



The Sustainability in Sustainable Management



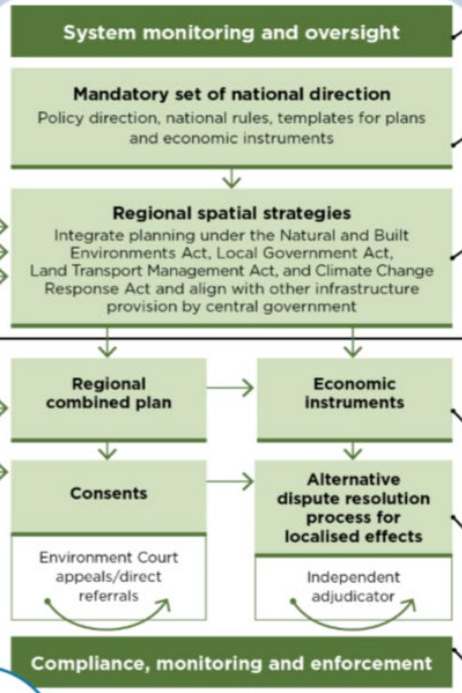
Change / Reform / Amendments

What to do?
Climate / Carbon

Limits
Actions
Dynamic / Adaptive
Regenerative

Strategic Planning Act
Promotes social, economic, environmental and cultural wellbeing through integration of environmental management, land use and infrastructure

Natural and Built Environments Act
Enhancing the quality of the natural and built environments to support the wellbeing of present and future generations

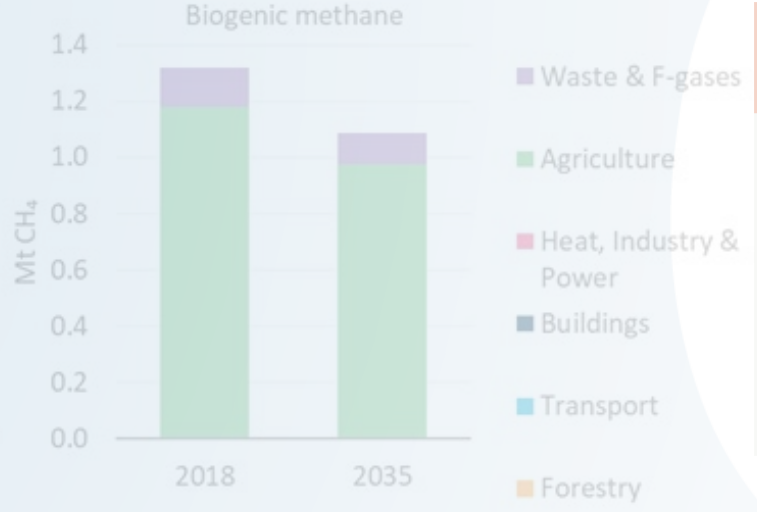
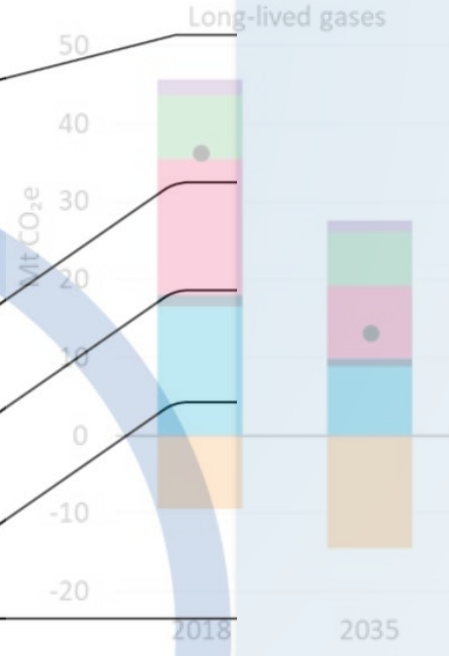


Land Transport Management Act

Local Government Act

Climate Change Response Act

Managed Retreat and Climate Change Adaptation Act



TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

STAGE 1:
First-pass risk screen

Examine risks and opportunities across New Zealand.
STAGE 2:
Detailed risk assessment
Prioritise these for further assessment

Result:
A set of 48 priority risks and four opportunities. Priority risks are those with extreme or Investigate climate change exposure, at least one of three assessment criteria (now, by 2050, and beyond 2050).
STAGE 3:
Urgency for adaptation
Clarify the consequences of these risks under two climate scenarios in the present term, near term and long term, and assess existing and planned adaptation and how high-level actions are addressing

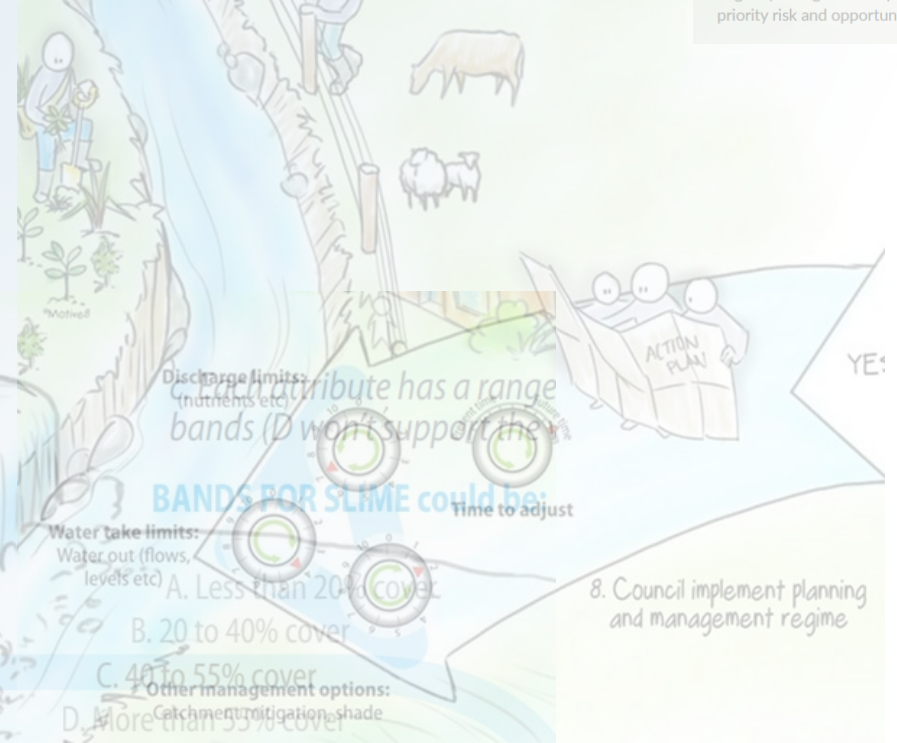
Result:
A set of 43 priority risks and four opportunities.
Identify:

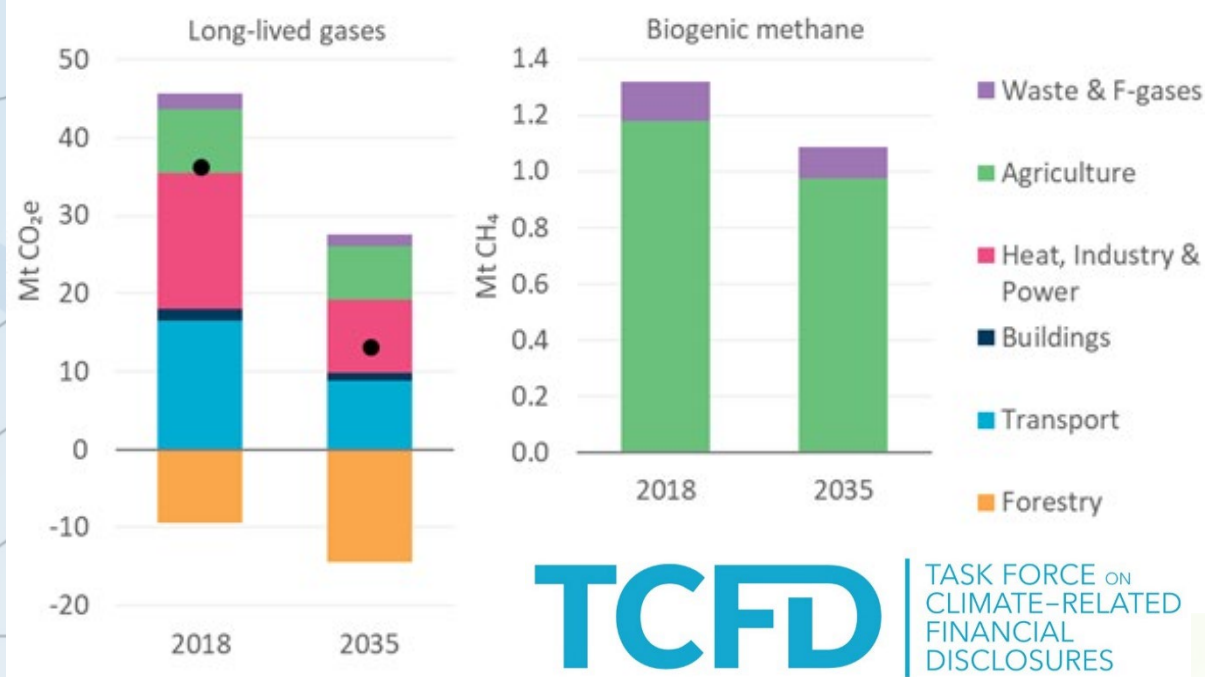
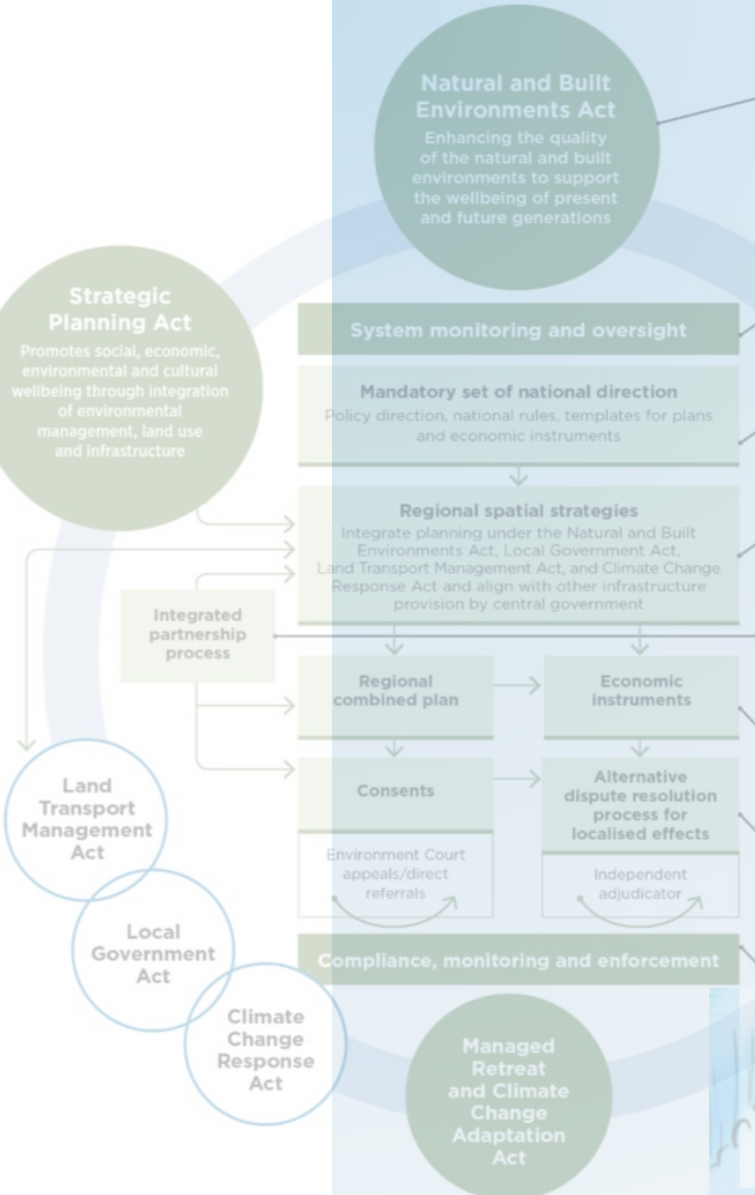
- where early action would avoid being locked into a current pathway
- actions needing long lead times
- actions with long-term implications.

Result:
Urgency ratings* for adaptation, for each priority risk and opportunity.

ATTRIBUTES FOR ECOSYSTEM HEALTH:

1. Temperature
2. Sediment
3. Flows
4. Periphyton (slime)
5. Nitrate (toxicity)
6. Fish
7. Invertebrates





STAGE 1: First-pass risk screen

Examined
New Zealand
Priority risks
Result: A set of opportunities, extreme least or (now, b

STAGE 2: Detailed risk assessment

Examined
Investment
Clarify two cl
near t

STAGE 3: Urgency for adaptation

Assess existing and planned adaptation and how high-level actions are addressing priority risks.

Identify:

- where early action would avoid being locked into a current pathway
- actions needing long lead times
- actions with long-term implications.

Result:
Urgency ratings⁶ for adaptation, for each priority risk and opportunity.



Natural and Built Environments Act
Enhancing the quality of the natural and built environments to support the wellbeing of present and future generations

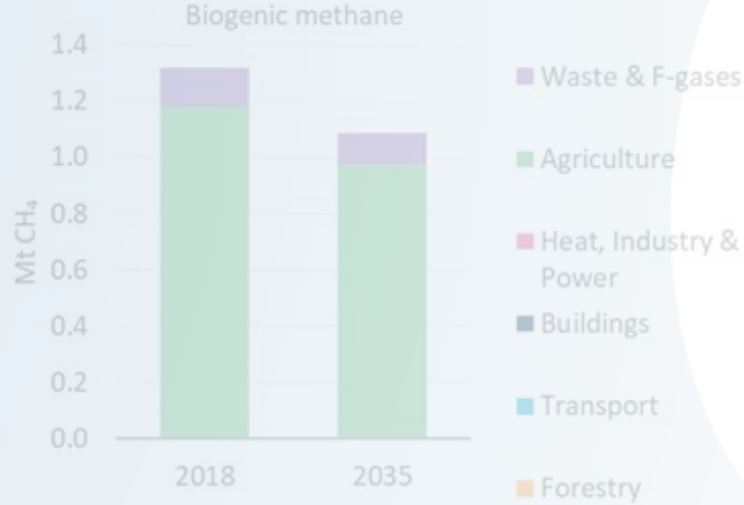
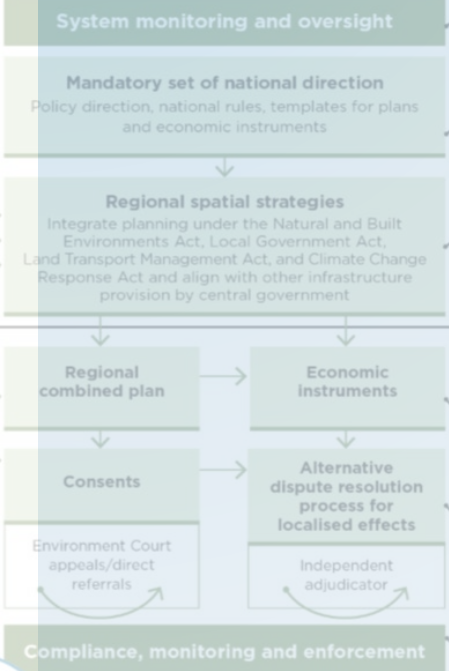
Strategic Planning Act
Promotes social, economic, environmental and cultural wellbeing through integration of environmental management, land use and infrastructure

Land Transport Management Act

Local Government Act

Climate Change Response Act

Managed Retreat and Climate Change Adaptation Act



TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

Net emissions

STAGE 1:
First-pass risk screen

Examine risks and opportunities across New Zealand

STAGE 2:
Detailed risk assessment

Prioritise these for further assessment

STAGE 3:
Urgency for adaptation

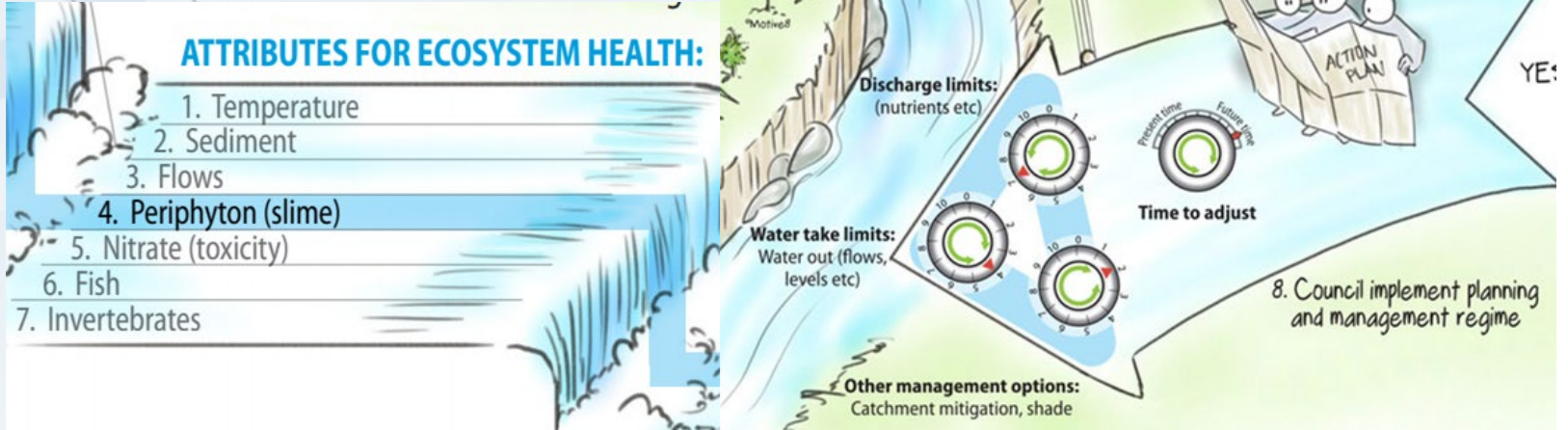
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Natural and Built Environments Act

Enhancing the quality of the natural and built environments to support the wellbeing of present and future generations

Strategic Planning Act

Promotes social, economic, environmental and cultural wellbeing through integration of environmental management, land use and infrastructure

System monitoring and oversight

Mandatory set of national direction

Policy direction, national rules, templates for plans and economic instruments

Regional spatial strategies

Integrate planning under the Natural and Built Environments Act, Local Government Act, Land Transport Management Act, and Climate Change Response Act and align with other infrastructure provision by central government

Integrated partnership process

Regional combined plan

Economic instruments

Consents

Environment Court appeals/direct referrals

Alternative dispute resolution process for localised effects

Independent adjudicator

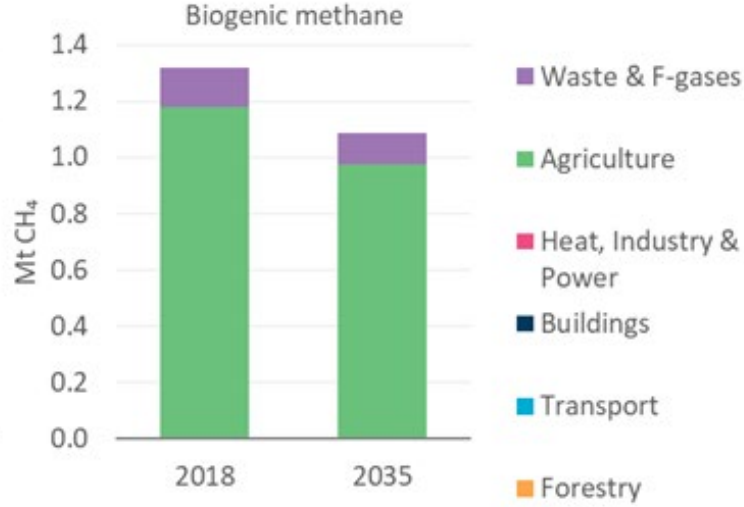
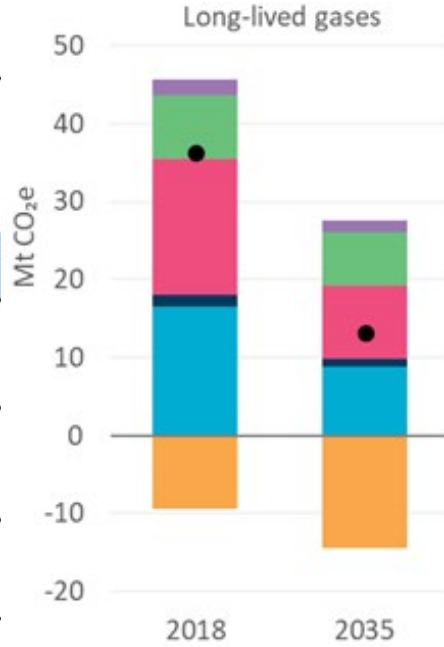
Compliance, monitoring and enforcement

Land Transport Management Act

Local Government Act

Climate Change Response Act

Managed Retreat and Climate Change Adaptation Act



TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

STAGE 1: First-pass risk screen

Examined New Zealand

Priorities

Result: A set of opportunities, extreme least or (now, b

STAGE 2: Detailed risk assessment

Examined

Investment

Clarified two c near t

Result: A set

STAGE 3: Urgency for adaptation

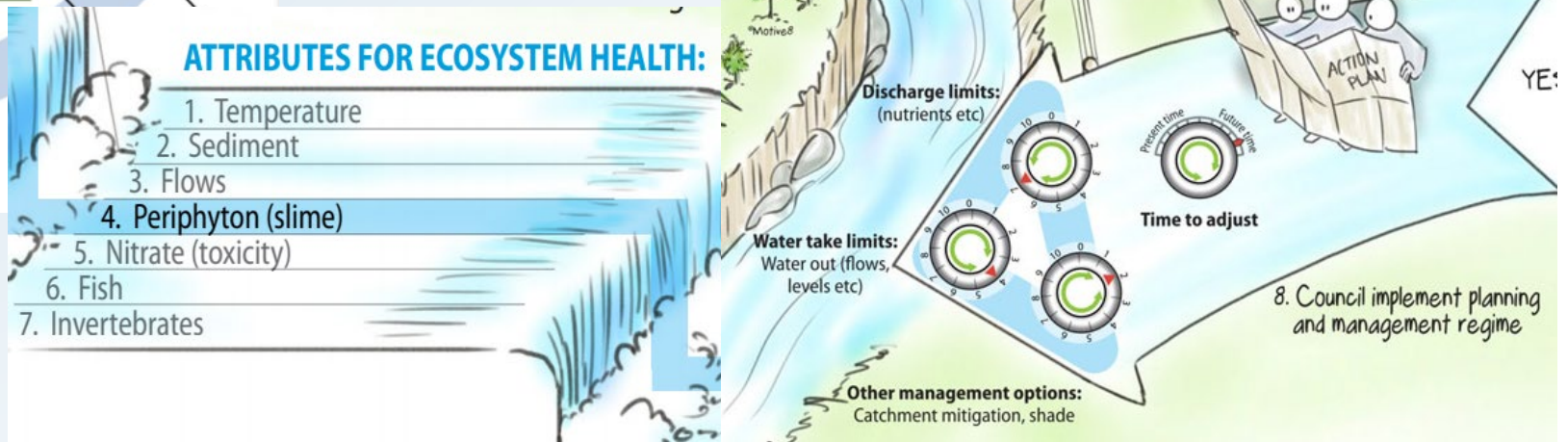
Assess existing and planned adaptation and how high-level actions are addressing priority risks.

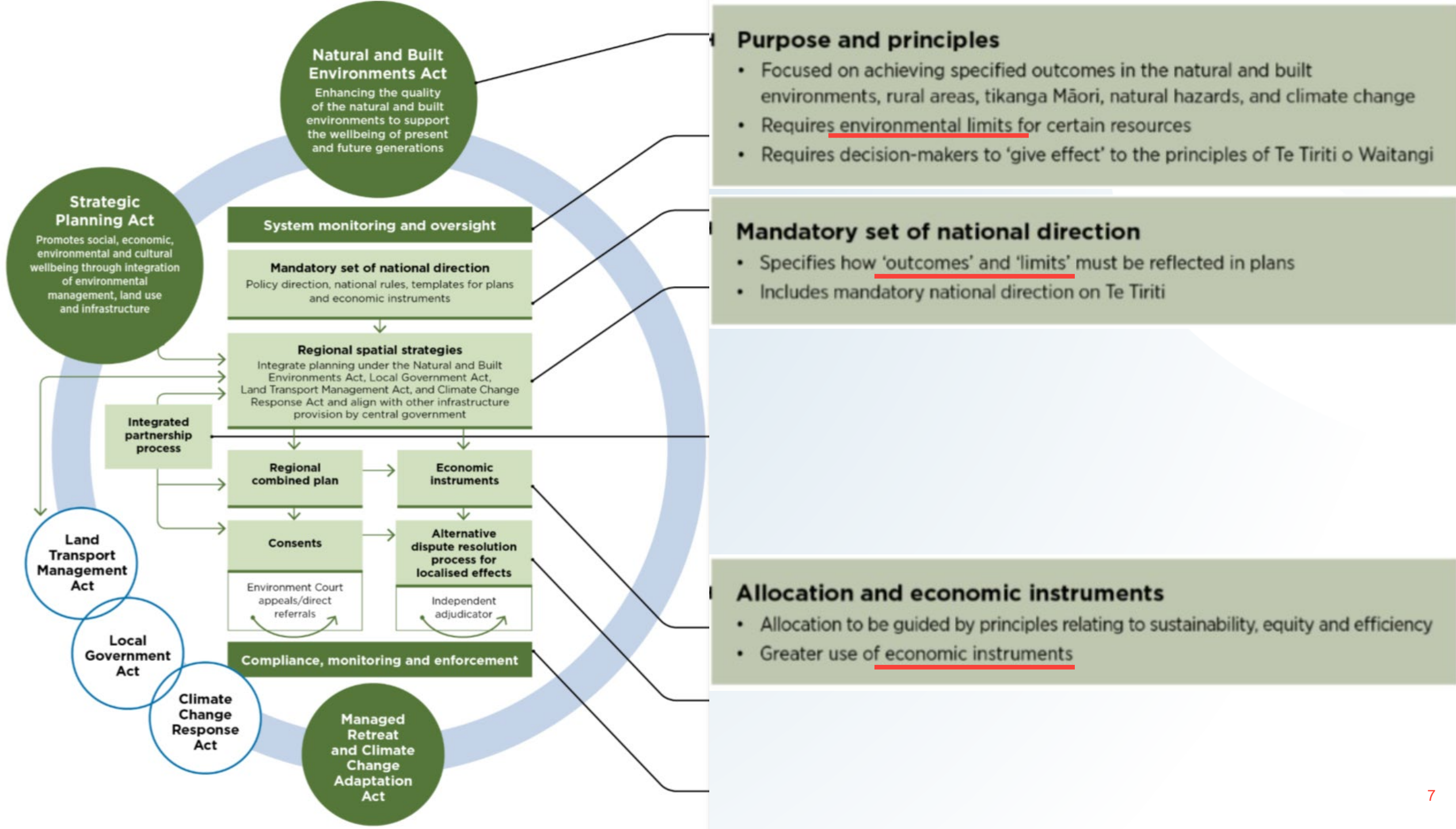
Identify:

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Result:

Urgency ratings⁴ for adaptation, for each priority risk and opportunity.







Resource Management Amendment Act 2020

Public Act 2020 No 30
Date of assent 30 June 2020
Commencement see section 2

...regional and territorial authorities

...to consider and have regard for

...emissions reduction plans and national adaptation plans

...in their policy and plan -making

(s61, 66, 74)

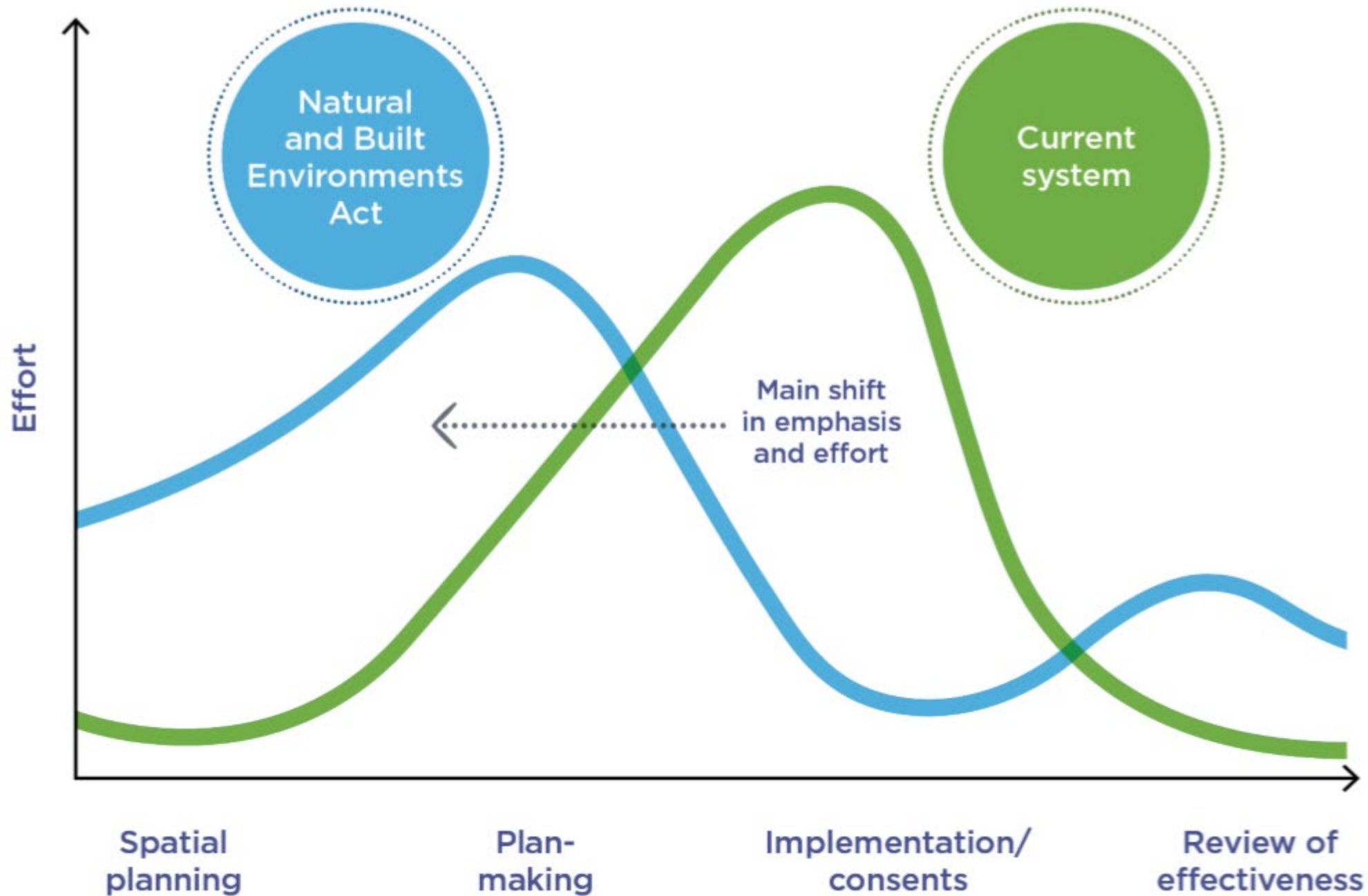
[transition effect –excl. where appeal period has passed]

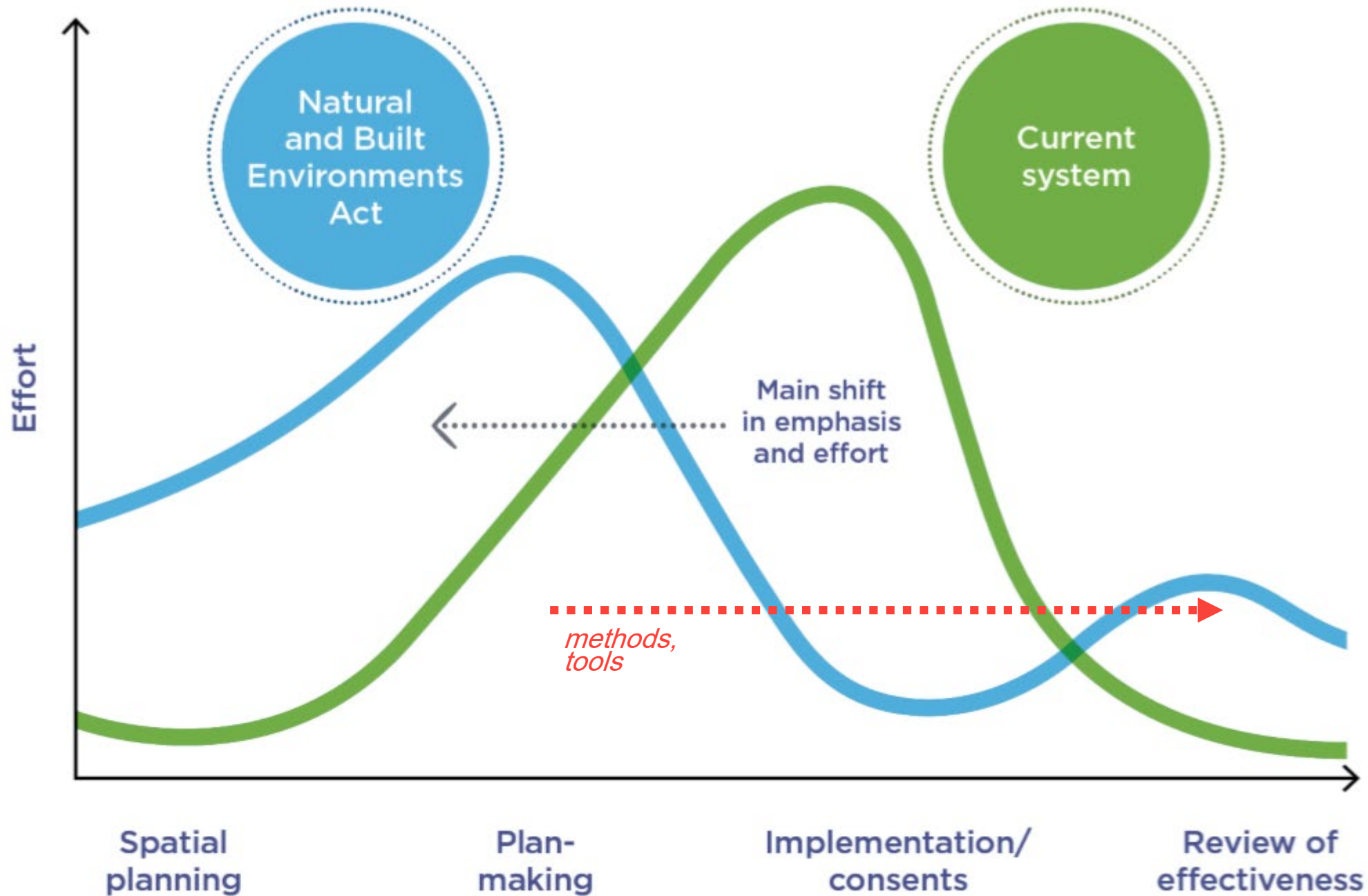
National Policy Statement on Urban Development 2020

July 2020

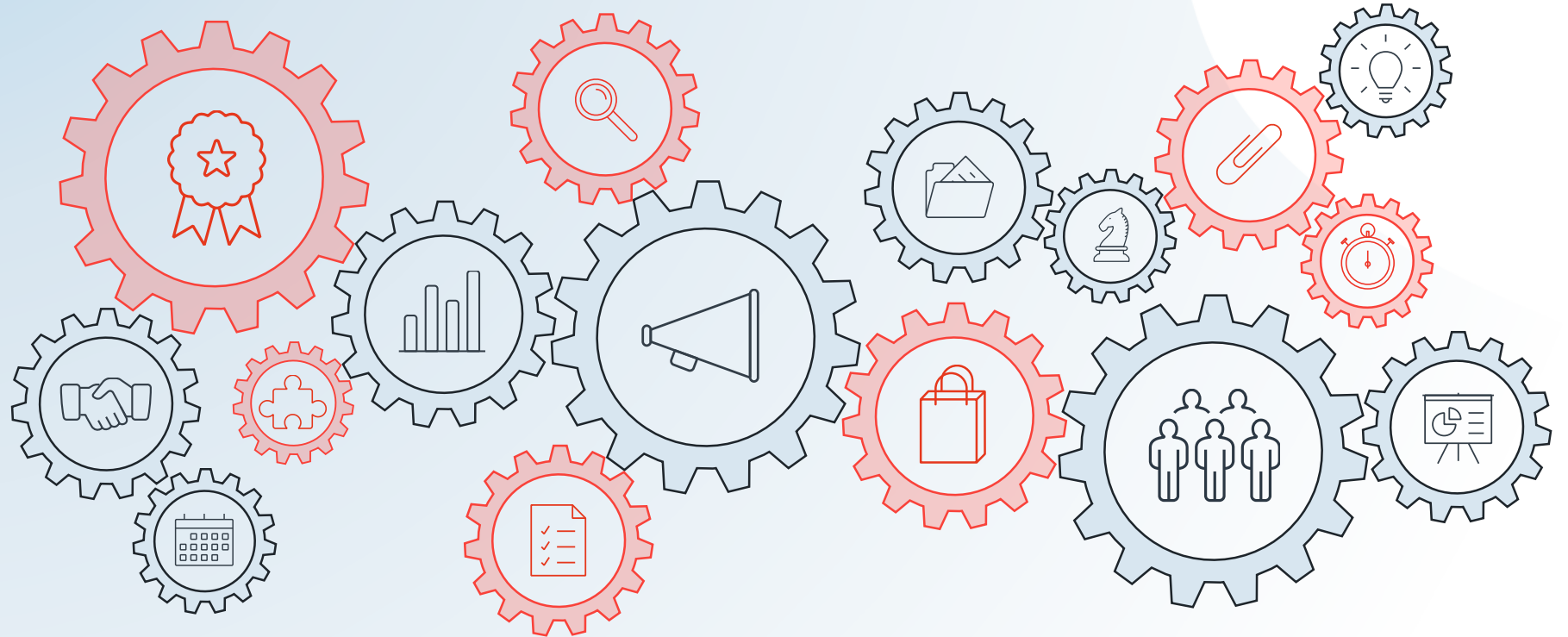
3.13 Purpose and content of FDS

- (1) The purpose of an FDS is:
 - (a) to promote long-term strategic planning by setting out how a local authority intends to:
 - (i) achieve well-functioning urban environments in its existing and future urban areas; and
 - (ii) provide at least sufficient development capacity, as required by clauses 3.2 and 3.3, over the next 30 years to meet expected demand; and
 - (b) assist the integration of planning decisions under the Act with infrastructure planning and funding decisions.
- (2) Every FDS must spatially identify:
 - (a) the broad locations in which development capacity will be provided over the long term, in both existing and future urban areas, to meet the requirements of clauses 3.2 and 3.3; and
 - (b) the development infrastructure and additional infrastructure required to support or service that development capacity, along with the general location of the corridors and other sites required to provide it; and
 - (c) any constraints on development.





Voluntary



Compliance

Limits

Actions

Dynamic / Adaptive

Regenerative

Limits

Measurable

Robust

Performance / Accountable

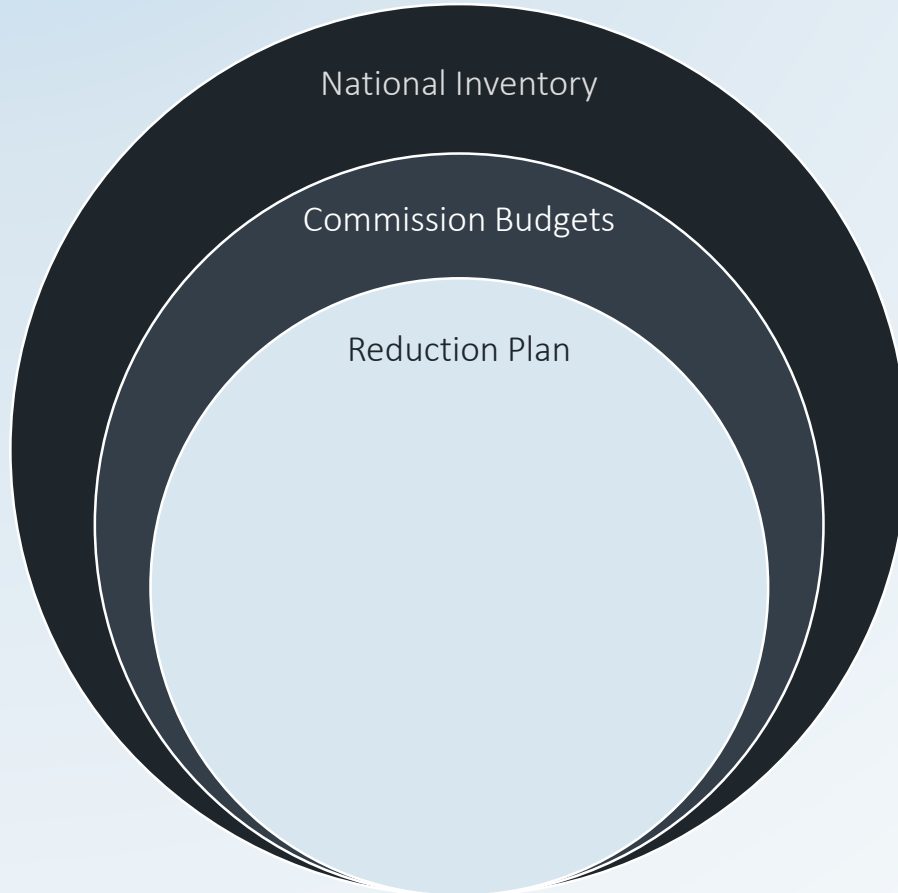
Across Scale / Spatial -> Site

Target Setting & Nesting

Economic Instruments / Budgets

Limits

Top-down / Compliance



Bottom-up / Voluntary



LOCAL SOCIAL

LOCAL ECOLOGICAL



CARBON SEQUESTRATION

HOW NATURE DOES IT
Land-based and sea-based plants absorb and store CO₂, as do phytoplankton in the ocean.

TO WORK LIKE NATURE
Amsterdam could set goals for sequestering and storing carbon in land- and sea-based plants.

CITY TARGET
Reduce the city's total CO₂ emissions to 55% below 1990 levels by 2030, and to 95% below by 2050.

CITY SNAPSHOT
Dutch greenhouse gas emissions fell by 2.2% in 2018, contributing to a total reduction of 14.5% below 1990 levels.

Tauranga City Council

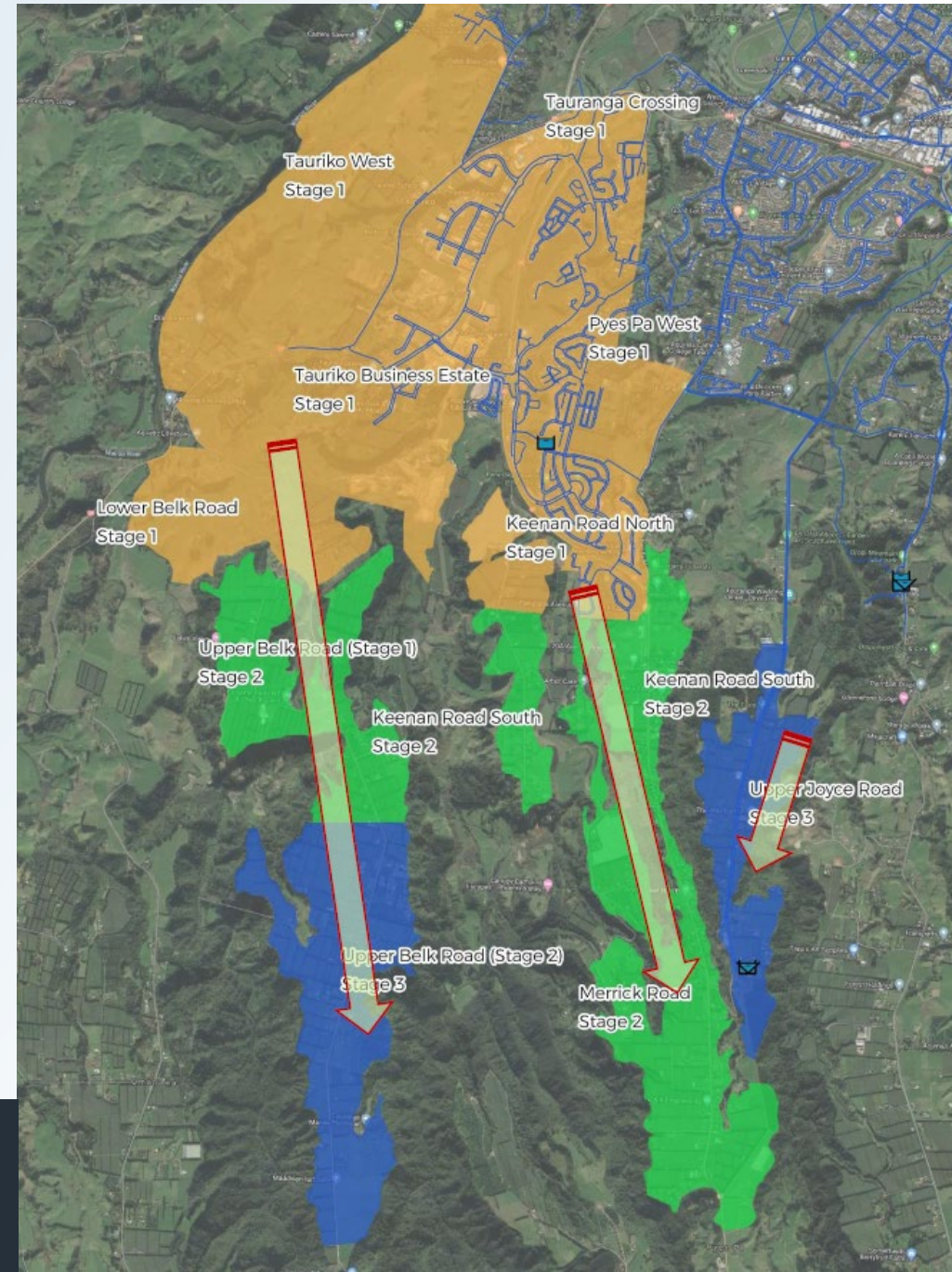
Tauriko West Growth Area

Water Supply Strategy and Implementation Plan

- 19,000 homes / 335ha industry
- CarbonZero Appraisal per option
- Nested in carbon limits and targets



CARBON ZERO° APPRAISAL FRAMEWORK
APPRAISING WHOLE-LIFE GREENHOUSE GAS EMISSIONS



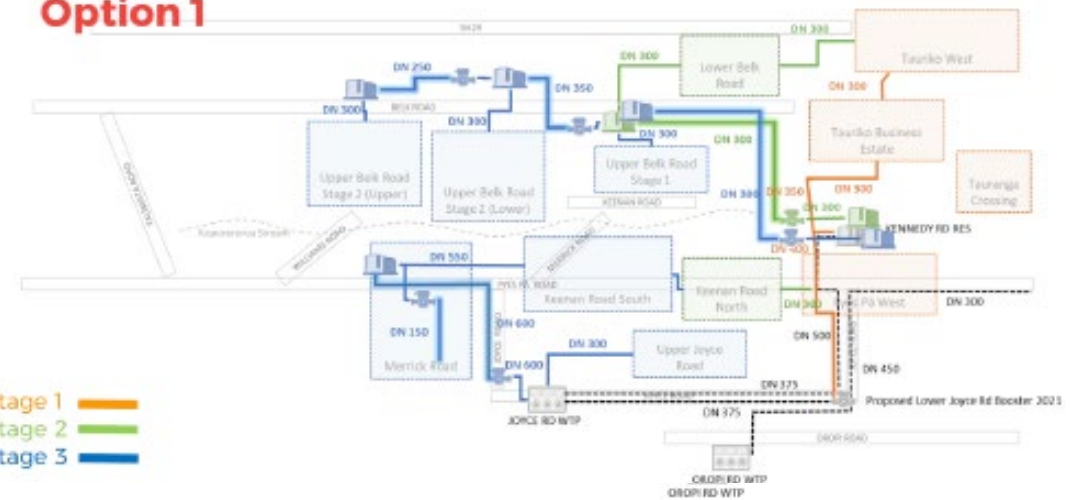
CarbonZero Appraisal

Key GHG emission sources

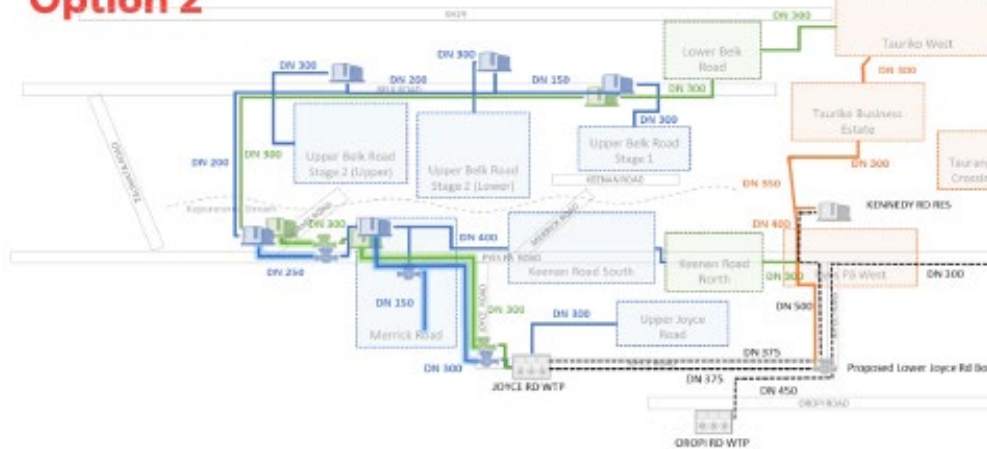
1. Pipes
2. Reservoirs
3. Pump Station
4. Operational Energy

Concrete | Steel | Fuel | Electricity

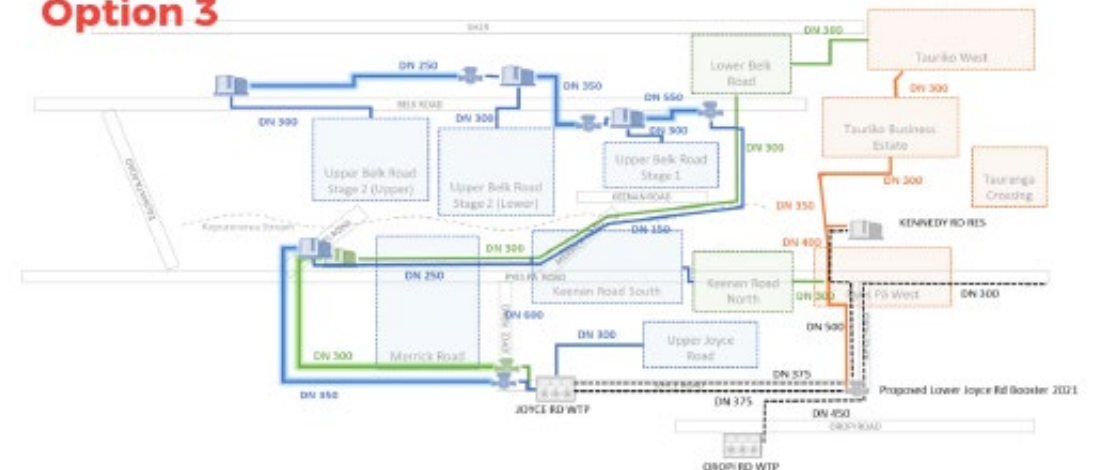
Option 1



Option 2



Option 3



CarbonZero Appraisal

- Pre – consenting
- Emissions per stage, per option
- Net Present Value WOL financial cost of carbon
- In MCA
- Nest within TCC GHG inventory / targets

| | SCOPE 1 & 2 (fuel and electricity) | | | | SCOPE 3 (materials) | | | TOTAL |
|----------|------------------------------------|---------------------------|------------------------|--------------------------------------|---------------------|--------------|-----------|--------|
| | Pipe trench and haulage | Pump Station construction | Reservoir construction | Operational energy (total per Stage) | Pipeline | Pump Station | Reservoir | |
| Option 1 | | | | | | | | 15,912 |
| Stage 1 | 142 | - | - | - | 1,673 | - | - | 1,816 |
| Stage 2 | 132 | 2.66 | 263 | 889 | 983 | 13.3 | 1,312 | 3,594 |
| Stage 3 | 66.2 | 4.14 | 419 | 7,465 | 440 | 20.7 | 2,087 | 10,502 |
| Option 2 | | | | | | | | 26,631 |
| Stage 1 | 249 | 2.96 | 458 | 534 | 2,634 | 14.8 | 2,286 | 6,178 |
| Stage 2 | 110 | 2.66 | 294 | 2,837 | 661 | 13.3 | 1,471 | 5,389 |
| Stage 3 | 37.3 | - | 443 | 12,006 | 365 | - | 2,212 | 15,064 |
| Option 3 | | | | | | | | 18,368 |
| Stage 1 | 191 | 1.48 | 260 | 225 | 2,160 | 7.4 | 1,300 | 4,144 |
| Stage 2 | 124 | 1.33 | 213 | 1,305 | 797 | 6.6 | 1,066 | 3,513 |
| Stage 3 | 63.8 | 3.99 | 443 | 7,549 | 420 | 19.9 | 2,212 | 10,711 |

Actions

Pathway to targets
Projects / Programmes / Plans
Strategy / Framework
Systems / Business case
Standards / Procurement

Actions



Enabling recommendation 4

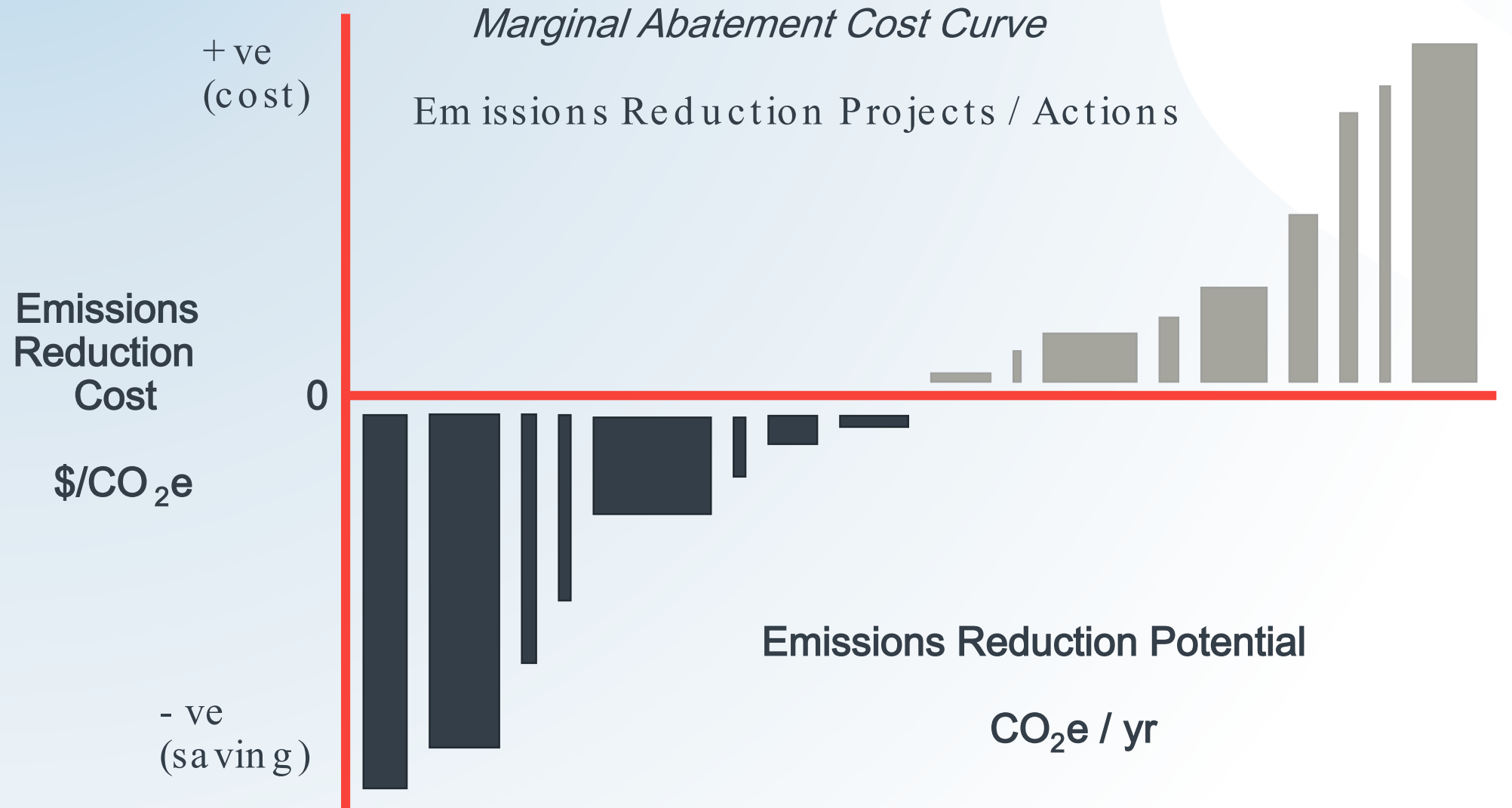
Central and local government working in partnership

central and local government work together to:

- a. Align legislation and policy to enable local government to make effective decisions for climate change mitigation and adaptation, including aligning the Local Government Act, the Building Act and Code, national direction under the RMA, the proposed RMA reforms, implementation of the freshwater management framework and the 30-year infrastructure plan.
- b. Implement funding and financing mechanisms to enable the emissions reduction plans to be implemented effectively and to address the distributional effects of policy change today and for future generations.

We have also heard through our engagement the importance of integrating transport into urban form. It will be important that central and local government factor this into their planning and decision-making.

Actions



Actions



Target-consistent long-term abatement cost values

Time-critical necessary action 6

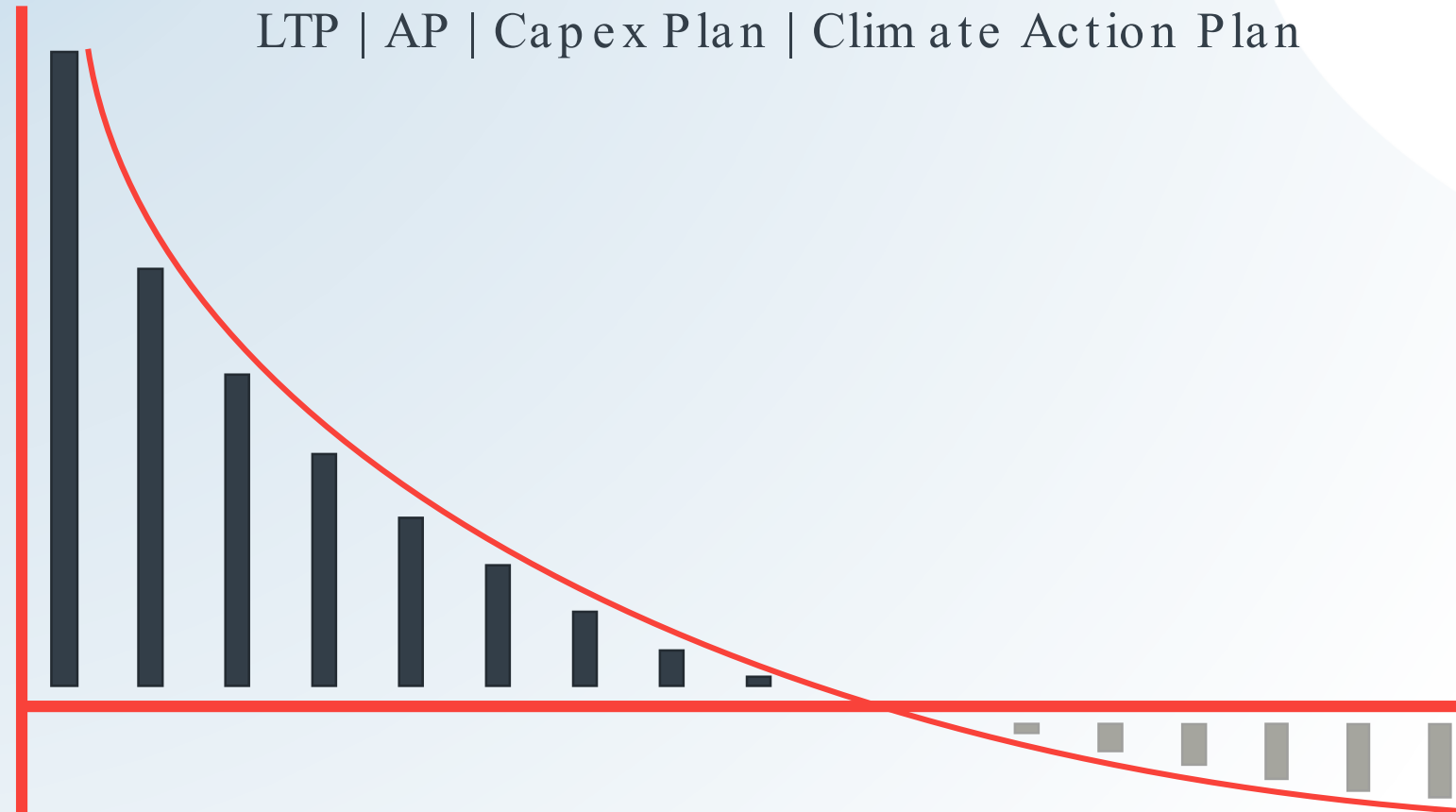
Align investments for climate outcomes

- a. Immediately start to factor target-consistent long-term abatement cost values into policy and investment analysis in central government. These values should be informed by the Commission's analysis which suggests values of at least \$140 per tonne by 2030 and \$250 by 2050 in real prices.
- b. Encourage local government and the private sector to also use these values in policy and investment analysis.

Actions

Spatial Plan | District Plan | Infrastructure Strategy | Structure Plans

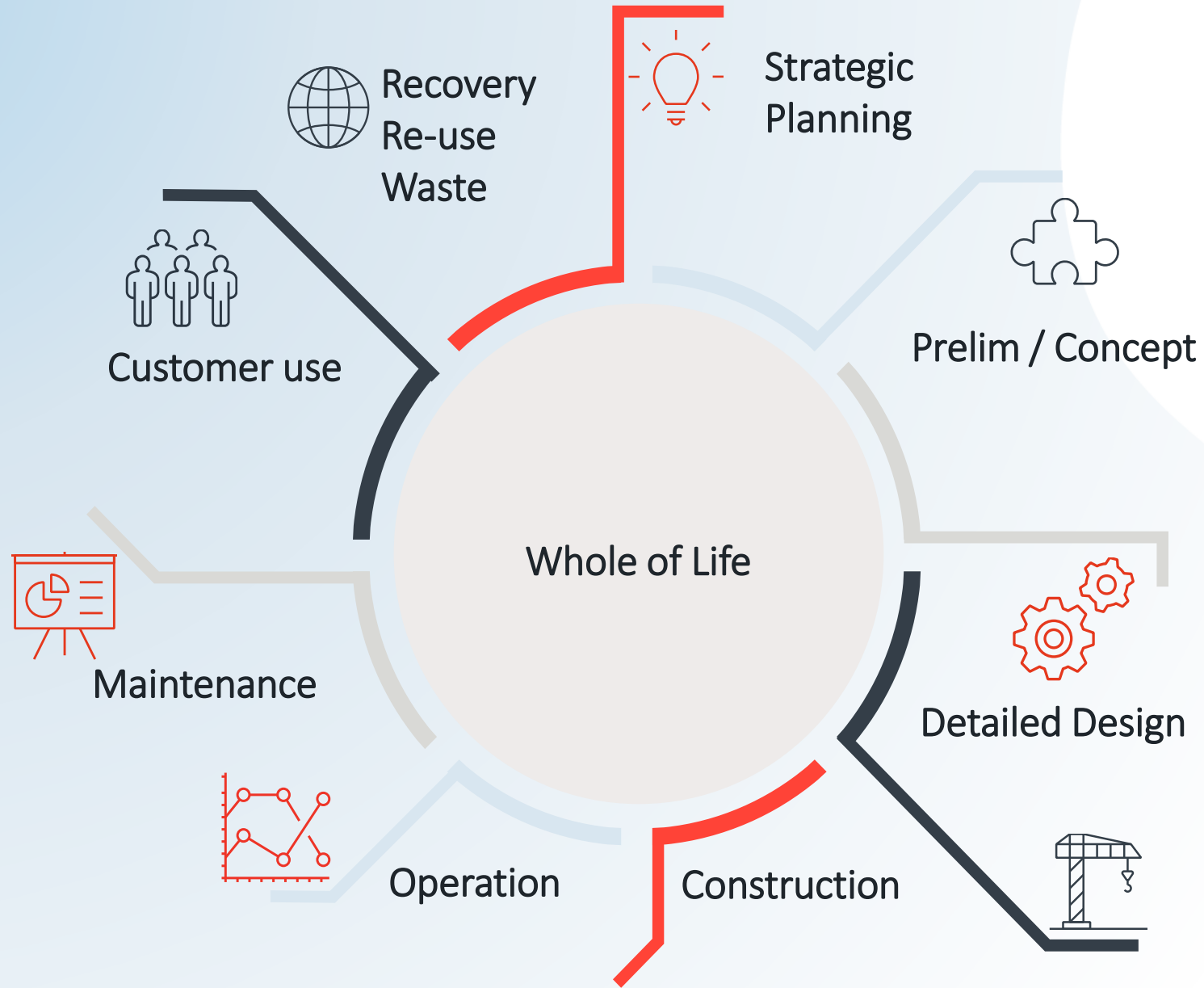
LTP | AP | Capex Plan | Climate Action Plan

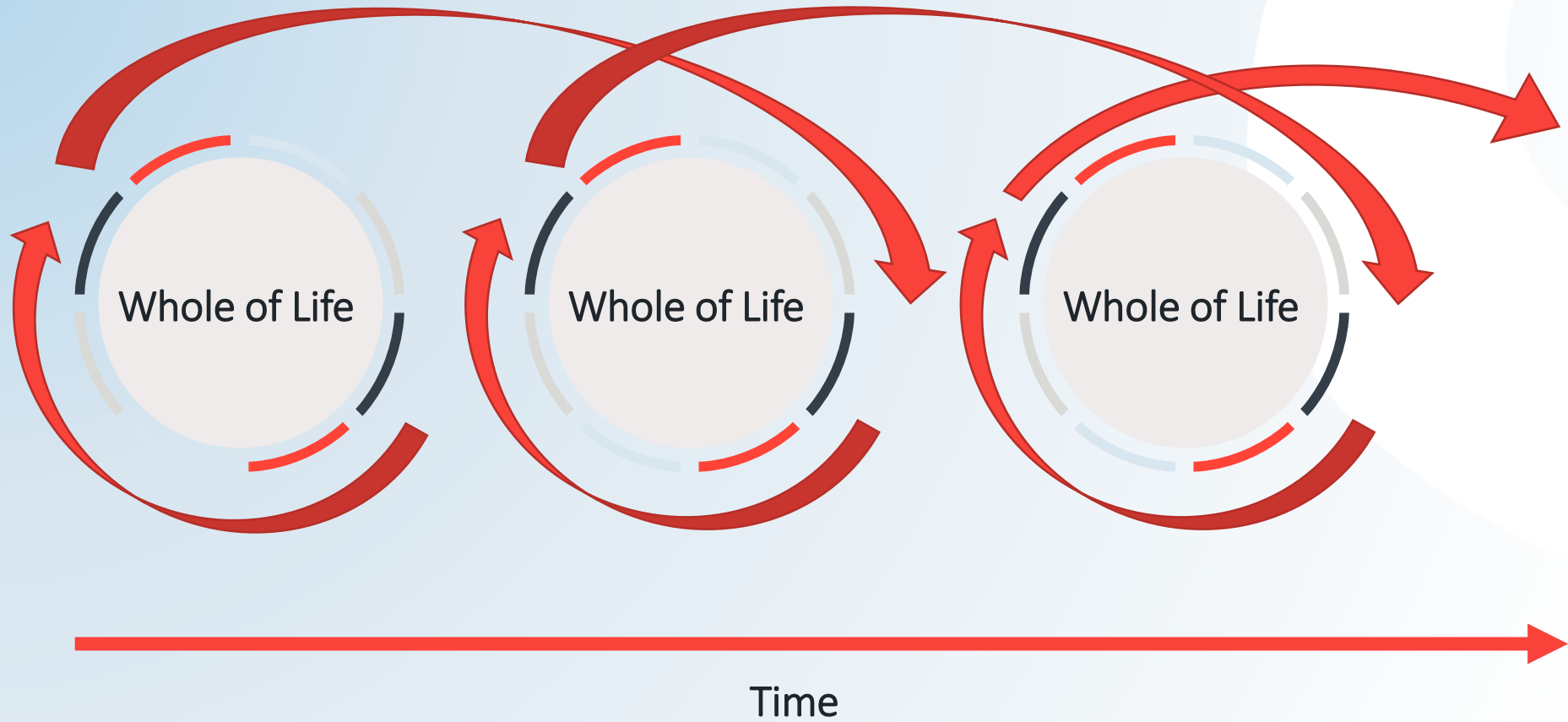


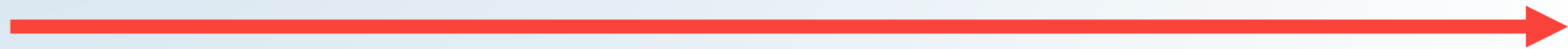
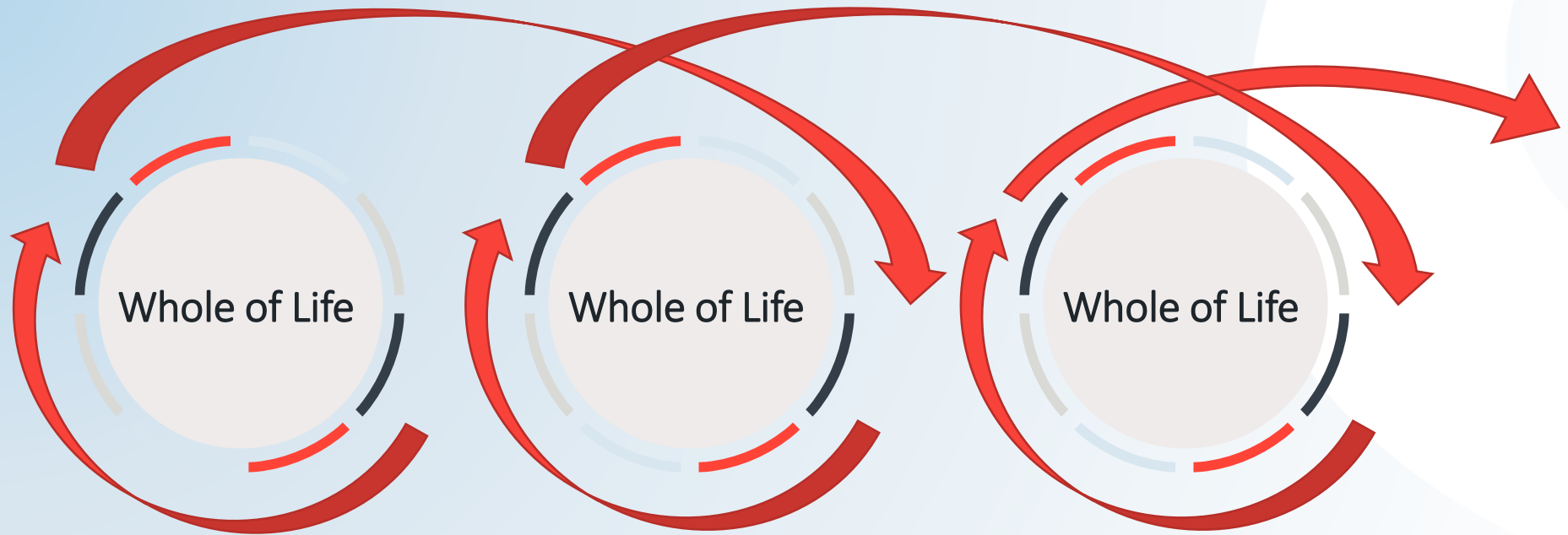
Costed | Prioritised | Value/\$ | Programmed

Dynamic / Adaptive

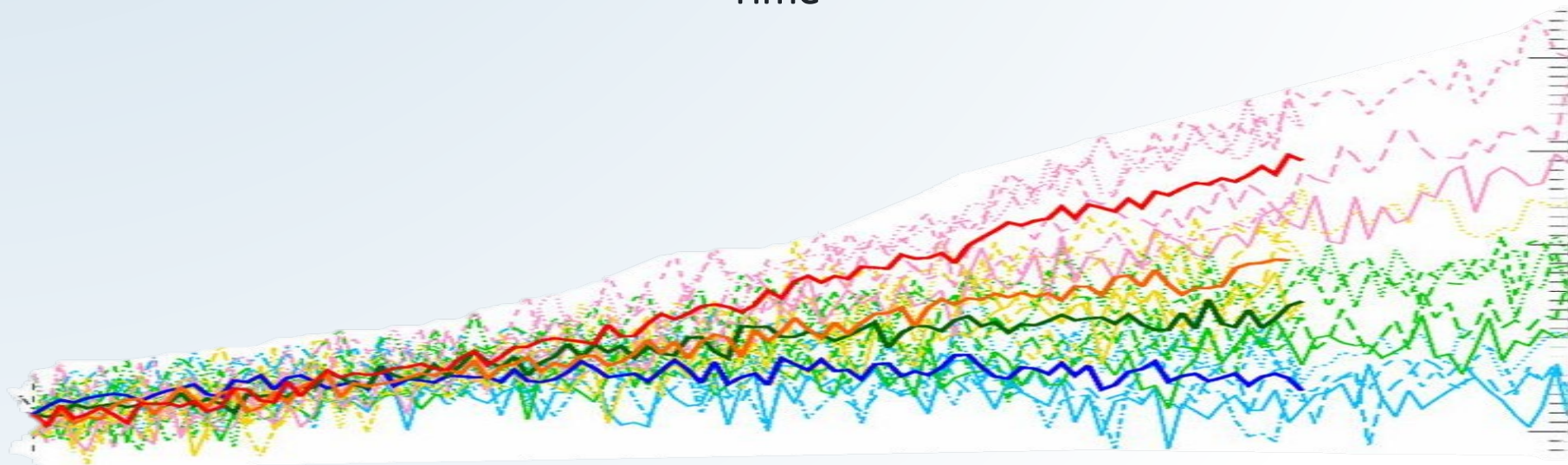
Resilience
Future Ready
Circular

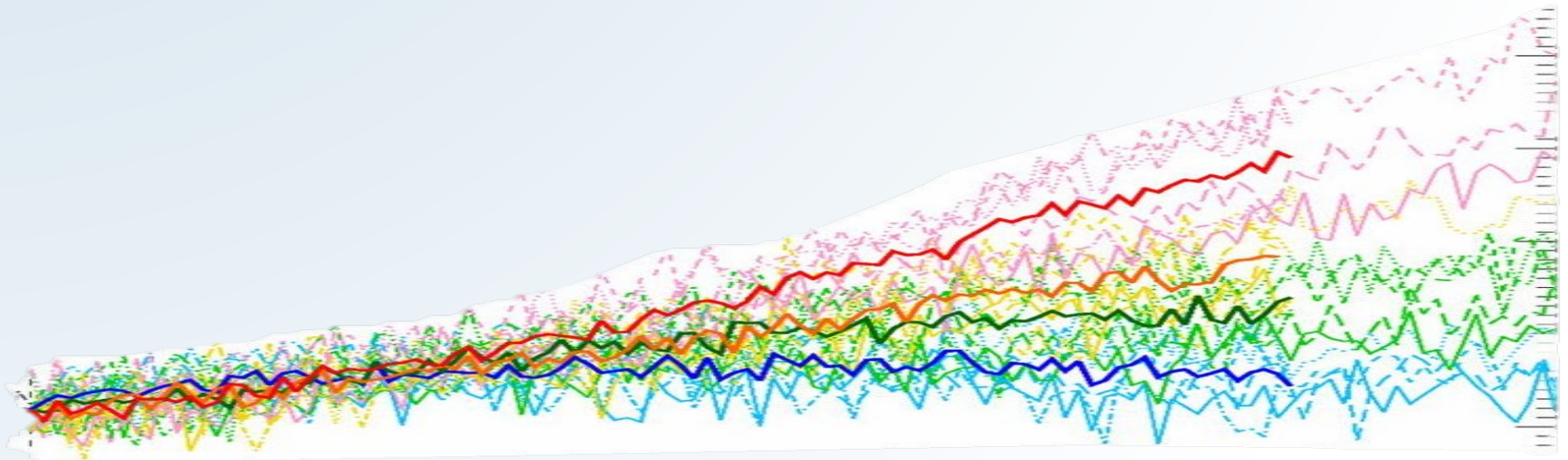






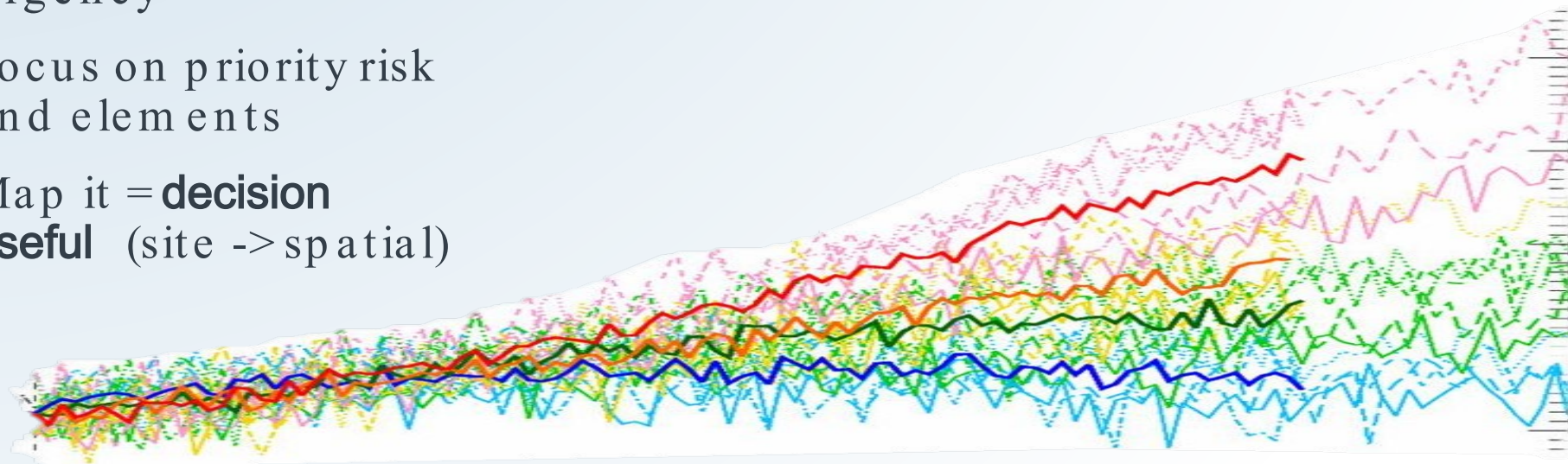
Time





First Pass Risk Assessment

- Direct impacts, selective transitional
- Known aspects/elements in organisation structure
- Workshop Exposure, Vulnerability, Consequence, Urgency
- Focus on priority risk and elements
- Map it = **decision useful** (site -> spatial)



First Pass Risk Assessment

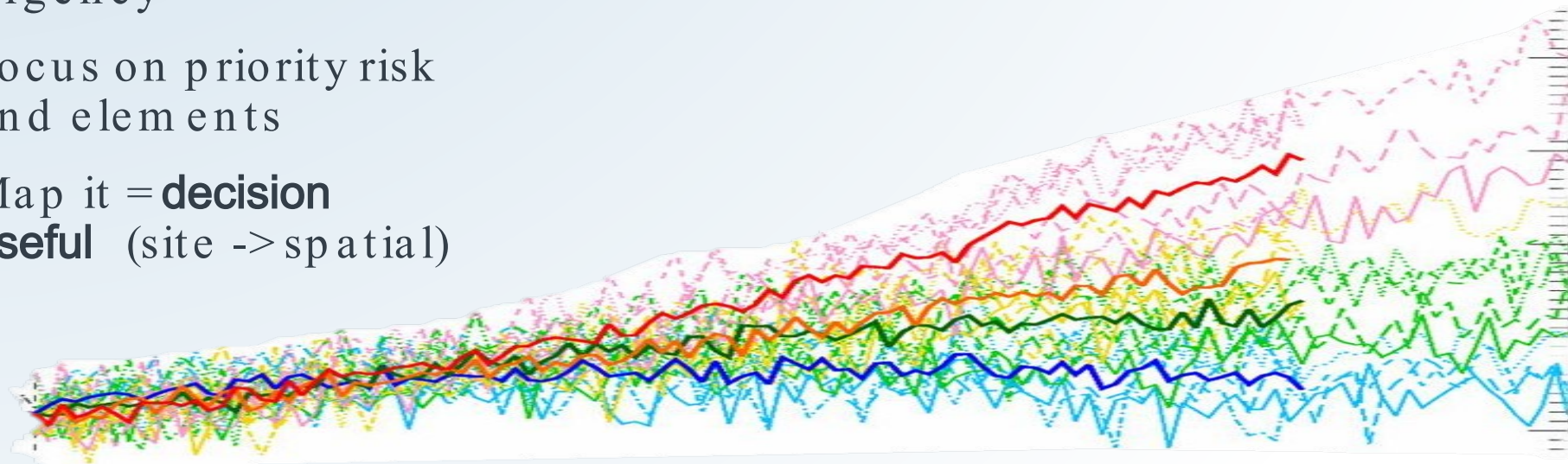
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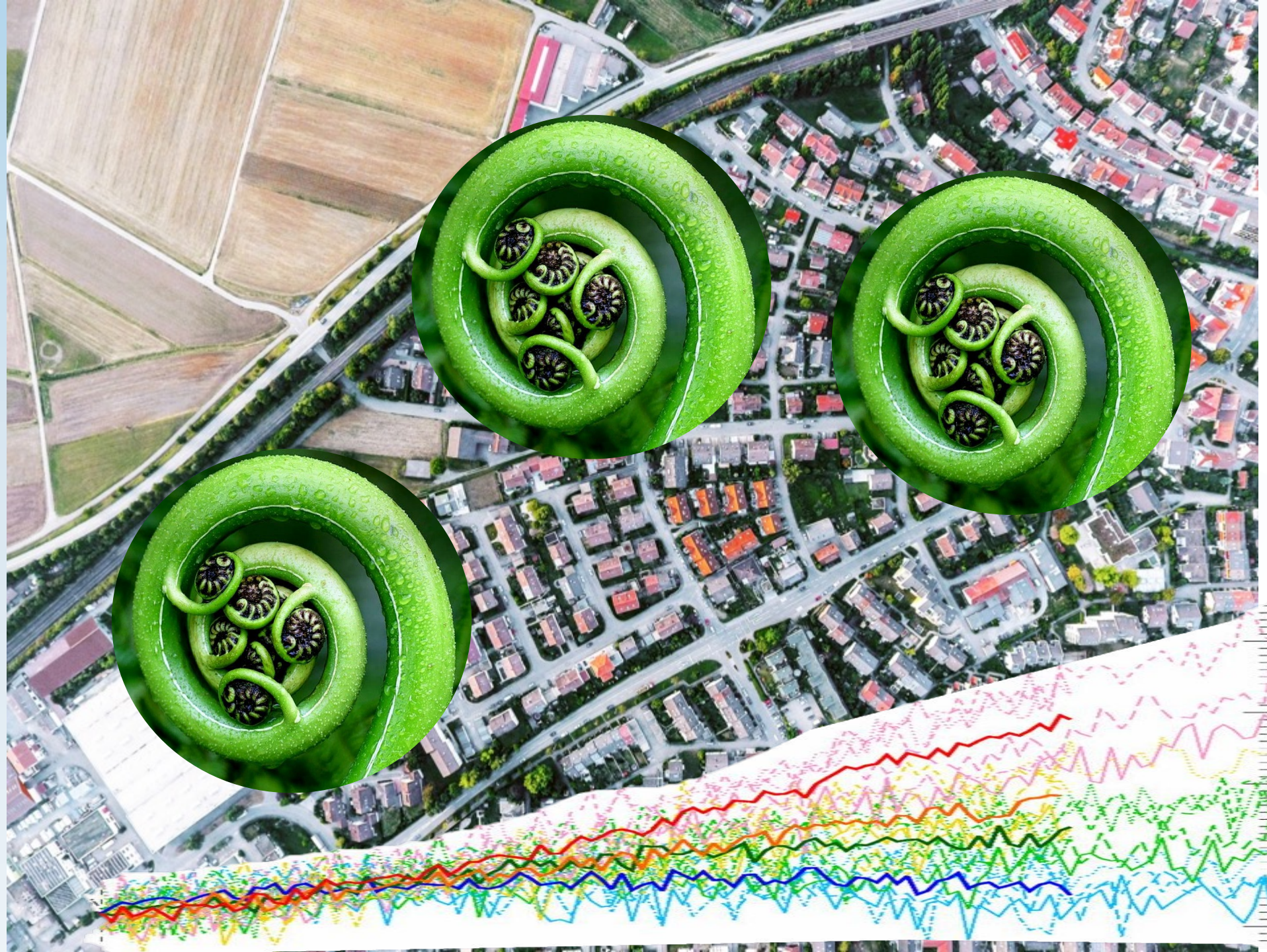


Get it out there

Get it used / referenced

Let the complexity grow





Regenerative

Interconnectedness

Interrelationships

Living systems / Biosphere

Water / Biodiversity / Ecology

Abundance

(The limits of Limits)

Limits

Actions

Dynamic / Adaptive

Regenerative

Enablers

Honouring Te Tiriti

Looming (un)certainty

Moving fast

Keeping together

Ngā mihi
Thank you

