

Introduction to Systems Thinking for National Development Strategy



Systems Thinking for National Strategy

Introduction to Systems Thinking for National Strategy

Recognize the value of creating National Strategy with Systems
Thinking



Two Modules

Introduction to Systems Thinking for CCA/ UNSDCF

Change

Differentiate between theories of change
without and with Systems Thinking

Transformation

Follow methods to intervene and develop a
National Strategy with Systems Thinking



Four Sessions of Two Hours Each

Introduction to Systems Thinking for CCA/ UNSDCF

Change

Transformation

Intended and
Unintended
Change

Systems Thinking
as a Theory of
Change

Leverage Points
in Systems

National Strategy
with Systems
Thinking



Change

Intended and Unintended Change



Objective

- This session will provide you with the ability to discover and distinguish intended and unintended change that results from a National Strategy



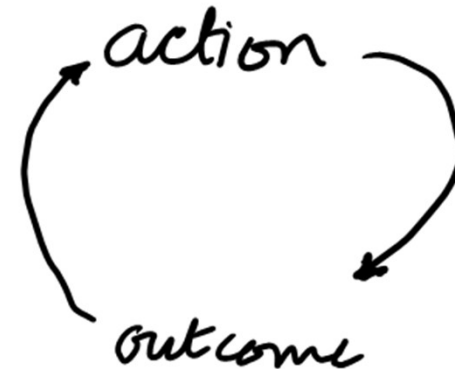
Starting Questions

1. Is my day filled with changes that I intended or is it dominated by changes that I did not intend?
2. How does the intended change happen?
3. Why does unintended change happen?
4. How do I recognize change?



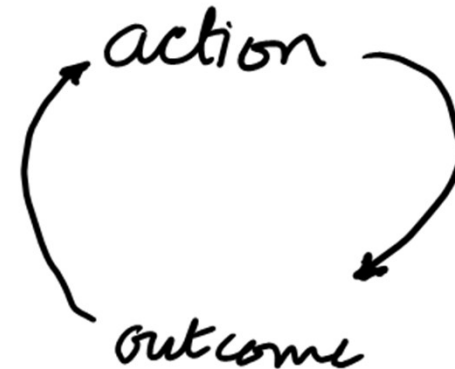
Intended Change

- When an actor's action is a response to the outcome of their action and results in the outcome, their response is described as *feedback*
- Feedback is an *intended change feedback* when an actor's action is a response to the outcome of their action and results in the *intended* outcome



Examples of Intended Change

- Quenching thirst
- Satisfying demand
- Broadcasting



Unintended Change

- Feedback is an unintended change feedback when an actor's reaction is a response to an outcome or action of another actor driving the outcome and consequently results in the unintended outcome for the actor driving the outcome.



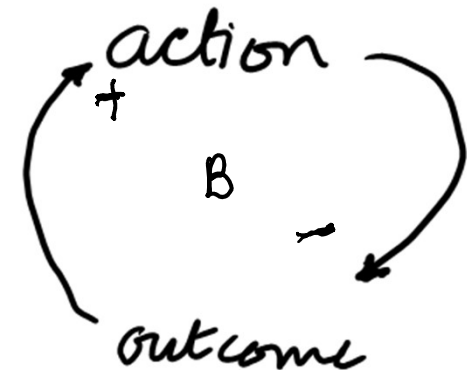
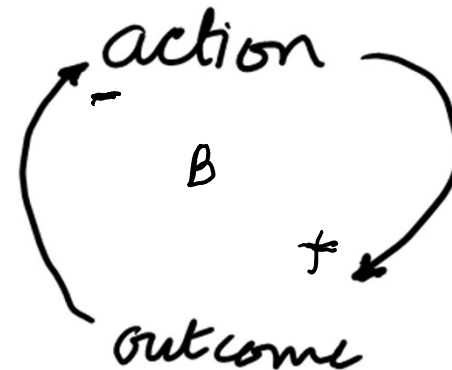
Examples of Unintended Change

- In migration in response to availability of houses
- Congestion in response to measures to reduce congestion



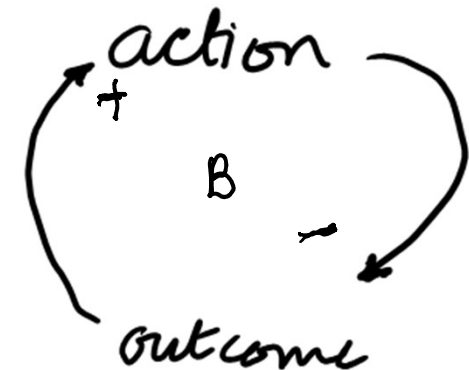
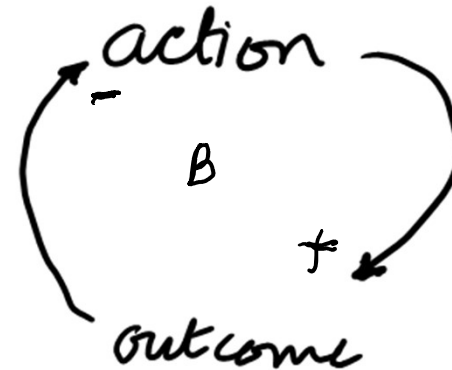
Balancing Feedback

- *Balancing feedback* is when the response of actors to an outcome resulting from their action results in *less* of the same outcome



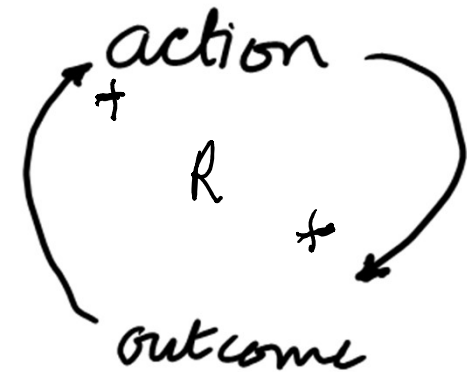
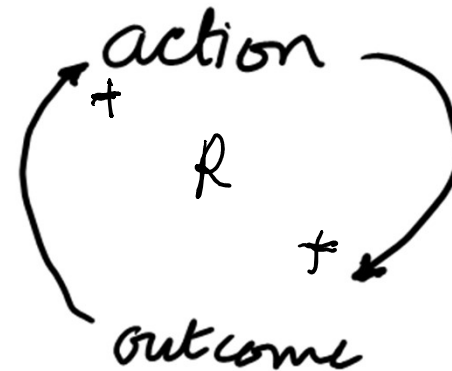
Examples of Balancing Feedback

- Spending in response to expenses
- Eating in response to appetite



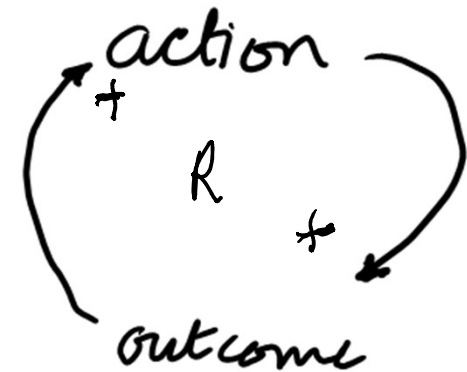
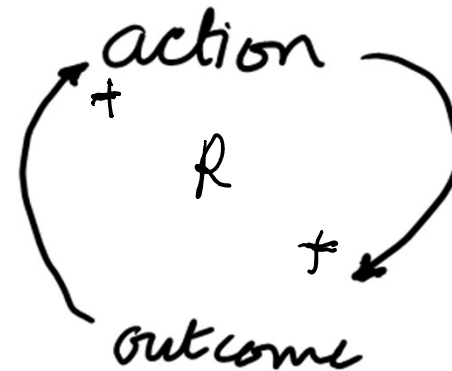
Reinforcing Feedback

- *Reinforcing feedback* is when the response of actors to an outcome resulting from their action results in *more* of the same outcome



Example of Reinforcing Feedback

- Wealth accumulation
- Ego



Linking of Rivers to Meet Water Demand

Unintended outcomes:

Increased demand, decreased water availability



GDP Growth for Prosperity

Unintended outcomes:

Increased resource use, increased waste generation, increased disparity



Roads and Transportation to Increase Mobility

Unintended outcomes:

Increased congestion, increased carbon intensity of GDP



Smart Cities

Unintended outcomes:

Increased congestion, increased crime, increased social disparities, unlivable, unproductive cities



Importing Energy to Meet Demands

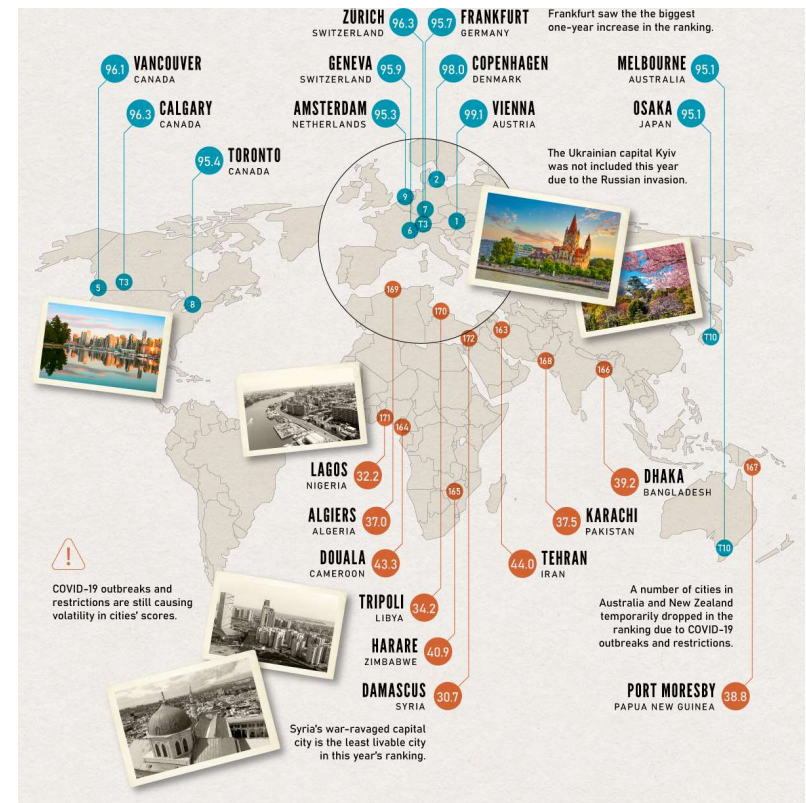
Unintended outcomes:

Increased carbon intensity of GDP, increased destruction of the environment, loss of biodiversity



Impact?

- One in every seven cities in the world is in India
- Half of these are less than 75 years old
- \$20 billion spent through national urban renewal mission from 2005-2010
- Not one of them makes it to any list of cities worth living in



Principles

1. When an action in response to an outcome results in an intended outcome, the actor driving the action creates intended change
2. When a reaction by an actor in response to an outcome, that results from the action of another actor in response to the outcome, alters the outcome, the actor driving the reaction creates unintended change
3. When an action in response to the outcome results in more of the outcome, it reinforces the outcome
4. When an action in response to the outcome results in less of the outcome, it balances the outcome



Breakout Session

- Refer to the *Seychelles National Development Strategy 2019-2023*



Breakout Session (Continued)

- Identify and draw as many *intended* change feedbacks from these documents as possible. For each feedback, list:
 - the actor,
 - the source of their information about the intended outcome,
 - their purpose to act to accomplish the intended outcome,
 - and what they possibly may *feel* in the intended change feedback



Breakout Session (Continued)

- Identify and draw as many *unintended* change feedbacks from these documents as possible. For each feedback, list:
 - the actor,
 - the source of their information about the intended outcome,
 - their purpose to act to accomplish the intended outcome,
 - and what they possibly may *feel* in the intended change feedback



Template to Capture Your Feedback Analysis

- **Analysis of Intended and Unintended Change in the Common Country Analysis**
- **Name of Feedback:**
- **Kind of Feedback:** Intended Change Feedback Unintended Change Feedback
- **Outcome:**
- **Actor:**
- **Actor's Source of Information About Outcome:**
- **Actor's Purpose in Acting to Accomplish or Reacting to the Outcome:**
- **Possible Experience and Feeling of the Actor in the Feedback:**



Breakout Session (Continued)

- Share the *intended* and *unintended* change feedbacks you identified. For each feedback, share your list of:
 - the actor,
 - the source of their information about the intended outcome,
 - their purpose to act to accomplish the intended outcome,
 - and what they possibly may *feel* in the intended change feedback



Practice

- Make a notebook to keep track of the intended and unintended change you encounter in your life
- Divide the notebook into categories that work for you: alphabetical list of feedback, list of feedbacks by how they leave you feeling, list of feedbacks by the impact they have on your life etc
- Before you end your day, add and document the new intended and unintended change you encountered using the template you used for analyzing the intended and unintended change in the *Seychelles National Development Strategy 2019-2023*



Change

Systems Thinking as a Theory of Change



Objective

- This session will provide you with the ability to begin recognizing the systems that drive change in the country and a means to discover some counterintuitive outcomes in the systems you identify



Starting Questions

1. Does my Theory of Change recognize drivers of change?
2. Does my Theory of Change allow me to be inclusive of those for whom the change is being effected?
3. Does my Theory of Change provide a means to align and empower those who bring about the change?



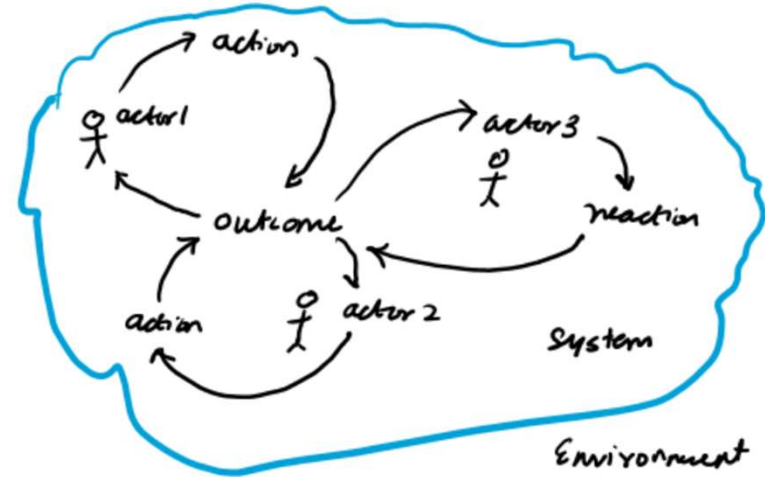
Systems Thinking

- Systems Thinking is the use of scientific methods to recognize and reinvent *systems*, their purpose, their participants, the change they can bring about, and to their emergent properties like robustness, anti-fragility, resilience, and sustainability
- Provides an ability to look at *dynamic complexity*, not just detail complexity



What is a System?

- A system is the whole that results from the interactions of actors who come together to serve their purposes
- A system boundary separates the system from its environment
- The system boundary serves to bound the change driven by the interacting actors from the constraints imposed by the environment on their interactions
- The behaviour of the system emerges from the interactions of the actors



Examples of Systems

- A buyer and seller come together to form a market system
- A borrower and a lender come together to form a banking system
- A representative and represented come together to form a democratic system





When you come together to interact with others, you form a system

Corollary: Systems are ubiquitous

“The performance of a system doesn’t depend on how the parts perform taken separately, it depends on how they perform *together* – how they *interact*, not on how they act, taken separately. Therefore, when you improve the performance of a part of a system taken separately, you can destroy the system”

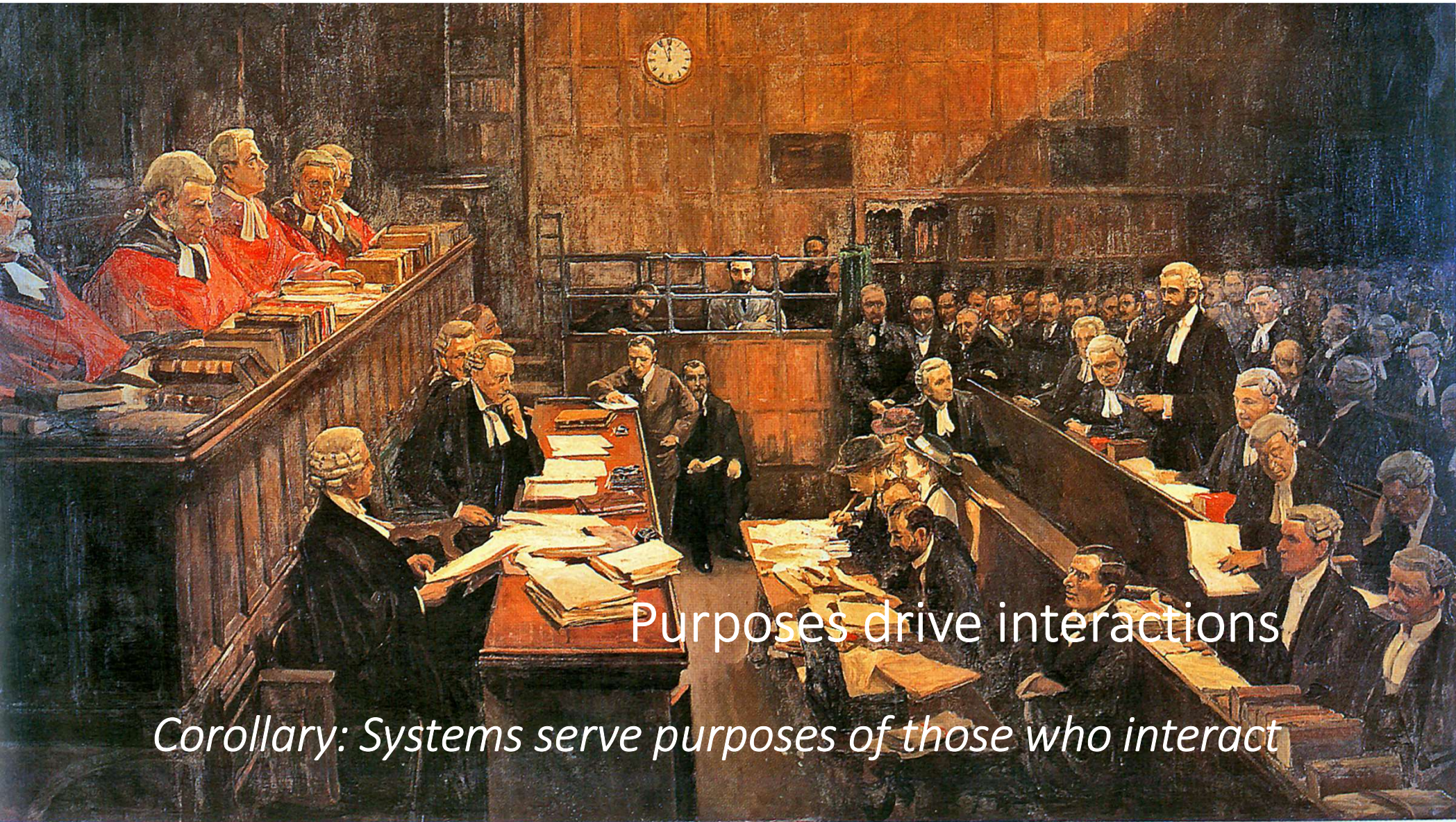
- Russell Ackoff



Purposes of Actors

- Each actor acts in response to outcomes in their system to accomplish an outcome intended by them
- The outcome they intend is often the purpose for their participation in the system
- When the participating actors share the purpose for participating in the system, they are said to have a *common* purpose.





Purposes drive interactions

Corollary: Systems serve purposes of those who interact

Systems Result from our Designs

- When you cause actors to interact with each other to serve some purpose of the interacting actors, you design a system
- Those actors you include or exclude causes you to leave no one or leave some actors behind
- When the interactions do not serve a common purpose or a complementary purpose, the interacting actors have a different skin-in-the-game
- Alignment of purposes decides if interactions in systems will result in harmonious, peaceful, exploitative, coercive, or even abusive experiences



What do Systems Accomplish?

- Everything you experience, feel, or impact is within the systems that you participate in
- Everything you can possibly experience, feel, or impact is limited to the systems that you can participate in
- Systems Thinking is, therefore, powerful not only in helping you recognize your spheres of influence, making you effective at accomplishing change, but also providing a means to *shape* systems that accomplish intended outcomes



Principles

1. When actors interact with each other to serve their purposes, they form a system
2. Interactions with different actors to serve different purposes result in different systems
3. The interactions of actors result in a collection of intended (and unintended) change feedbacks
4. Combination of feedbacks produce patterns of behavior that shape the experience and feelings of the actors in the individual feedbacks



Behaviour of Systems

- Actors in a system act to drive their intended change or react in response to an outcome to drive unintended change
- Consequently, systems have intended change feedbacks and unintended change feedbacks
- The combination of these feedbacks is responsible for the behaviour of the system



System Archetypes

- Combination of feedbacks that produce a characteristic set of patterns of behavior, particularly counterintuitive behavior, are called systems archetypes
- These systems archetypes serve to quickly diagnose counterintuitive outcomes and help us to find ways to address the outcome so that the unintended outcome will not prevail



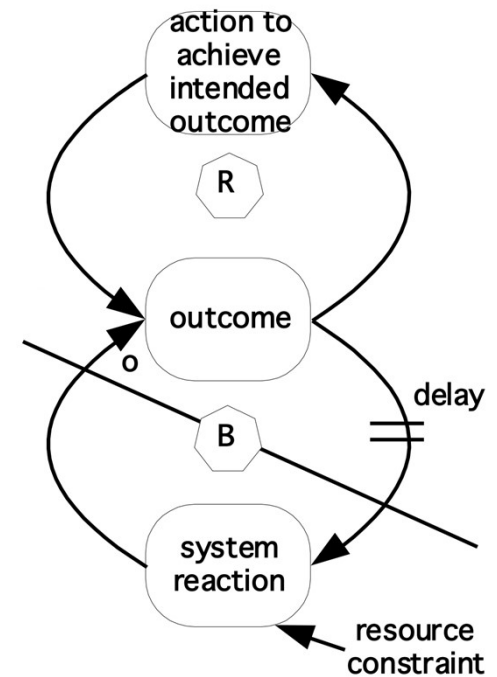
Identifying Common Archetypes

- One intended change feedback, and another unintended change feedback
- Usually, these two feedbacks are driven by actors in different departments of an organization or even actors from outside an organization
- The organizational boundary usually hides the feedback causing unintended change from the view of the actor instigating the change
- There is usually a delay before the unintended change manifests itself causing the instigating actors to see improvement before things get worse
- This counterintuitive behaviour often traps the actors to actions that take them in the opposite direction of their intended outcome



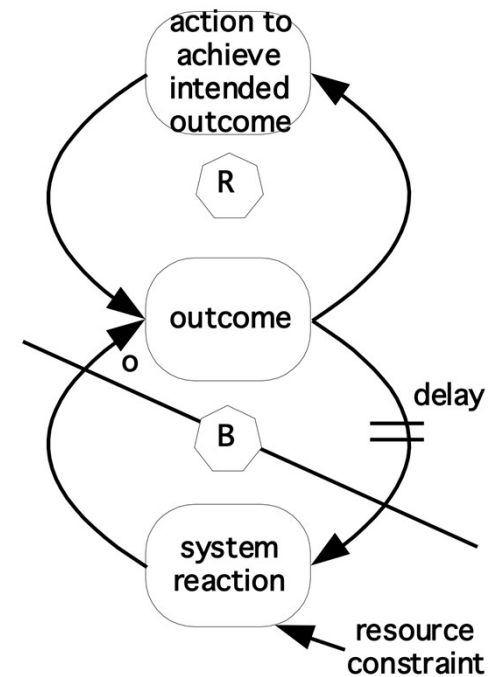
Underachievement

- This archetype consists of an actor in one department of an organization driving reinforcing change to achieve a successful outcome from an initiative
- Another actor in another department or outside the organization, usually because of a resource constraint, creates a balancing change, which causes a delayed underachievement of the intended outcome



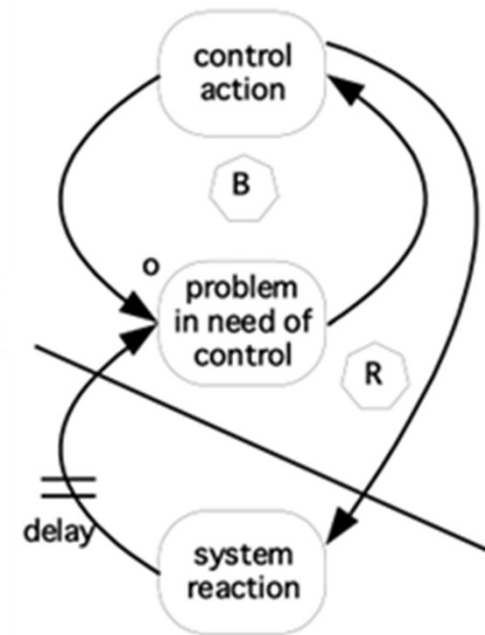
Examples of Underachievement

- When you complete all tasks, you perform well (reinforcing feedback),
- Your boss responds by asking you to take up more tasks, causing you to underperform as you are stretched beyond your limit (balancing feedback)
- Also known as limits to growth



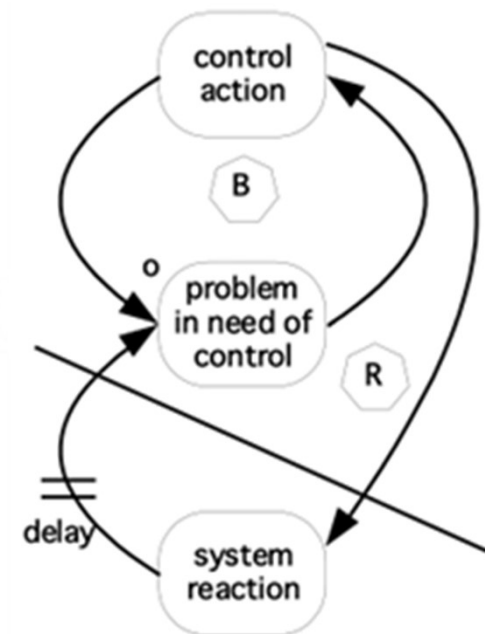
Out of Control

- This archetype consists of an actor in one department of an organization driving balancing change to control the magnitude of a problem
- Another actor, from another department or outside the organization reacts through reinforcing change, resulting in a possible worsening of the problem, which gets more and more out of control



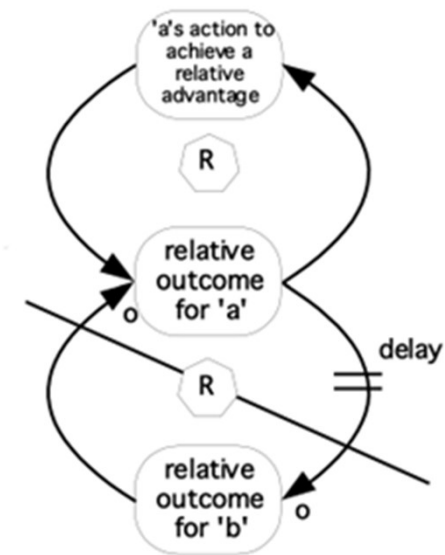
Example of Out of Control

- When the city managers build roads in response to a congestion (balancing feedback),
- More citizens take to the roads as they appear less congested (reinforcing feedback), causing the congestion to grow worse in a fix that fails



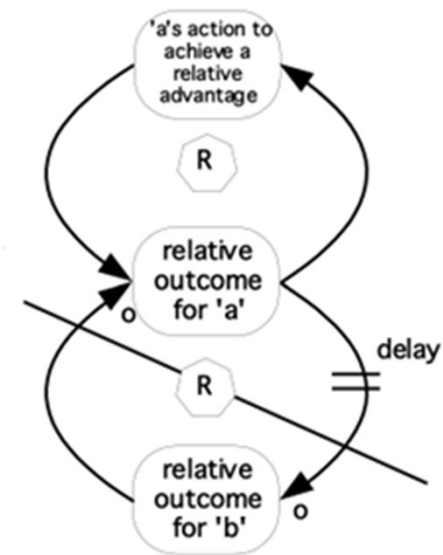
Relative Achievement

- An actor in one department of an organization driving reinforcing change intended to achieve a relative advantage from an initiative
- Here achievement is gained at the expense of other departments of the organization
- Another actor in another department or outside the organization creates a reinforcing change, which magnifies the relative outcome
- Actors in this archetype are engaged in a zero-sum game



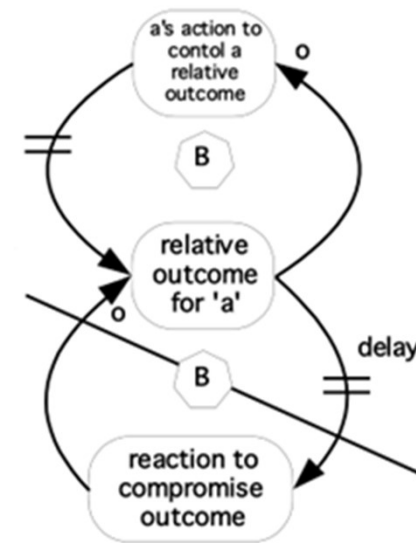
Example of Relative Achievement

- An actor addressing a development problem is successful at attracting funds, the actor attracts even more funds (reinforcing feedback)
- This starves other actors (reinforcing feedback)
- This is also known as success to the successful



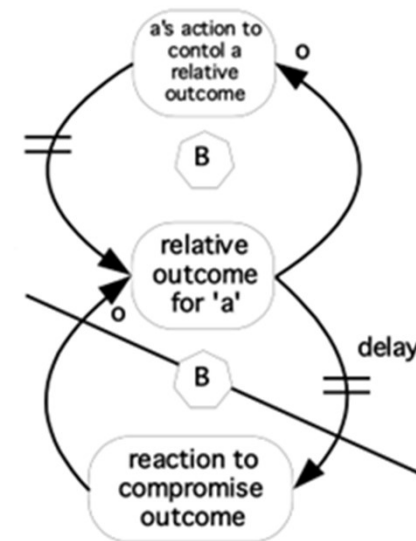
Relative Control

- An actor in one department of an organization drives a balancing change to control a relative outcome
- Another actor, from another department or outside the organization reacts through balancing change compromising the outcome for the initiator



Example of Relative Control

- Country A acquires arms to have more arms than country B (balancing feedback)
- Country B acquires more arms to regain its advantage (balancing feedback)
- This is also called escalation



Breakout

- Refer to the *Seychelles National Development Strategy 2019-2023*



Breakout (continued)

- Identify, categorize, and draw as Systems Archetypes
- List:
 - The actor,
 - The source of their information about the intended outcome in each feedback of the archetypes
 - The purpose of the actors to (re)act to accomplish the outcomes
 - What actors may possibly feel due to the changes in outcome



Template for Analysis of Systems Archetypes

Name of Archetype:

Category of Archetype: Underachievement Out of Control Relative Achievement Relative Control

Actor Driving the Intended Change Feedback:

Actor Driving the Unintended Change Feedback:

Source of Information About Outcome for Actor Driving the Intended Change Feedback:

Source of Information About Outcome for Actor Driving the Unintended Change Feedback:

Purpose of Actor Driving the Intended Change Feedback for Acting to Accomplish the Outcome:

Purpose of Actor Driving the Unintended Change Feedback for Reacting to the Outcome:

Possible Experience and Feeling of the Actor Driving the Intended Change Feedback in the Feedback:

Possible Experience and Feeling of the Actor Driving the Unintended Change Feedback in the Feedback:



Practice

- Make a notebook to keep track of the archetypes you encounter in your life
- Divide the notebook into categories that work for you: list by categories of archetypes, alphabetical list of archetypes, list of archetypes by how they leave you feeling, list of archetypes by the impact they have on your life etc.
- Before you end your day, add and document the new archetypes you encountered using the template you used for analyzing the archetypes in the *Seychelles National Development Strategy 2019-2023*



Transformation

Leverage Points in Systems



Objective

- This session will provide you with the ability to identify places to intervene in systems to accomplish outcomes desired in the country



Starting Questions

1. What impact do I want to have on each of my systems?
2. How do I find places to intervene to have an impact?
3. Do my interventions have the impact that I desire?



Intervening to Serve Our Purposes

- Every day we make choices in our systems to serve our purposes and accomplish an intended outcome
- Our choices alter our interactions with others in the system
- The outcomes we achieve or experience in our systems depend on these choices
- The outcomes we experience over a period are described as the behaviour of the system
- Not all choices have an equal impact on the behaviour of the system



Interventions to Address Symptoms Fail

- Systems are inherently insensitive to most policy changes that desire to alter the behavior of systems
- Systems draw attention to the very points at which an attempt to intervene will fail





Systems Have a Few Leverage Points to Impact

- Systems seem to have a few sensitive influence points through which behavior can be changed
- When a high-influence policy is identified, the chances are great that a person guided by intuition and judgment will alter the system in the wrong direction





Long Term is Usually Better

- Systems exhibit a conflict between short-term and long-term consequences of a policy change
- A policy that produces improvement in the short run is usually one that degrades a system in the long run



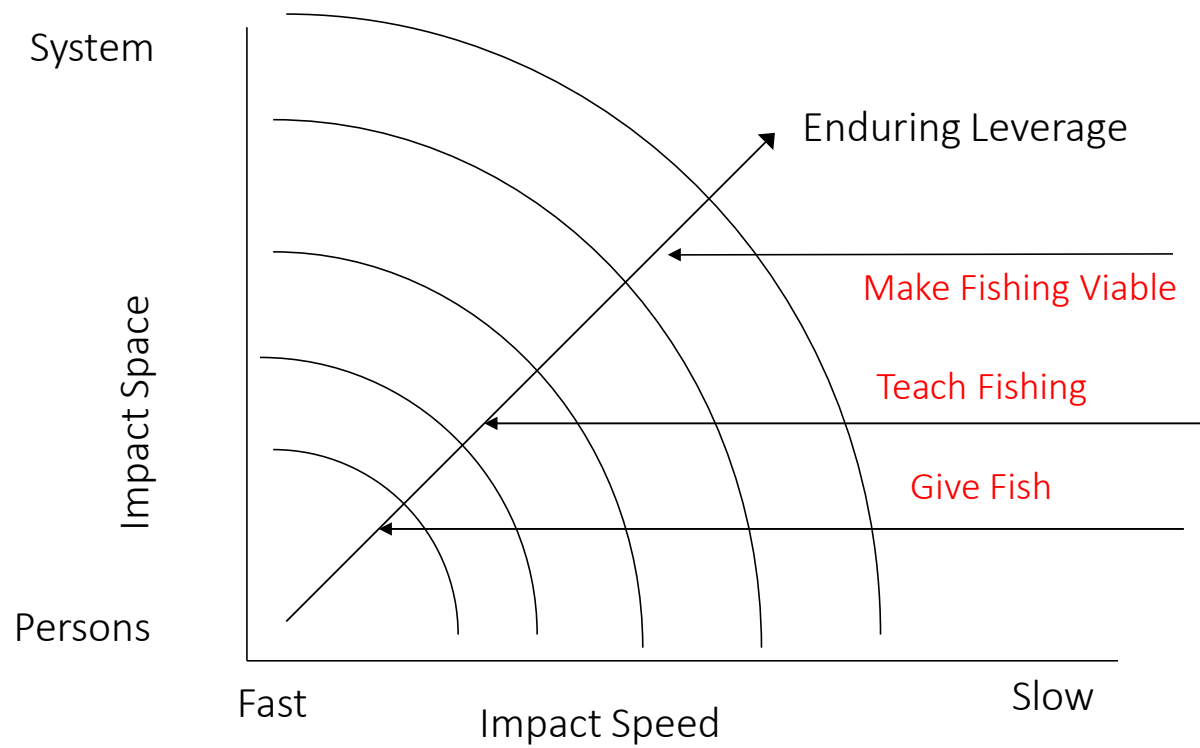


Leverage Points

- Systems seem to have a few sensitive choices with influence and through which the behavior of the system can be changed
- These sensitive choices of influence are also referred to as leverage points and are often regarded as the best places to intervene in the system for impact



Enduring Impact



“Locate responsibility in the system. Look for the ways the system creates its own behavior.”
- Donella Meadows



Places to intervene in a System

- The choice of indicators that actors respond to in a system
- The manner in which actors respond to indicators in a system
- The purposes of actors for participating in the system
- The collection of actors who engage in the system



Our Choice of Indicators

- For instance, when you choose to respond to the value of goods based on their price, or based on your need, or based on its desirability, you have a different impact
- Or when you choose to respond to the value of a representative based on their political affiliation, based on their agenda, based on their perceived power, or based on their alignment to your intended outcomes, you alter the impact you have



The Scripts We Use to Respond

- For instance, when you choose to respond to the value of a good by purchasing it, or by hoarding it, or by disposing it, you have a different impact on the value of the good
- Or consider choosing your response to the value of a representative by changing your political affiliation, changing your intended outcomes, or altering your perception, you change your impact on the value of the representative



Our Purposes for Intervention

- For instance, when you choose to participate in the market to acquire goods of value, you have a different impact on the value of the goods from when you participate for status or when you participate to satisfy a need
- Or for instance, when you choose to participate to ensure the representative's alignment to your intended outcomes instead of the increasing the value of the representative, you change the impact you have on the value of the representative



The Actors Who Make Up the System

- For instance, interacting with the retail seller produces a different impact on the value of the goods from interacting with the retail seller and a banker, or interacting with a wholesaler.
- Or consider choosing to interact with a representative and those who fund their campaigns, or a representative and those who generate the outcomes you desire



“Aid and encourage the forces and structures that help the system run itself. Don't be an unthinking intervener and destroy the system's own self-maintenance capacities. Before you charge in to make things better, pay attention to the value of what's already there.”

- Donella Meadows

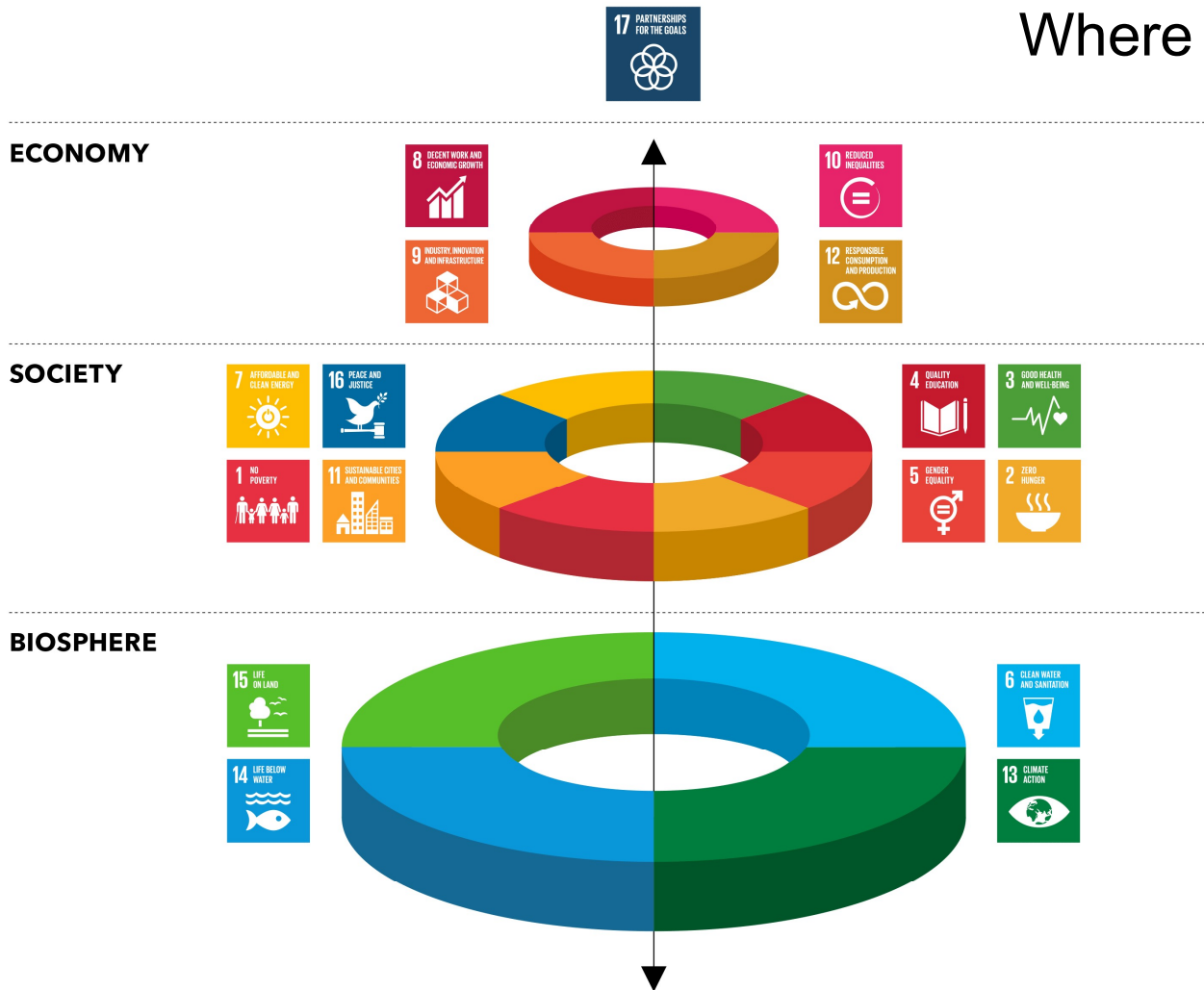


Principles

1. Systems have a few sensitive choices with influence through which the behavior of the system can be changed
2. The places to intervene in a system in order of increasing impact:
 1. The choice of indicators that actors respond to in a system,
 2. The scripts actors use to respond to indicators in a system,
 3. The purposes of actors for participating in the system, and
 4. The collection of actors who engage in interactions with each other in the system



Where should you intervene?



Breakout

- Refer to the *Seychelles National Development Strategy 2019-2023*



Breakout

1. Identify, the Systems from these documents as possible.
2. List:
 1. Each actor,
 2. The alternate indicators that each actor can use to respond to the outcomes in the system,
 3. The alternate scripts for the actors to respond to the indicators in the system,
 4. Alternate purposes for actors to participate in the system, and
 5. The possible reconfiguration of the actors who interact with each other in the system



Practice

- Make a notebook to keep track of your intervention style.
- Divide the notebook into the 4 places to intervene: The choice of indicators that actors respond to in a system, the scripts actors use to respond to indicators in a system, the purposes of actors for participating in the system, and the collection of actors who engage in interactions with each other in the system
- Before you end your day, add and document the key interventions you made using the template you used for analyzing the places to intervene in the *Seychelles National Development Strategy 2019-2023*



Transformation

National Development Strategy with Systems Thinking



Objective

- This session will provide you with the ability to identify interventions that could respond to the State's specific needs and realities to accomplish the outcomes



Starting Questions

1. What are the values (eg. dignity, justice, liberty, equality, identity, fraternity, etc.) that shape the purposes of the systems the people of the country participate in?
2. What are the purposes that people pursue in the country to be able live and protect their values?
3. What programs can support and sustain the systems that allow the people to pursue their values?



Seychelles National Strategy Goal

“Realize the views, aspirations, dreams and hopes of the citizens”
- Danny Faure, President of the Republic of Seychelles



Towards a Sustainable and Inclusive Future

“A resilient, responsible and prosperous nation of healthy, educated and empowered Seychellois living together in harmony with nature and engaged with the wider world.”

- Vision 2033



National Strategy Critical Challenges

Maintaining an atmosphere of **peace and security**, the cornerstone for an enabling environment for dialogue, consensus-building, sustainability of growth, development and prosperity. • Continuous upgrading and provision of the necessary **infrastructure** for sustainable socio-economic development and progress. • Transforming our **education** system to prepare a knowledgeable, skilled, responsible and capable Seychellois workforce in light of technological advances, innovations and the resultant demands of the labor market and our economy. • Embracing **science, technology and innovation** as a cross-sectoral means to achieve multiple objectives and outcomes including better delivery of services for our citizens. • Intensifying our fight against the scourge of **substance abuse and related social-ills** plaguing our peaceful existence. • Mitigating and adapting to the threats caused by **climate change**. • Realizing our potential as a large oceanic state as well as finding solutions of the global **threats to oceans**. • Ensuring that Seychelles remains a champion in the regional and global arena when considering its commendable reputation for sustainable **environmental management** and conservation efforts. • Increasing our **economic resilience** and maintaining macroeconomic stability



National Strategy Critical Challenges

They include the need: - to maintain and improve upon the socio-political environment for **dialogue and constructive engagement** between different stakeholders to build consensus, - to **contain inflation and reduce the cost of living**, - to substantially **improve our education and health standards**, - to substantially **abate the increasing trend of substance abuse (drugs and alcohol)**, - to **address the imbalanced demand and supply for decent, affordable housing**, - to provide and improve critical infrastructure for economic development, - **to bridge the widening income inequality gap** and lift the 40 percent of the population living below the poverty line to or above the identified income threshold through programmes that develop skillsets for remunerable employment, - to **facilitate the private sector's role** as the 'engine of growth' for the economy, - to ensure that the country's socioeconomic achievements are sustained and delivered with greater efficiency and accuracy through the **refinements of quality data collection, processing and analysis** for the monitoring and evaluation of progress towards the Sustainable Development Goals (SDGs), - to **maintain macroeconomic credibility** and stability for greater shared prosperity



Democratic Values

- **Respect** ensures that relationships are harmonious
- **Freedom** allows people to choose their purposes, outcomes, and actions
- **Pluralism** respects and tolerates the choice of diverse purposes, outcomes, and actions
- **Tolerance** values and respects the diversity of purposes, outcomes, and actions
- **Equality** requires that no one may have more rights or less obligations than the other
- **Justice** is responsible for ensuring the common good and enabling common purposes while protecting the dignity of all



Power of Systems Thinking in Government

- Systems thinking liberates bureaucracy from the constraints of procedure without needing to abandon procedure. For instance, the ability to identify systems provides a means to include all actors in a system
- By recognizing the purposes of different actors offers a way to demonstrate respect, embody the values of freedom, pluralism, tolerance, dignity, equality, and justice
- By aligning national development strategies to the purposes and outcomes desired by different actors, provides a means to accomplish impact while furthering democratic values and without having to compromise procedure or process



Power of Systems Thinking in Government

- Setting governmental targets and indicators using Systems Thinking makes it easier to accomplish development goals without having to rewrite procedure or legislation
- The practice of intervention using leverage points identified by Systems Thinking enhances the effectiveness of bureaucracy while using due procedures
- As Systems Thinking brings policy coherence and harnesses dynamic complexity it allows the principles of governance to extend to complex systems that are dynamic in nature, non-deterministic in behaviour, counterintuitive in response, and non-linear in performance



Power of Systems Thinking in Government

- The practice of Systems Thinking also provides a context for creating legislation or crafting rules that will provide leverage to accomplish development outcomes
- It provides a means to help different actors recognize outcomes they desire more easily, as well as scripts to respond to those outcomes in ways that will not lead to unintended outcomes
- It offers an opportunity to frame legislation or make rules that are based on a *common* purpose and explicitly articulate the purpose



Power of Systems Thinking in Government

- Systems Thinking also offers the opportunity to reinvent the systems in a country by bringing together actors with common purposes and design institutions that serve these purposes through their institutional mandates or missions
- It offers the possibility of resolving, avoiding, or diffusing conflicts by creating independent systems that allow coexistence of actors with different purposes
- It also offers the opportunity to create independent institutions with different institutional mandates or missions that serve the diverse purposes of different actors, furthering democratic values while abiding by procedure or process



National Strategy Development Priorities

1. Productivity
2. Participation
3. Performance



National Development Strategy Pillars

- Good governance (SDGs 5, 8, 9, 10, 11, 13, 14, 15, 16, 17)
- People at the center of development (SDGs 3, 4, 8, 9, 10, 17)
- Social cohesion (SDGs 1, 2, 3, 5, 6, 10, 11, 16, 17)
- Economic transformation (SDG 9)
- Innovative economy (SDG 1, 4, 7, 8, 9, 10, 12, 14, 17)
- Environmental sustainability and resilience (SDGs 6, 7, 11, 12, 13, 14, 15, 17)



“The goal of foreseeing the future exactly and preparing for it perfectly is unrealizable. Systems can't be controlled, but they can be designed and redesigned”

- Donella Meadows



Systems Principles for Intervention

- Assume the leadership of your systems, not just your organizations
- Engage all stakeholders fairly
- Evolve a common purpose for engagement of stakeholders
- Redefine desired outcomes
- Redefine interventions
- Build feedback to reinforce stakeholder roles that accomplish the common purpose
- Build mechanisms to contain growth
- Restore natural buffers to reduce impact of disturbances



Principles

1. The development in the country results from the outcomes of the systems in that country
2. The SDGs can be accomplished in the country if the systems and the interventions in the systems are designed to impact the outcomes desired by SDGs
3. Programs that support designing and redesigning systems that protect human rights and ensure no actors get left behind can best meet the *National Development Strategy* objectives



“You talk very little about life,
you talk too much about survival.

It is very important to remember that
when the possibilities for life are over,
the possibilities for survival start.”

— Speaker from the floor
WCED Public Hearing Sao Paulo, 26-29 Oct 1985



Breakout

1. Use the output you produced in the previous sessions to inform
 1. The national priorities and gaps in their pathway towards meeting the SDGs
 2. To identify actors who are left behind or are likely to be left behind and
 3. The interventions that could respond to the Seychelles specific needs and realities to accomplish the SDGs and outcomes identified in the previous sessions

