	d	a	b	c	d	A	B	C	D			
CURRENT STATE																	JPY 300,000,000		
Measure B+S+R+Z+Y		○				○				○				○			JPY 68,520,000	JPY 1,850,000	JPY 233,330,000
Measure C+S+R+X		○	○			○				○							JPY 72,500,000	JPY 2,150,000	JPY 229,650,000
Measure B+S+R+Z		○				○				○	○						JPY 90,200,000	JPY 1,650,000	JPY 211,450,000
Measure D+H+I+X+Y		○				○		○		○				○			JPY 92,120,000	JPY 2,620,000	JPY 210,500,000
Measure D+S+R+Q						○				○							JPY 98,000,000	JPY 1,925,000	JPY 203,925,000
Measure B+E+M+V+Z						○		○		○							JPY 101,200,000	JPY 2,421,600	JPY 201,221,600
Measure E+S+T+U+X		○															JPY 112,100,000	JPY 2,226,000	JPY 190,126,000
Measure A+B+E+Y		○				○				○							JPY 112,850,000	JPY 2,505,000	JPY 189,655,000
Measure C+F+N+X						○		○									JPY 130,001,000	JPY 2,998,000	JPY 172,997,000
Measure C+S+Q+Z						○				○				○			JPY 132,001,000	JPY 2,720,000	JPY 170,719,000

THEFT PREVENTION
APPLIED ENVIRONMENTAL CRIMINOLOGY

Calculate current cargo crime PML

COST-EFFECTIVE MEASURE

Consider Reinforcement

CONCLUSION

- **Cargo Crime PML calculated by Environmental Criminology**

  - *A NEW APPROACH*

- **Effectiveness of theft prevention is quantified by comparison with PML reduction and reinforcement cost**

Thank you…