

STRATEGIC PLANNING FOR AIR QUALITY MANAGEMENT

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AQ MANAGEMENT

- AQ measurement
- Pope III, Jarrett, Vedal, Marshall
- E.g., AQBAT
- E.g., AQHI to change behaviour

...we perceive changes
in our environment,

... attribute their origin &
project their future trends,

...evaluate various options,

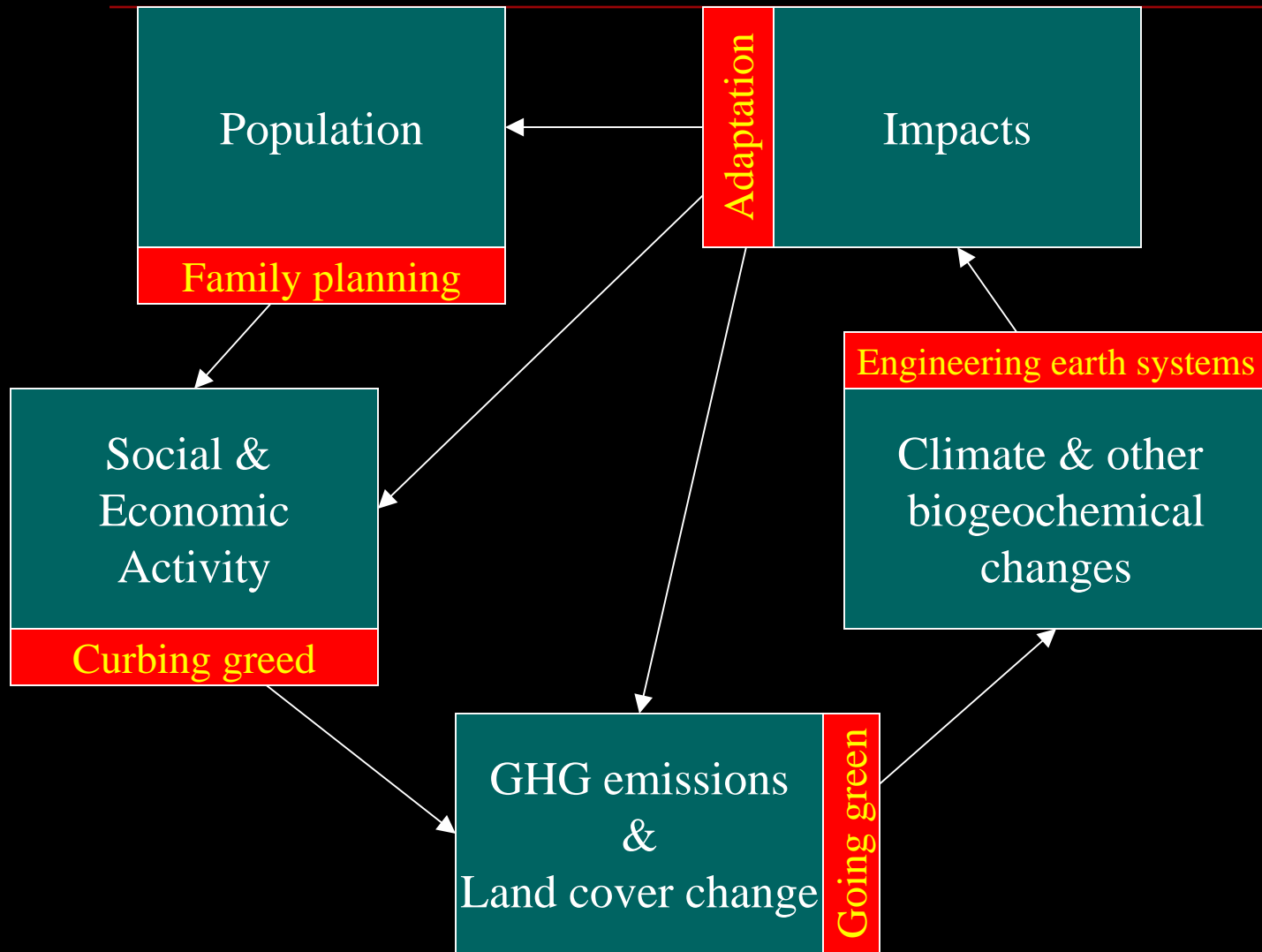
...implement a
chosen strategy,

Evaluation &
Feedback

INTEGRATED ASSESSMENT

- From source to transformation to impacts...
X
- Interventions of all kinds at all points possible...
X
- Characterization of variations across populations...
X
- Characterization of uncertainties, unknowns and unknowables...

CLIMATE PROBLEM & ITS POSSIBLE SOLUTIONS



STRATEGIC DETAIL

- From source to transformation to impacts...

- Interv

- Charac

**ONLY ADD DETAIL WHERE
VALUE OF INFORMATION IS HIGH**

X

- Characterization of uncertainties, unknowns and unknowables...

STRATEGIC RESEARCH

- From source to transformation to impacts...

- Interv

ONLY ADD DETAIL WHERE
VALUE OF INFORMATION IS HIGH

- Ch

VALUE OF INFORMATION IS ONLY HIGH

- Ch
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WHERE IT CAN AFFECT
POLICY & INDIVIDUAL CHOICES

NEW CONCEPTS OR MISCONCEPTIONS?

- A demonstrably **good** strategy will win approval.
- Regulatory fairness means **homogenous** actors.
- Expressions of **uncertainty** aid decision-making.
- AQ **co-benefits** of GHG reductions are a given.
- **Costly** emission reductions mean difficulty in reducing adverse health effects.
- ...

MY MISCONCEPTIONS

- A demonstrably **good** strategy will win approval.
 - NYC and HIV-AIDS
- Expressions of **uncertainty** & **VOI** aid decision-making.
 - NAPAP, Climate Change,...
- Regulatory fairness means **homogenous** actors.
 - Adaptive regulations.
- AQ **co-benefits** of GHG reductions are a given.
 - UK Climate policy
- **Costly** emission reductions mean difficulty in reducing adverse health effects.
 - Partnership with Translink

A WINNING STRATEGY, WITHIN WHAT CONTEXT?

- Social norms and acceptance:
 - Individual or collective responsibility?
 - Fatalism or social contract?
- History:
 - What regulation/contracts already in place?
 - What relationships reign among stakeholders?
 - ...
- And other challenges being faced ...

Human AGENCY

Limited detection

...we perceive changes
in our environment,

Imperfect knowledge

... attribute their origin &
project their future trends,

*Values that change with
contexts/time.*

...evaluate various options,

*Blunt mechanisms for realizing
goals*

...implement a
chosen strategy,

Evaluation &
Feedback



NEXT GEN IA

- From source to transformation to impacts...
X
- Interventions of all kinds at all points possible...
X
- Characterization of variations across populations...
X
- Characterization of uncertainties, unknowns and unknowables...
X
- Characterization of other challenges and options
X
- Social and behavioural norms

PARTNERSHIP WITH TRANSLINK

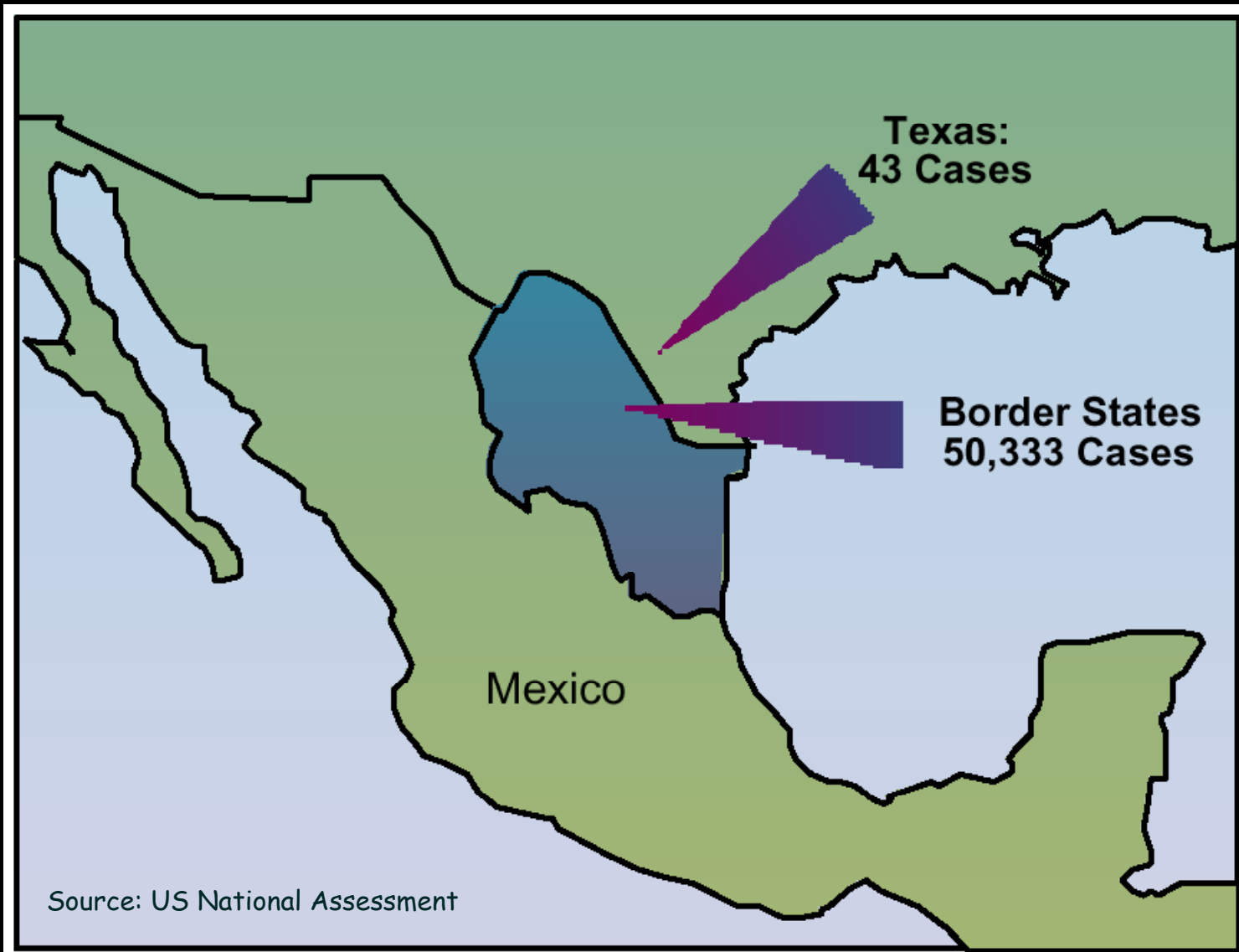
- Heterogeneous in three dimensions:
 - Emission sources: bus fleet
 - pollutant concentrations across space.
 - number of people outdoors.
 - RUN CLEANER BUSES WHERE MORE PEOPLE ARE AT RISK.
 - RELOCATE BIKEWAYS AWAY FROM BUSY ROADS AND BUS ROUTES.
 - ...

SUMMARY

- Formal Integrated Assessments can capture what is known (e.g., AQBAT) and evaluate policy options.
- In addition, by including the uncertainties, these frameworks can identify where new scientific research will have the highest payoff in identifying interventions for improving public health.
- BUT, however scientifically valid and clever these may be, they will not be used if developed without stakeholder[†] engagement from the outset.

REPORTED CASES OF DENGUE 1980-96:

DOES CLIMATE CHANGE ABRUPTLY AT THE BORDER?



Source: US National Assessment

A diagram consisting of seven concentric, horizontally-oriented ovals on a black background. The ovals are nested, with the smallest at the center and the largest at the outer edge. Each oval contains a label in white serif font, centered horizontally. The labels, from the innermost to the outermost oval, are: Individual, Household, Community, Territory, National, Circumpolar, and Global.

Individual

Household

Community

Territory

National

Circumpolar

Global

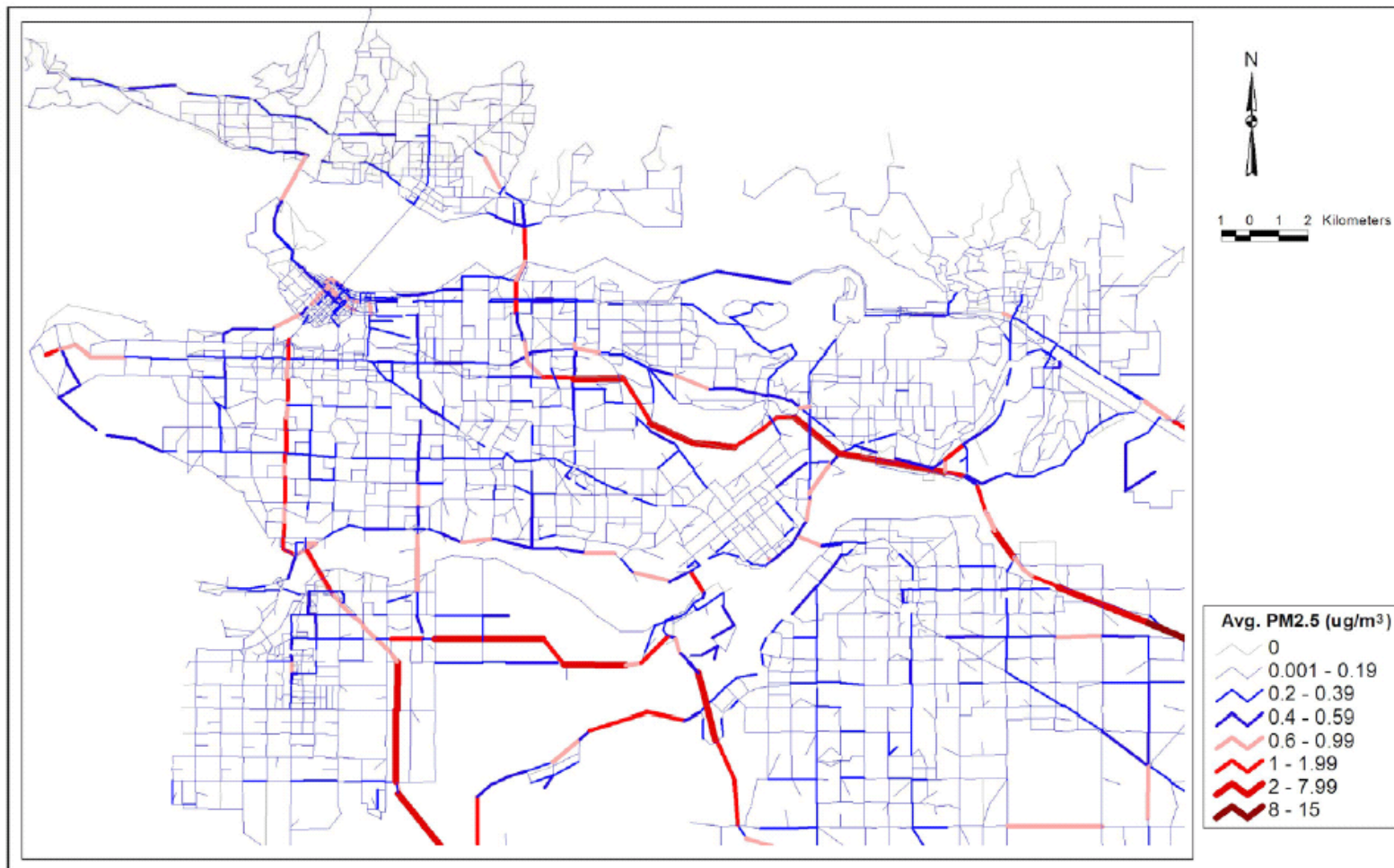


MULTIPLE FORCES AT PLAY (E.G., AGRICULTURE IN AUSTRALIA)

Adaptations	Weather	Internal Markets	Export Markets	C & N Cycles disturbance	Pests	Soil & Water Degradation	Response time/frequency
Storage	Low	Low	Low	-	Low	-	< 2 years
Insurance	Low	Low	Low	-	Low	-	1 year
Engineering	Low	-	-	-	-	High	< 10 years
Management	High	Low	Low	High	High	High	> 1 year
Land-use allocation	High	-	-	Low	Low	Low	> 25 years
R & D	Low	Low	Low	Low	Low	Low	5 to 25 years
Incentives	Low	High	High	-	-	High	1 per 5 years
Disaster Aid	Low	-	-	-	-	-	1 per 10 years
Impact	0.3	1	1	0.2	0.5	1	
Frequency	1	10	-	20	1	> 100	

PM_{2.5} HOTLINES IN GVRD

Figure 7. Estimated annual average PM_{2.5} concentrations from HDDV traffic in the western part of the Lower Fraser Valley.



GEOMETRY OF BUS SHELTERS?

Figure 1. Approximate dispersion coefficient from CALINE 3 modelling for the annual average pollutant concentrations at distances perpendicular to a road.

