Perimeter and **area** of regular shapes (like squares, rectangles, circles, triangles) are extremely useful in **disaster management** for planning, protection, and recovery. Below are practical examples showing how these math concepts are applied:

◆ 1. Building Temporary Shelters

◆ Math Concept: Area and Perimeter of Rectangles

- **Use:** Determine the amount of space needed per person and plan how many tents/shelters can fit in a safe area.

Example:

- A rectangular emergency shelter is **10 m long and 5 m wide**.
  - **Area = 10 × 5 = 50 m²**
    → Can accommodate up to **5 people** if each needs 10 m².
  - **Perimeter = 2(10 + 5) = 30 m**
    → Helps calculate fencing or protective barrier length.

◆ 2. Sandbag Barriers Against Flooding

◆ Math Concept: Perimeter of Shapes (Rectangles or Circles)

- **Use:** Sandbags are placed around buildings to form barriers. We must know the **perimeter** of the structure.

Example:

- A house has a **square base of side 12 m**.
  - **Perimeter = 4 × 12 = 48 m**
  - → 48 meters of sandbags needed to surround the house.

◆ 3. Safe Zone Planning in Earthquakes or Chemical Spills

◆ Math Concept: Area of Circles or Polygons

- **Use:** Emergency teams establish a **circular safety zone** around a danger site.

Example:

- A chemical plant needs a **circular evacuation zone with a radius of 200 m**.
  - **Area = $\pi r^2 = 3.14 \times 200^2 = 125{,}600\ m^2$**
  - → Ensures responders know the total area to evacuate.

◆ 4. Helipad or Supply Drop Zones

◆ Math Concept: Area of a Circle or Square

- **Use:** Designate flat areas for helicopters to land with supplies or evacuate injured.

Example:

- A circular helipad must have a **minimum area of 100 m^2**.
  - Formula: **$A = \pi r^2 \Rightarrow r = \sqrt{(100/\pi)} \approx 5.64$ m**
  - → A helipad should have at least **a radius of 5.64 meters** to be safe.

◆ 5. Calculating Land for Emergency Farming or Water Storage

◆ Math Concept: Area of Rectangles and Triangles

- **Use:** After a disaster, land is used for temporary farming or to dig water reservoirs.

Example 1 – Farming Plot:

- A rectangular plot of land measures **25 m × 40 m**.
  - **Area = 1,000 m^2** → Estimate crop yield or number of families it can support.

Example 2 – Water Reservoir:

- A triangular pond with a base of 12 m and height of 8 m.
  - **Area = ½ × base × height = ½ × 12 × 8 = 48 m^2**
  - → Estimate how much water can be stored.

◆ 6. Fencing and Securing Campsites

◆ Math Concept: Perimeter

- **Use:** Disaster relief camps need fencing for **security and organization**.

Example:

- A rectangular refugee camp is **80 m long and 50 m wide**.
  - **Perimeter = 2(80 + 50) = 260 m**
  - → You need **260 meters of fencing wire**.

✅ Summary Table:

Scenario	Math Concept	Real Use
Emergency shelter	Area of rectangle	Determine space per person
Flood barrier	Perimeter of square/rectangle	Sandbag placement
Evacuation zone	Area of circle	Establish danger/safety zone
Helipad	Area of circle	Safe helicopter landing
Farming plot	Area of rectangle/triangle	Estimate crop support
Water reservoir	Area of triangle	Estimate volume of water
Camp fencing	Perimeter	Secure relief zones