

occurrence, number of deaths, total number of affected people, and economic damage

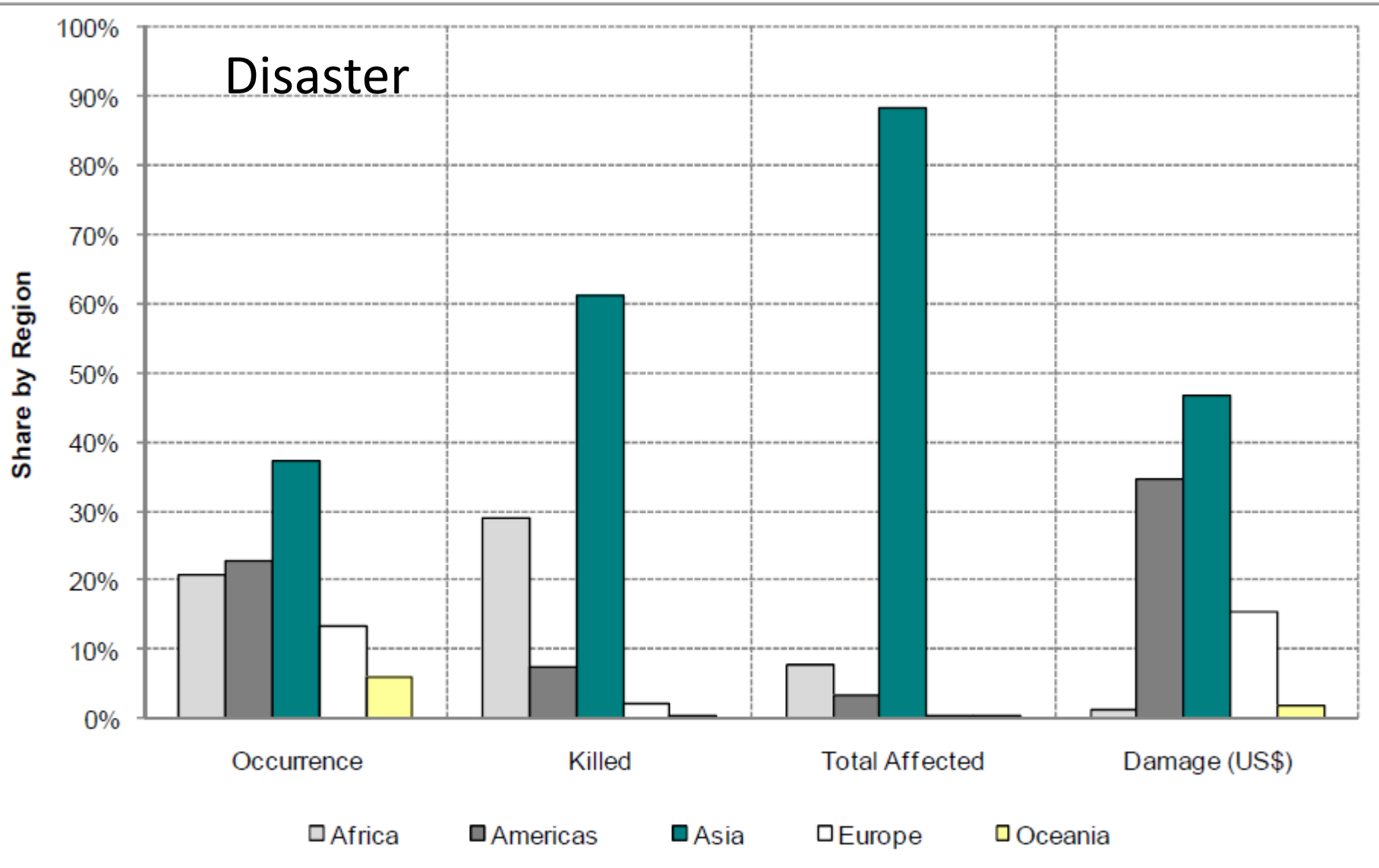


Figure 5: Impacts of World Natural Disasters by Region, 1975-2009

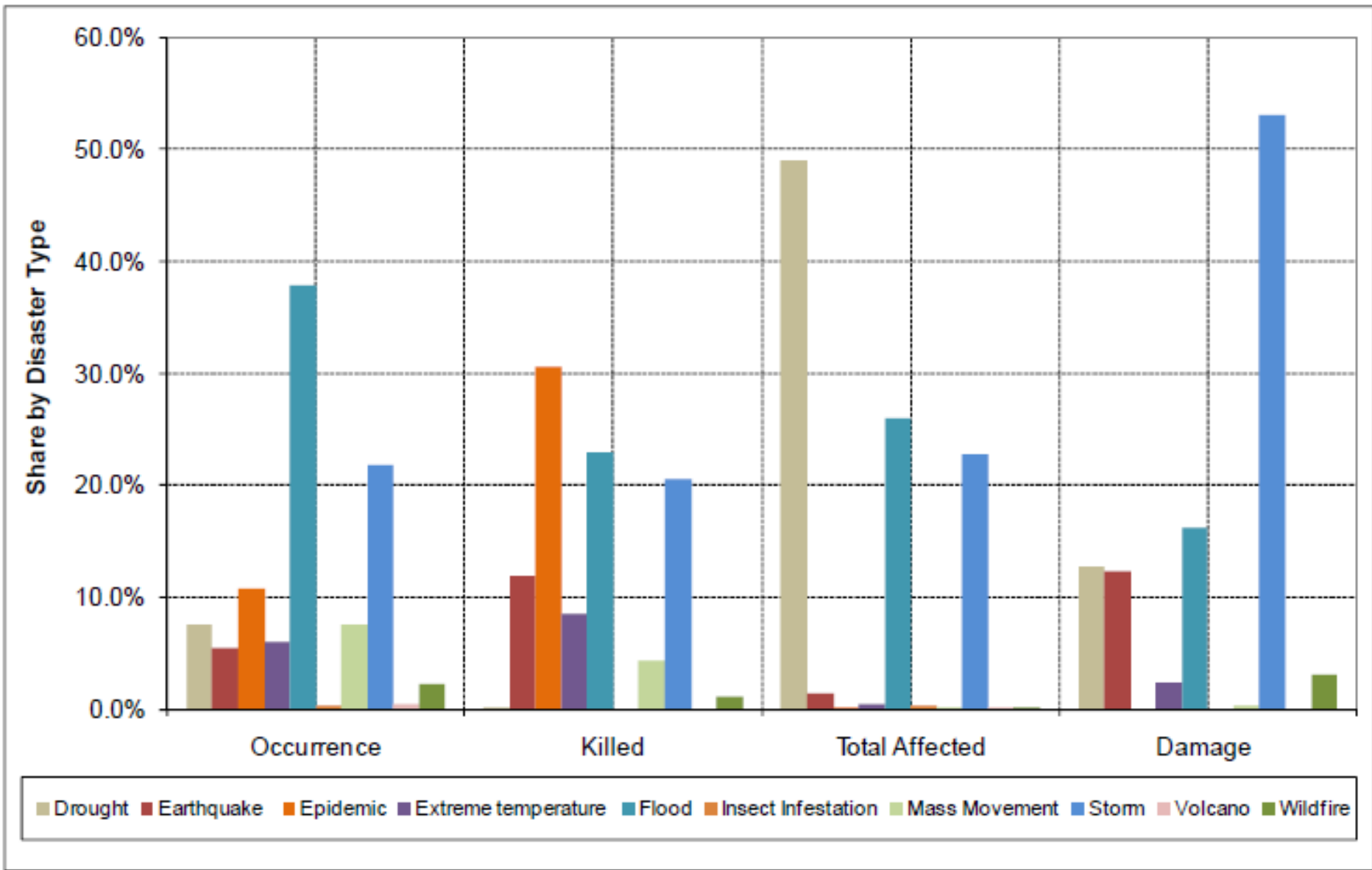


Figure 2: Impacts of Natural Disasters by Disaster Type, 2009

THE PROGRESSION OF VULNERABILITY

1

2

3

ROOT CAUSES

Limited access to

- Power
- Structure
- Resources

Ideologies

- Political system
- Economic System

DYNAMIC PRESSURES

Lack of

- Local institutions
- Training
- Appropriate skills
- Local investments
- Local markets
- Press freedom
- Ethical standards in public life

Macro-forces

- Rapid population change
- Rapid urbanization
- Arms expenditure
- Debt repayment schedules
- Deforestation
- Decline in soil productivity

UNSAFE CONDITIONS

Physical environment

- Dangerous locations
- Unprotected buildings and infrastructure

Local economy

- Livelihoods at risk
- Low income levels

Social relations

- Special groups at risk
- Lack of local institutions

Public actions

- Lack of disaster preparedness
- Prevalence of endemic Disease

DISASTER

**RISK =
Hazard ×
Vulnerability**

$$R = H \times V$$

HAZARDS

Earthquake

**Highwinds
(cyclone/
hurricane/
typhoon)**

Flooding

**Volcanic
Eruption**

Landslide

Drought

**Virus and
pests**

Pressure and Release (PAR) model: the progression of vulnerability
(Wisner, B. Ed. 1994: *A Risk: Natural Hazards, People's Vulnerability and Disasters*. Routledge)