Factors and **multiples** in **disaster management** is a powerful way to solve real-world problems related to **resource distribution**, **team planning**, **shelter design**, and **supply logistics**. These concepts help in organizing efforts **efficiently and fairly**, especially under pressure.

Here's how **factors and multiples** are used, with **practical examples**:

◆ 1. Dividing Relief Supplies Evenly

◆ Math Concept: Factors

- **Use:** To divide food, water, or other resources **equally** among affected people.

✅ Example:

A relief team has **60 food packages** to distribute among shelters.

- Find the **factors of 60**:
  1, 2, 3, 4, 5, 6, **10**, **12**, 15, 20, 30, 60
- Choose a factor that divides the supplies **evenly**:
  - If 5 shelters: Each gets **60 ÷ 5 = 12 packages**
  - If 10 shelters: Each gets **60 ÷ 10 = 6 packages**

Using factors helps **avoid waste and conflict**.

◆ 2. Planning Supply Restocking Days

◆ Math Concept: Multiples

- **Use:** To schedule deliveries and restocking efficiently.

✅ Example:

- Water is delivered every **4 days**, food every **6 days**.
- When will both arrive on the same day?
- Find **LCM (Least Common Multiple)** of 4 and 6 = **12**
- → Both deliveries will happen together every **12 days**

This helps coordinate logistics and save fuel/time.

◆ 3. Shelter Capacity Planning

◆ Math Concept: Factors

- **Use:** To divide space in shelters or tents equally.

✅ Example:

A tent has **36 sleeping spots**.

- What group sizes will divide evenly into 36?
  - Factors of 36: 1, 2, 3, **4**, **6**, 9, **12**, 18, 36
- If teams of 6 are housed:
  - **36 ÷ 6 = 6 teams** can be accommodated

Using factors ensures **no overcrowding** and fair use of space.

◆ 4. Creating Rotating Work Shifts

◆ Math Concept: Multiples

- **Use:** Plan team shifts to repeat at regular intervals.

✅ Example:

- One team works every 3 days, another every 4 days.
- They work together on the **LCM of 3 and 4 = 12th day**

Multiples help avoid **overlap or overworking staff**.

◆ 5. Grouping Volunteers or Victims

◆ Math Concept: Common Factors

- **Use:** Group people evenly for transport, meals, or training.

✅ Example:

- 24 women and 36 men to be placed in **equal-sized groups** without mixing.
- Find the **HCF (Highest Common Factor)** of 24 and 36 = **12**

→ You can form **12 groups**, each with:

- **2 women and 3 men**

This ensures **balanced group sizes**.

◆ 6. Packing Emergency Kits

◆ Math Concept: Multiples and Division

- **Use:** Determine how many kits are needed or how to pack them.

✅ Example:

- Each disaster kit contains **5 items**, and there are **100 items**.
- Since **100 is a multiple of 5**, you can pack **100 ÷ 5 = 20 kits** with no leftovers.

Using multiples ensures **efficient packing**.

✅ Summary Table:

Scenario	Math Concept	Real-Life Use
Food distribution	Factors	Divide supplies evenly
Delivery scheduling	Multiples (LCM)	Sync water, food restock
Shelter planning	Factors	Divide space or beds
Work shifts	Multiples (LCM)	Rotate shifts efficiently
Volunteer grouping	HCF	Fair team formation
Kit packing	Multiples	Avoid leftovers or shortages

□ Quick Definitions:

- **Factor:** A number that divides another exactly (e.g., 4 is a factor of 12)
- **Multiple:** A number made by multiplying (e.g., 24 is a multiple of 6)
- **LCM:** Least Common Multiple – lowest shared multiple

- **HCF:** Highest Common Factor – largest number dividing both exactly