

**profit, loss, and percentages in disaster management** is essential for budgeting, insurance, funding, and economic recovery. These mathematical concepts help governments, businesses, and aid organizations make informed financial decisions during and after a disaster.

Here's how they are used, with clear examples:

## ◆ 1. Estimating Economic Loss

### ◆ Math Concept: Loss = Cost Price – Selling Price

- **Use:** Calculate damage to property, crops, or equipment.

#### **Example:**

A store had goods worth **\$120,000** before a flood. After damage, only **\$40,000** worth was saved.

- **Loss = 120,000 – 40,000 = \$80,000**
- **Loss % = (80,000 / 120,000) × 100 = 66.7% loss**

## ◆ 2. Aid and Relief Budgeting

### ◆ Math Concept: Percentages

- **Use:** Allocate funds based on the percentage of need in various regions.

#### **Example:**

If a country receives **\$1,000,000** in relief aid:

- 40% goes to food: **40% of 1,000,000 = \$400,000**
- 30% to shelter: **30% of 1,000,000 = \$300,000**
- 20% to water: **\$200,000**
- 10% to logistics: **\$100,000**

## ◆ 3. Insurance and Compensation

### ◆ Math Concept: Percentage Payout

- **Use:** Calculate how much compensation a person receives based on insurance coverage.

**Example:**

A farmer insured his crops for **\$50,000**. After a hurricane, 70% of the crop was destroyed.

- **Claim payout = 70% of \$50,000 = \$35,000**

## ◆ 4. Government Funding and Emergency Loans

### ◆ Math Concept: Profit and Loss / Percent Increase

- **Use:** Track how much businesses lose and what is needed for them to recover.

**Example:**

A small business made a monthly profit of **\$5,000** before a disaster. After the disaster, it ran at a loss of **\$2,000** per month.

- **Change = 5,000 – (–2,000) = \$7,000 decrease**
- **Loss % = (7,000 / 5,000) × 100 = 140% negative change**

## ◆ 5. Cost Comparison for Emergency Supplies

### ◆ Math Concept: Percent Increase / Decrease

- **Use:** Compare pre- and post-disaster prices to control inflation and price gouging.

**Example:**

A bottle of water cost **\$2** before a hurricane. Afterward, it costs **\$3.50**.

- **Increase = \$1.50**
- **% Increase = (1.5 / 2) × 100 = 75%**

## ◆ 6. Rebuilding Projects & Contracts

### ◆ Math Concept: Profit Percent / Markup

- **Use:** Monitor contractor profit margins on rebuilding projects.

**Example:**

A contractor charges **\$150,000** to rebuild homes. The actual cost is **\$120,000**.

- **Profit = \$150,000 – \$120,000 = \$30,000**
- **Profit % = (30,000 / 120,000) × 100 = 25%**

**✓ Summary Table:**

<b>Situation</b>	<b>Math Concept</b>	<b>Example</b>
Property damage	Loss & Loss %	\$80,000 loss, 66.7%
Aid allocation	Percentages	40% food, 30% shelter
Crop insurance	Percent claim	70% of \$50,000 = \$35,000
Business impact	Profit to Loss %	140% decrease
Price monitoring	% Increase	75% rise in water price
Rebuilding cost	Profit margin	25% contractor profit