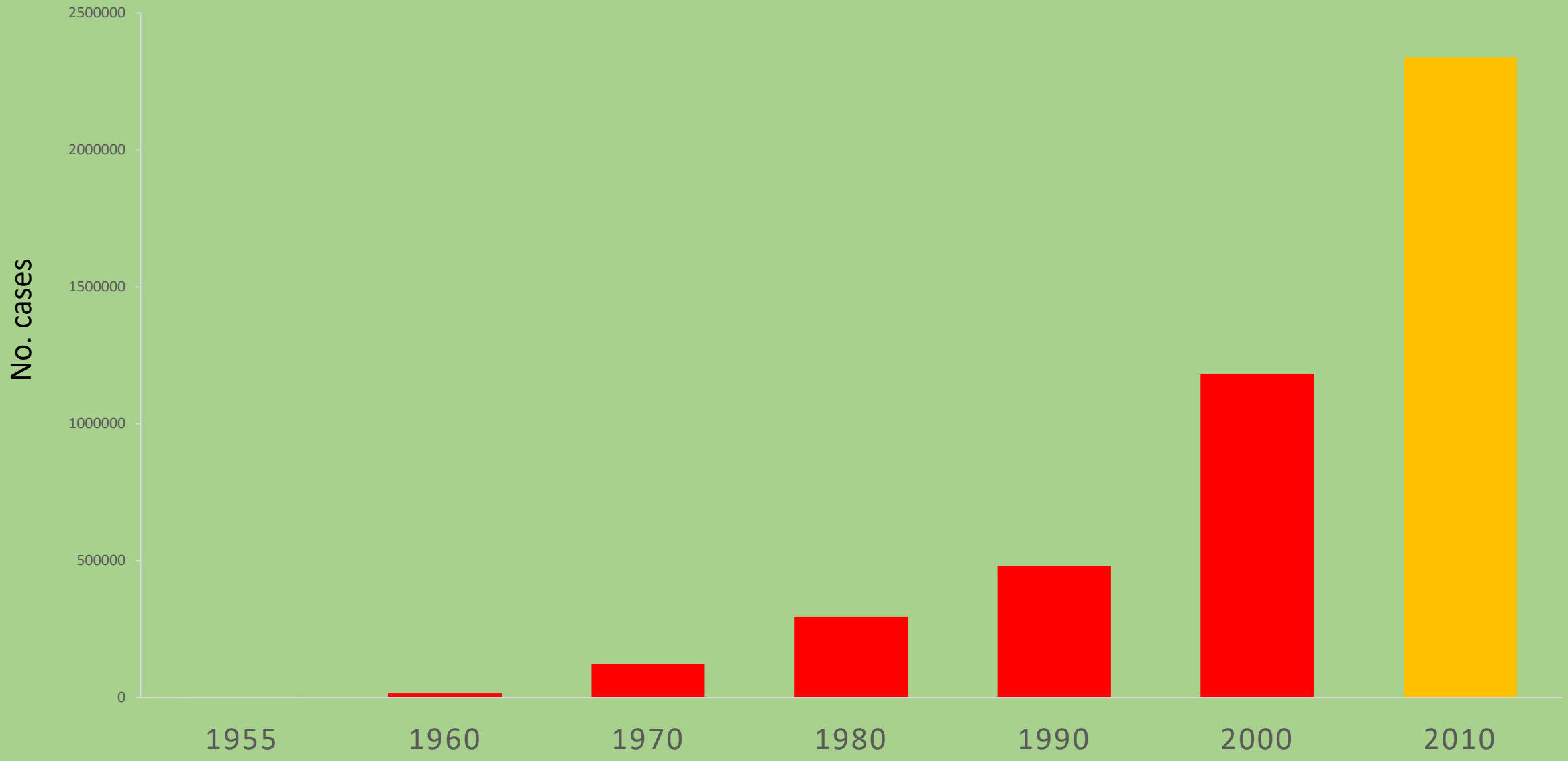
Mean number of dengue cases per year



These are urban viral diseases

dengue haemor

Zika

yellow fever

chikungunya

Major cities are at risk from *Aedes*-transmitted diseases throughout the tropics & sub-tropics

Cities >1M inhabitants

Predicted *Aedes aegypti* distribution

Nick Golding, unpublished

Aedes aegypti: the enemy within the gates

1. It is the world's most efficient vector of viruses
2. Is an invasive species

Rainforest → Urban environment

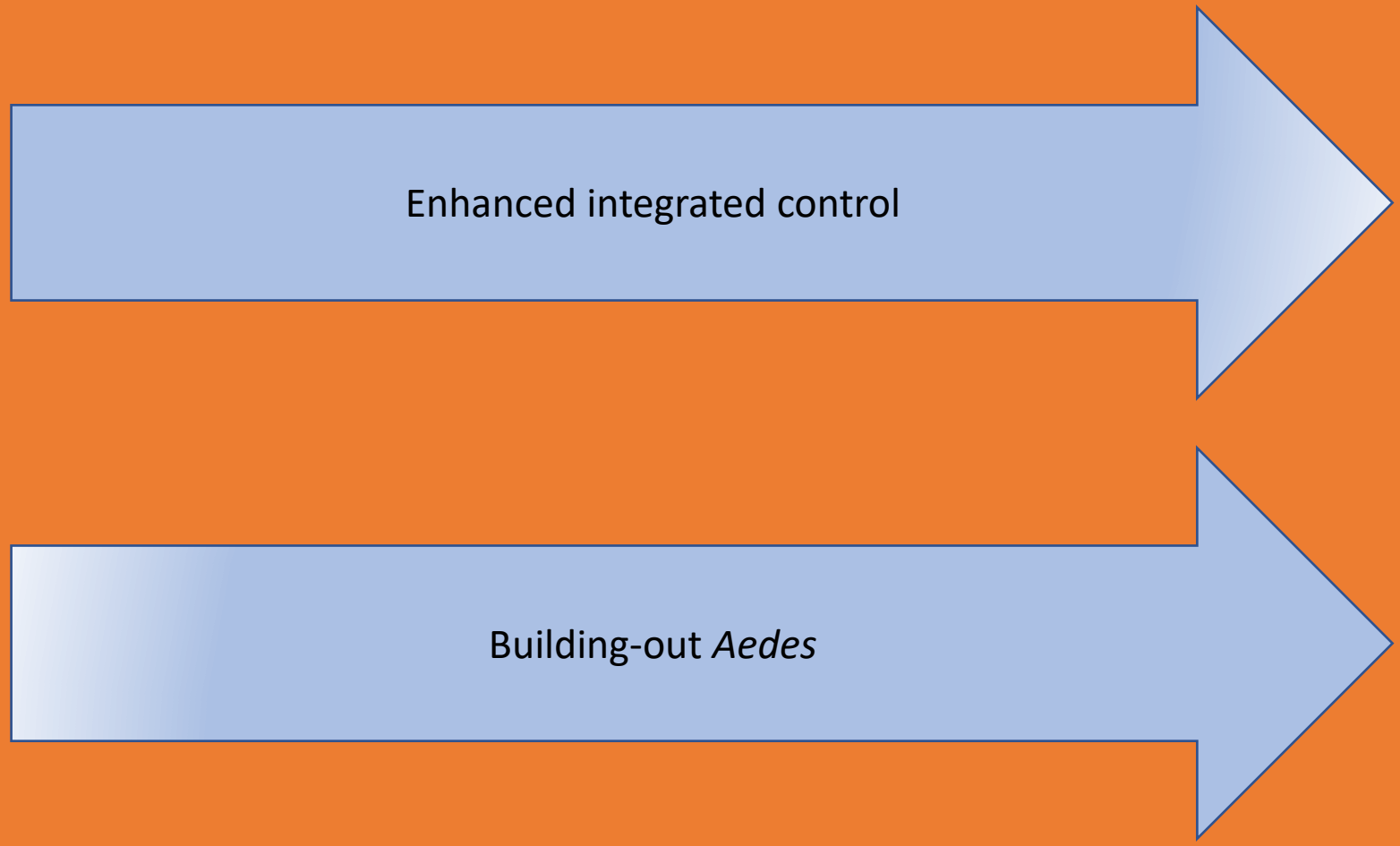
Aedes aegypti is the problem

Our new approach is city-focused

Why focus on cities?

- These diseases are predominantly an urban problem
- Huge growth in urban populations, particularly secondary cities and towns
  - By 2050 the urban population will double
  - Nearly 7 out of 10 people will live in cities
  - 60% of urban areas that will exist in 2050 have not yet been built
- Cities are the engines for change
- Strong city leadership can get things done
- Preventing epidemics will improve economic activity

Two-pronged approach



Examples of ‘Building out’ interventions:

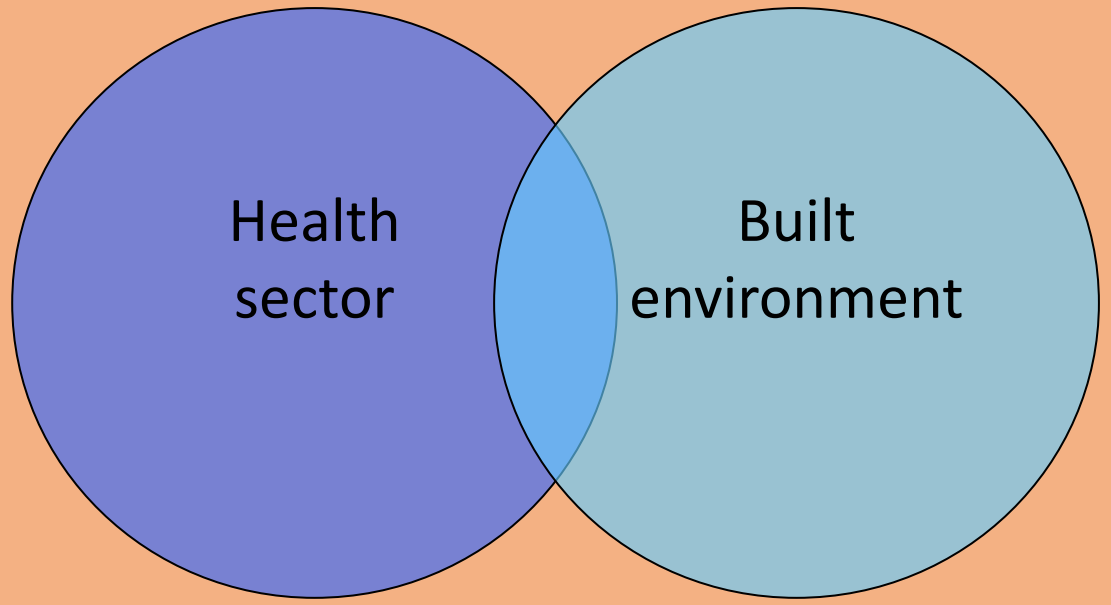
to remove small water collections & prevent adult mosquitoes biting

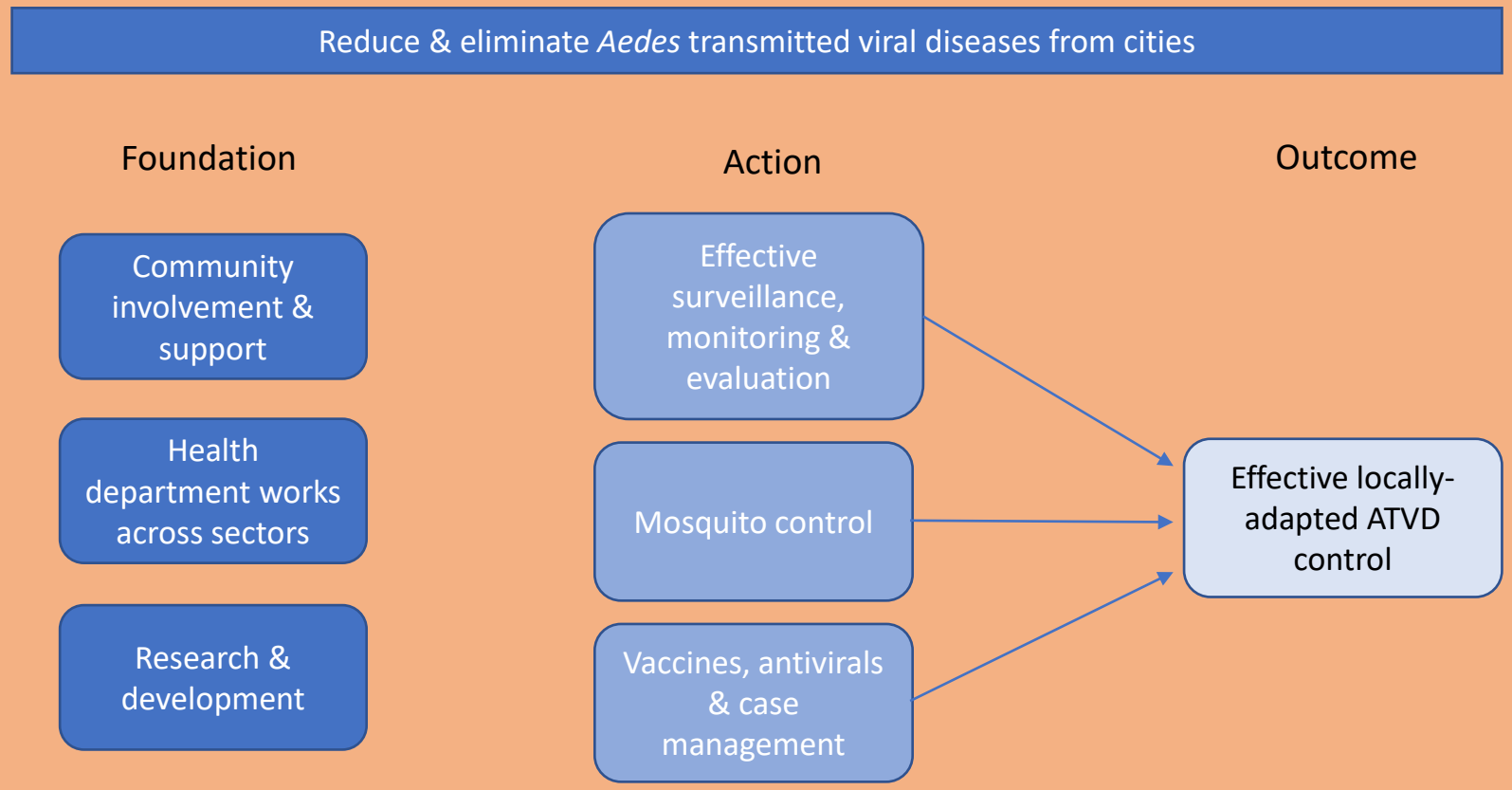
- Reliable piped water
- Effective removal of trash including old tyres
- Building concrete structures impermeable to mosquitoes
- Improved drainage including tree planting
- Closing water containers
- Removal of guttering
- Screening houses

Interventions needs to be tailored to local conditions

What's new

- City focus lead by mayors (municipal leaders) with health department support
- Multisectoral approach




Reduce & eliminate *Aedes* transmitted viral diseases from cities
Foundation
Action
Outcome
Community involvement & support
Health department works across sectors
Research & development
Effective surveillance, monitoring & evaluation
Mosquito control
Vaccines, antivirals & case management
Effective locally-adapted ATVD control

Harnessing collective action around the SDGs

Mission impossible?

Making Cities Resilient 2030

- 468 cities joined the initiative
- Projects around the globe
- Guides city resilience plans
- Access to knowledge, experience, networks, tools, resources & services

Summary

- **City leader-led** approach mainstreaming multi-sectoral approaches
- Preventing these diseases will **save money** & boost economic development
- **Environmental modifications** (piped water, solid wate removal etc) used to reduce the source of mosquitoes
- Ensure city-planners and those responsible for infrastructure design adopt these "**new approaches**" for the future expansion of urban settings
- In tandem, **targeted vector control & wide-scale vaccination** is required used proactively, not reactively
- Disease & mosquito **surveillance** needed to inform & target control
- City-led approach **working with the larger community**, particularly rapidly growing impoverished communities - recognising that amongst such communities innovative solutions can be developed and promoted

End game: towns and cities free from *Aedes*-transmitted diseases