Uganda Road Safety Performance Review
Capacity Building Workshop
1-2 March 2018
Hotel Africana- Kampala, Uganda

ROAD ACCIDENT CAUSATION, INVESTIGATION & PREVENTION

Mable N. Tomusange
Consultant

Outline of Presentation

1. **Introduction**
    - ❑ Definition of Terms.
    - ❑ Road Accidents statistics.

2. **Road Accident Causation**
    - ❑ Causation factors.
    - ❑ Epidemiology triad.

3. **Road Accident Investigation**
    - ❑ Steps undertaken.

4. **Road Accident Prevention**
    - ❑ Conceptual frameworks.
    - ❑ Prevention strategies.

Terminology

- **Accident**:
  Sudden & unpleasant event/happening.

- **Causation**:
  Process of one event causing/producing another event.

- **Investigation**:
  Examination of facts about a situation/problem.

- **Prevention**:
  Act of stopping something "bad" from happening.

Statistics

Global

- 1.27 million people die annually (WHO report, 2009).
- 20-50 million suffer non fatal injuries (WHO report, 2009).

Africa

- Has the highest fatality rate 26.6/100 000 deaths (WHO Report, 2015).
- 39% pedestrian deaths (WHO report, 2015).

Uganda

- Uganda lost over 3,000 people & over 15,000 injuries (2016 Police record).
- 20% of deaths are children (18 below).
- 70% involved are male aged 25-44.
- Pedestrians are one single most affected road users.
- Boda boda (motorcycle) contribute over 60% of road accidents.

Causation

- Understanding the causes of road accidents.

- 4 Key Causation factors:
- ✓ Human Factors
- ✓ Vehicle Factor
- ✓ Road/Highway Factor
- ✓ Environment Factor

Epidemiological Accident Cycle

Vector → Host → Agent → Vector
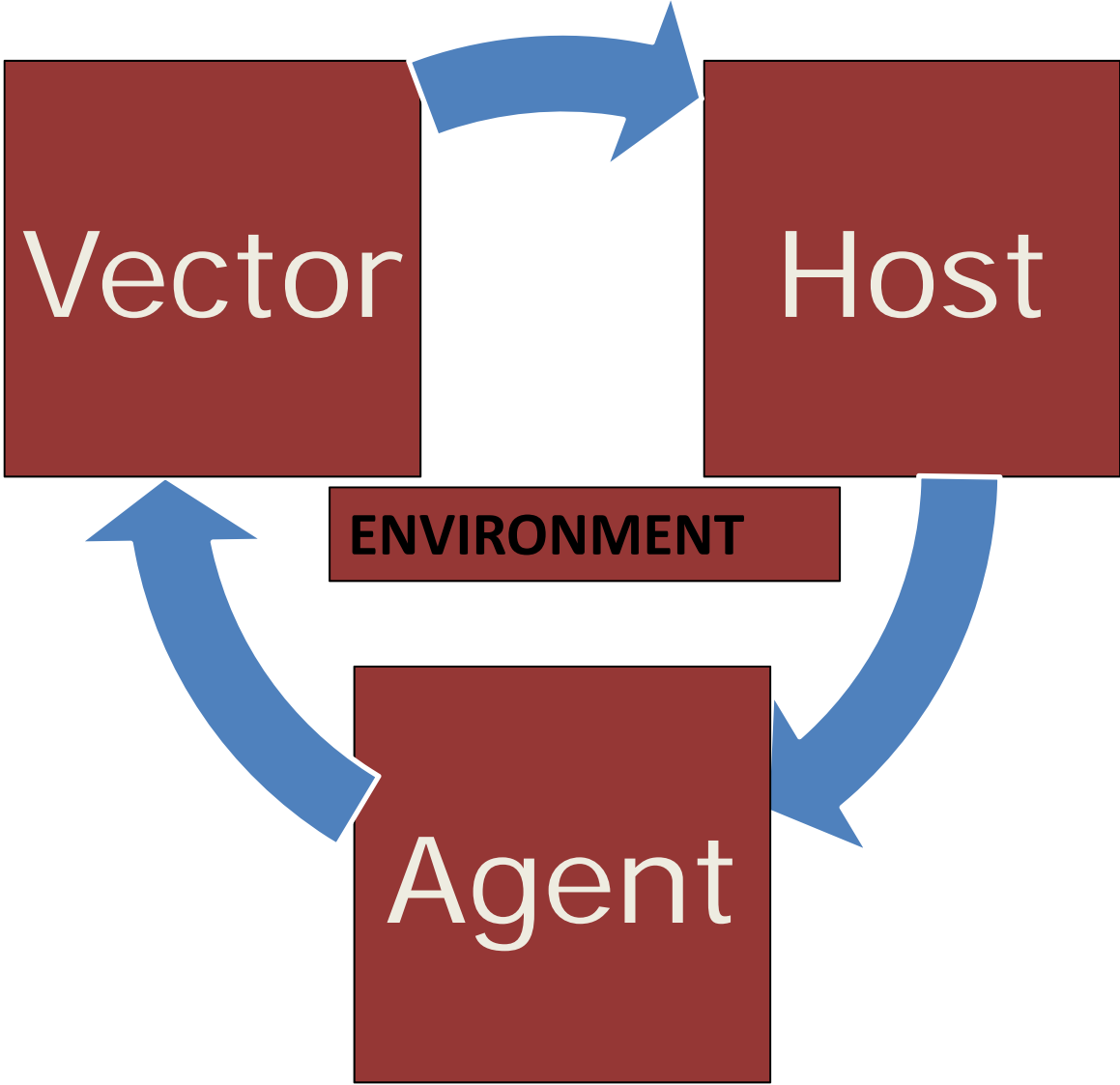
ENVIRONMENT

Investigation

- Thorough examination of road incident/case/crash.

(*From a injury prevention perspective*)

✓ Vector (Vehicle)

✓ Host (human being)

✓ Agent (Energy- speed)

✓ Environment (Weather, road condition)

Investigation

Steps for thorough investigation

- Road death investigation
- At scene investigation
- Site investigation
- Vehicle examination
- Witness identification/interview
- Driver investigation
- Charging/court/legal
- Compensation

Prevention

- Prevention is understood as being *careful*, however, *prevention* is a *scientific field* that is used to combat *diseases*.

- Prevention is (injury) one of the spectrum of Injury Control. Injury Control has 3 aspects that make it up: *Surveillance, Prevention, Treatment* (Pre- & In-hospital).

- **Importance of Prevention:**
- ✓   Clearly identifies risk factors.
- ✓   Reduces the incidences of accident occurrences.
- ✓   Develops scientifically sound preventive efforts.
- ✓   Promotes what can be proven to work.

Conceptual Frameworks

➢ **A**re theoretical modals for organizing thoughts, ideas, processes and arguments, and information of practice.

➢ **T**hey specify conceptual relationships between variables –quality or quantity wise or both, specifying lines of argument (thesis).

➢ **A**re synonymous with the scientific methodology/ thinking.

Prevention Strategies

1. Decade of Action for Road Safety (2010-2020).

2. Haddon Matrix.

3. Public Health Approach.

4. Injury Prevention Principles (5E's).

DECADE ACTION PLAN

Global Plan
for the Decade of Action
for Road Safety 2011-2020

DECADE OF ACTION FOR
ROAD SAFETY 2011-2020
www.who.int/roadsafety/decade_of_action/
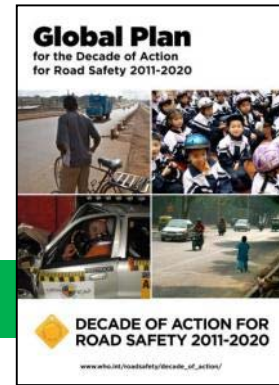
Five Pillars for a Safe Systems Approach

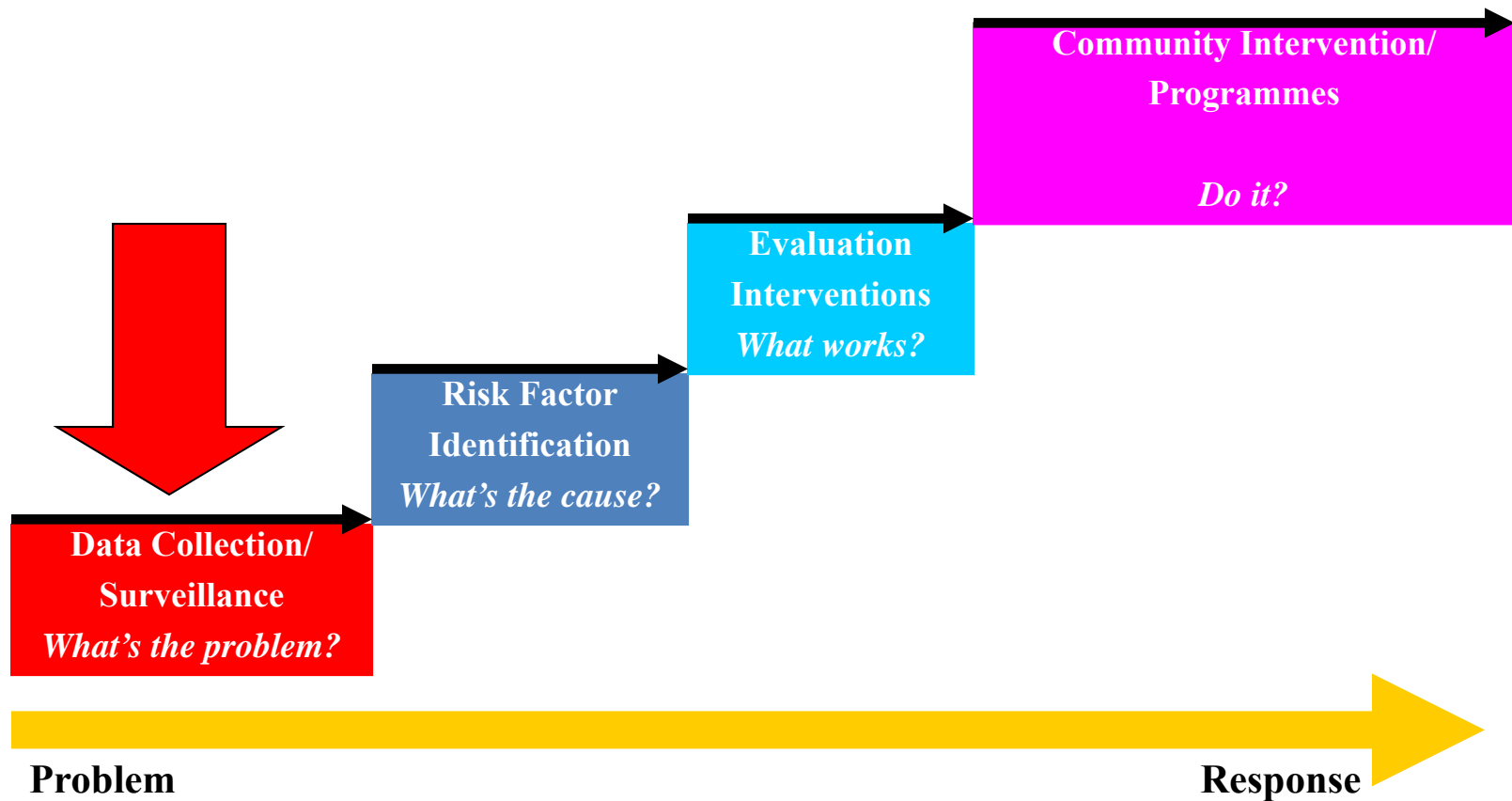| Build Capacity Managmt	Build Safer Roads	Build Safer Vehicles	Safer User behaviour	Improve Post-crash care

The Haddon Matrix

	Host (person)	Agent (Vehicle)	Vector (energy)	Environment Socio-econ, physical (bad road, poverty)
Pre-event	Is the person pre-disposed or overexposed to risk? Eg Mobile use Hands free. enforcement	Is the agent hazardous? Eg Boda boda Helmet use	Over speeding Speed limit through sped bumps, rumble strips	Is the environment hazardous? increases risk? Road repairs or actual make roads.
Event	Is the person able to tolerate force or energy transfer? Eg Age	Does the agent provide protection? Seatbelt use First aid box	Is the vector still running? Speed governor	Does the environment contribute to injury during event? Weather Good Lightning
Post-event	How severe is the trauma or harm? First aid Medical personal	Does the agent contribute to the trauma? Eg police truck ambulance	Does the vector still contribute to injury even after event?	Does the environment contribute to recovery? Health facility,

Public Health Approach

UNIFIED MODEL

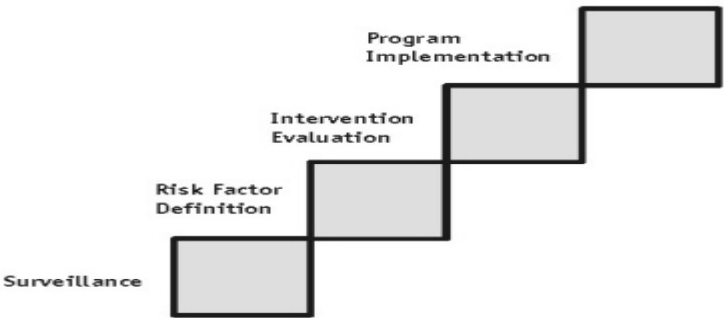# figure 1

figure 1(b)
Public Health Approach

Program Implementation
Intervention Evaluation
Risk Factor Definition
Surveillance

figure 1(a)
Haddon's Matrix

Post Event
Event
Pre Event

Host   Vector   Physical Environment   Cultural Environment

figure 1(c)
Unified Model

Program Implementation
Intervention Evaluation
Risk Factor Definition
Surveillance

P

Post Event
Event
Pre Event

T

Q

Host   Vector   Physical Environment   Cultural Environment
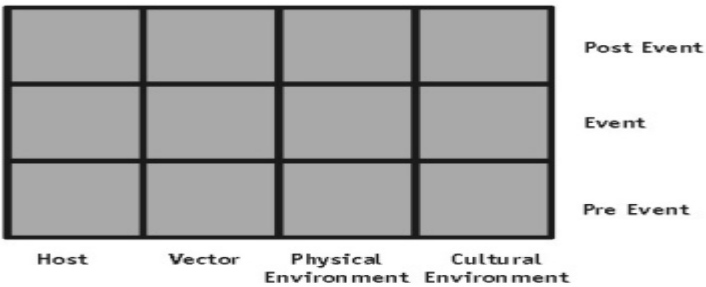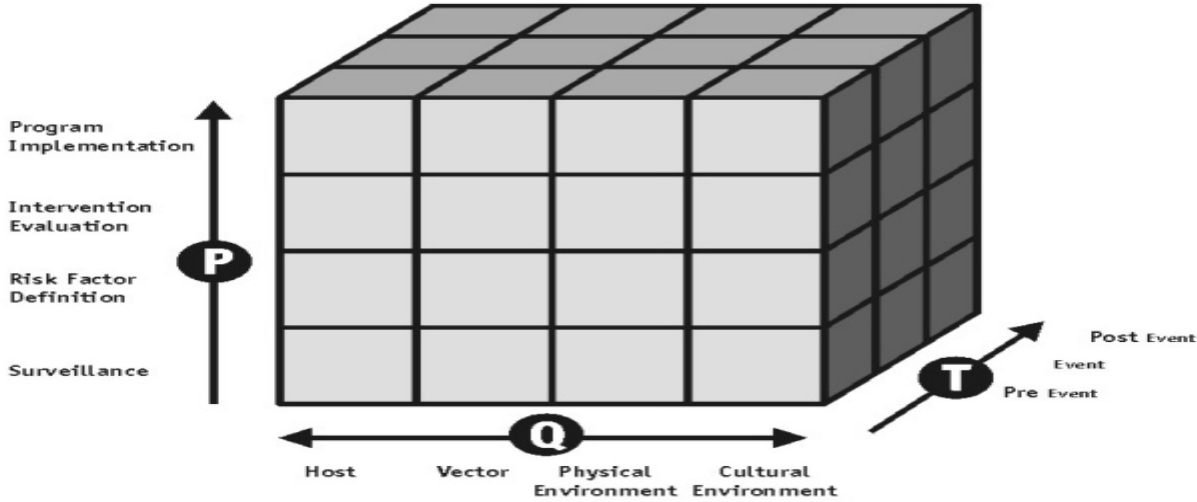
The 5Es

1. **Engineering** (making products safer for people).

    eg helmets, car restraints like seatbelts & car seats.

2. **Environmental modification** (reducing risk): Aim at reducing the likelihood that individuals will suffer injury by reducing risks in the environment.

    eg speed bumps, rumble strips, zebra crossings, walkways, barriers.

3. **Enforcement**: legal and police measures – laws (aimed at ensuring that certain behaviours and norms are maintained in the population.

    eg laws on helmet use, seatbelt use, mobile phone use, use speed governors etc.

5Es

4. **Education**/empowerment: behaviour /attitude change: Includes programmes aimed at changing attitudes, beliefs and behaviours in the general population but also targeting individuals who are at higher risk of having an injury or accident.

   eg. awareness campaigns on safe driving like defensive driving

5. **Evaluation** (determine if intervention, policies, programs work – "Research"): Refers to those actions aimed at determining which interventions, programmes and policies work best for injury/accident prevention.

   eg. breathraisers, speed guns, educational campaigns, adverts.

Conclusion

"Prevention is Better than Cure"

One approach/intervention to accident prevention may work effectively, however, a _combination_ of approaches and/or interventions will give greater impact.

Thank you For Listening