Regional Climate Change Adaptation Strategy

Guidance Note 4

Understanding the Region

Purpose

Gaining an in-depth understanding of the region as a system or set of systems is fundamental to identifying key adaptation challenges and a place-based approach.

There are numerous methods and approaches that can be used to develop this understanding. Each will provide different insights, and those insights will depend on who is involved and how they are involved.

Therefore, the work of understanding the region is necessarily an ongoing and iterative process, which needs to involve diverse stakeholders in different ways throughout the planning process.

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Important Considerations

It is impossible to develop a complete understanding of the region or sub-regions, and no tool or method will reveal all attributes and functions of dynamic, changing, interlinked socio-ecological systems. Therefore, alongside working with a genuinely diverse array of stakeholders, the use of several different tools and methods is recommended to build up a more comprehensive picture and to develop better insights. In addition, using as much pre-existing information in this process as possible will help with efficiencies of effort, avoid 'reinventing the wheel', and help identify gaps in knowledge, action, and stakeholder engagement. For example, the 2018 Regional Adaptation Gap Analyses provided a good base of information. https://www.climatechange.vic.gov.au/information-and-resources/climate-change-adaptation-resources

Many other existing sources can provide useful information about the region and its stakeholders. This could include plans and reports from: other government departments; Catchment Management Authorities; local governments and Greenhouse Alliances; Traditional Owner and Aboriginal organisations; community service organisations; Water Authorities; and Non-Government Organisations.

Depending on the types and depth of analyses used, political, social, and/or economic structural drivers of risks and vulnerabilities may be revealed, which can help in understanding systemic possibilities for change rather than actions that might only address symptoms of problems - which are often more obvious. Having some sense of these will help in later phases of the regional climate change adaptation strategy and planning process when identifying adaptation actions.

Suggested Methods

The suggested methods to explore the system below are designed to help guide the regional adaptation planning team and stakeholders to:

- Define what is meant by 'the region'
- Identify adaptation challenges
- Reflect on the past
- Identify driving forces upon the region/sub-regions

Note that the following are suggested methods, adapted from the Wayfinder Guide, that can be worked through as the project team and/or adaptation stakeholder committee deems useful. https://wayfinder.earth/the-wayfinder-guide/

Teams/Committees may use some or none of these methods.

They may have other methods or choose to adapt these methods to suit the needs of the team.

Working through one method may reveal new information that will require rethinking outcomes and thinking from preceding work. It may also reveal knowledge gaps that will require follow up with relevant stakeholders (e.g. people in agriculture, mental health, water management etc.). This will help determine if the gaps are based on a lack of knowledge or awareness, if they are an inherent uncertainty in the system, or if further analysis is required.

The results can be recorded in a table, list or 'mapped' out. Although there are different ways to see the region, some agreement should be reached to progress the analysis.

Define the system (or sub-system) boundaries

Adaptation planning typically begins by identifying a boundary around a system of interest.

For these regional climate change adaptation strategies, the initial boundary setting has already been constructed as the six DELWP regions. Therefore, the first iteration of this step will be at the level of the whole region, thus the highest level of the strategy.

One method may simply be to discuss the question:

How do you see or think about the region? E.g. as different towns, landscapes, ' sub-regions'

The need for diverse perspectives will be crucial as different people and groups think differently about what constitutes the region, and therefore may identify, value and operate along very different boundaries. For example, they may understand the region based on culture, personal history, economic use, geologic features of places etc.

Defining and agreeing the boundaries of any ' sub-regional' areas will have to engage with and negotiate among all of these, and hopefully, will be the richer for it. It is also another way of enabling different groups of stakeholders to explore these 'sub-regions' or 'sub-catchments' and their adaptation challenges in more detail.

Collaborative system mapping in a workshop setting will help project teams develop a shared understanding of the regional system and of each other's perspectives. Systems-based adaptation works with complexity, using multiple sources of information to identify system components and subsystems, relationships between different parts, and key functions of the system.

The process stimulates learning together and learning from each other and is also essential for the development of a systems-thinking mindset and hence the effective management of risks and vulnerabilities.

The systems map will be a model of the system that can be created as a diagram. The diagram should highlight key features and their relationships within the system. The identification of these elements is a subjective process that will reveal the different 'mental models' and assumptions that are held by the group. This revealing can be a surprising and transformational process, as it is often only through seeing how others see a situation, that we can truly reflect our own understandings and assumptions.

The prior desktop analysis of existing regional strategies and plans will have provided insights about the system that could be used to do some initial pre-mapping and provide a shared starting point for the collaborative process to build upon. Be aware that the choices made through this process will develop one way of seeing the region, and that there are endless other potential ways, which can also change over time.

There are certain fundamental features of systems[2].

- **Boundaries**: that define the system as separate from its environment.
- **An environment**: rather than being seen as part of the system, instead considering how the environment influences the system and how the system influences it.
- **Subsystems**: systems within the system that contribute to its purpose. The subsystems will have their own subsystems so that they are a nested or hierarchical system.
- **Relationships**: between the subsystems, such that any changes to a subsystem or their relationships changes the behaviour of the system itself.
- **Purpose**: purpose of the system either by design or attribution.
- **Emergence**: a property that makes the system different from just a collection of individual parts.

There are different methods and approaches that can be used to undertake this process, and depending on the experience and skills of the team, expert facilitation may be required.

For techniques on the process of systems mapping see:

Wayfinder Guide Module B: https://wayfinder.earth/the-wayfinder-guide/creating-a-shared-understanding-of-systems-identity/system-components-structure-and-organization/

Kim, D., n.d. Systems thinking tools: A user's reference guide. Pegasus Communications Inc., Waltham, MA. https://thesystemsthinker.com/systems-thinking-tools-a-users-reference-guide/

Identify adaptation challenges

To assist in identifying adaptation challenges, one starting point may be to discuss the question:

How do you see the adaptation challenges – across the region and in relation to how the system has been defined above?

Another way to understand adaptation challenges is to discuss how different groups experience the current situation and how the current system contributes to the well-being of different groups of people or natural systems/ecosystem services. This may lead to an understanding about which groups benefit (and thus may aim for maintenance or resilience) and what may cause others to seek transition or transformation.

Further exploratory questions could include:

- What are the main issues and problems that different stakeholder groups have identified or are preventing them from reaching their aspirations?
- How do these issues influence each other and form adaptation challenges?
- What is the relationship between these issues and the broader functioning and future direction of the region/area? For example, how do they influence system benefits, such as water provision?
- What are important external drivers that influence the issues identified (e.g., climate change, deforestation, international markets, or new consumption patterns)?
- Are there any examples within the system or adjacent system where these issues have been resolved?

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Tool: Historical timeline

In building an understanding of the region, it is also necessary to apply a critical lens to the past, including considering what influential ideas, concepts, cultures, and assumptions have framed historical decisions and events.

The planning process is an opportunity to re-evaluate how problems and solutions may have been framed or how some framings have become dominant and maintained over time. It allows consideration of what can be re-framed and worked on differently to better address their root drivers. Reflecting on the past can help to further understandings about the multiple pathways and underlying drivers that have led to the current system in which adaptation challenges have emerged or been maintained.

One facilitation tool that can be used to reflect on the past is to develop a historical timeline for the region:

- Have a very long piece of butchers' paper up on the wall, with a pre-drawn line through its middle.
- Ask people to write or draw 'above the line', events that have occurred within the system (e.g. European arrival, droughts, increases or decreases in local population), and 'below the line', events that occurred outside the system/place/area/region but that had an influence on it (e.g. changes in legislation, start of the Landcare movement).
- After developing the timeline, people should share their stories about the timeline/their contribution to it, reflections on it, and the implications of their stories for adaptation.

This time line could be added to during each engagement phase. However it may get very detailed or too large to be manageable or summarised. The purpose of this method is stimulate discussion and raise further insights into the region/s as a system.

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Tool: The Water of Systems Change

The Water of Systems Change exercise is designed to help individuals think systemically about social change, explore what is happening below the surface, and determine how they and their organisations can pursue large-scale change in a disciplined and holistic manner[1].

Inspired by the well-known systems thinking 'iceberg' concept and 'Donella Meadows'[2] body of work, the Water of Systems Change exercise shows six interdependent conditions that typically play significant roles in holding a social or environmental problem in place.

These conditions exist with varying degrees of visibility to players in the system, largely due to how explicit, or tangible, they are made to most people[3]. To really change a situation requires engaging with mental models underlying/driving the current situation. Mental models, or how a problem or issue is framed (or represented), very often remain hidden from view. Implicit decisions about how an issue is framed have substantial planning implications. For example, they set up often unspoken norms or rules for the identification and selection of options to address an issue or problem.

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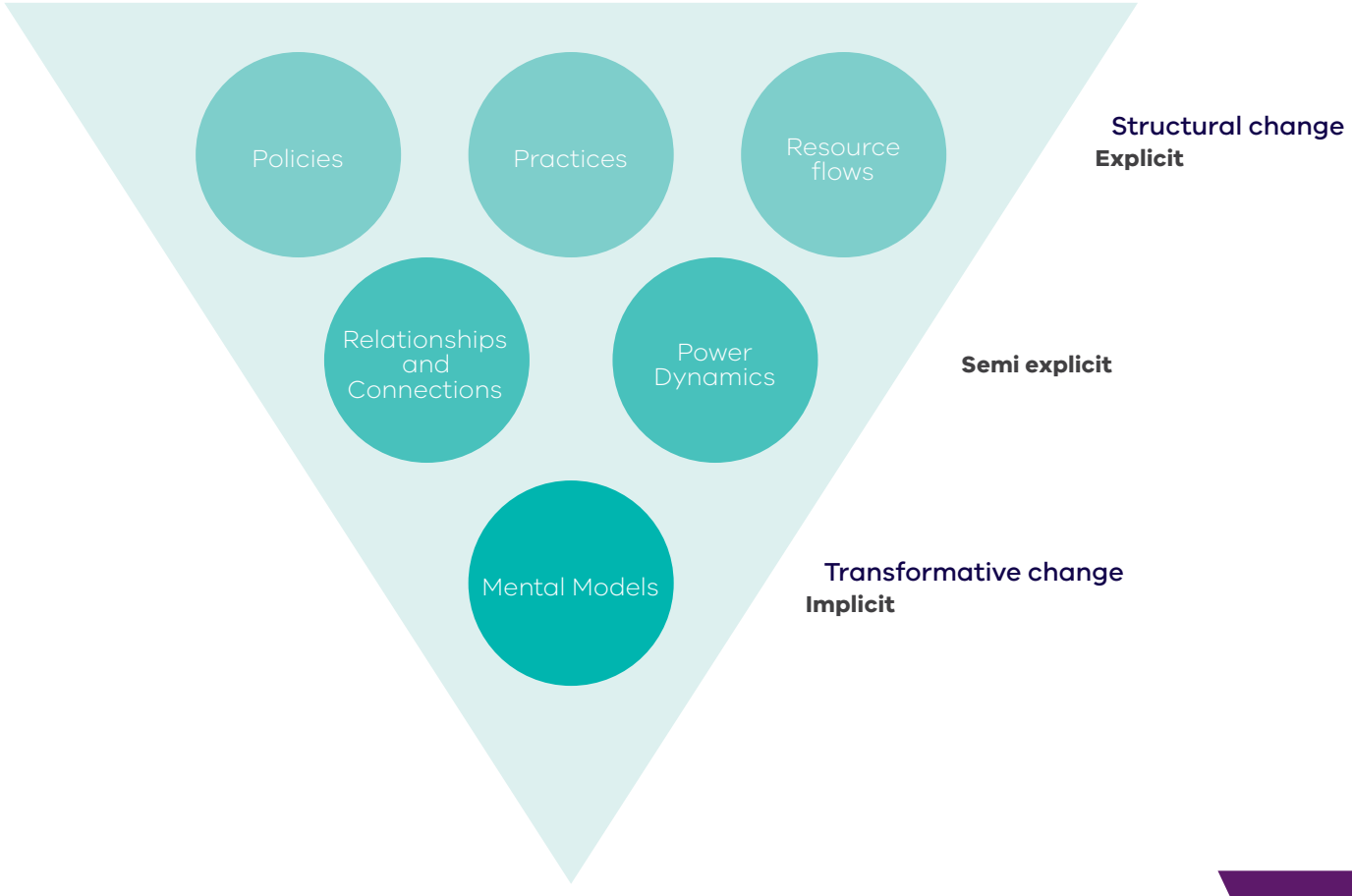
Figure 1. Six conditions of systems change[3]



Identify 'driving forces'

Driving forces are slow 'pushing' forces that build up and may act on a system over long periods (whereas shocks are short duration, extreme events with a fundamental impact on a system).

Identifying them helps to focus interventions on the causes of problems or issues rather than symptoms. It is another useful approach to informing an understanding of the region and its adaptation challenges. Documenting these helps to understand the drivers of the current situation and thereby, where adaptation actions might best be targeted.

Although there are many factors influencing complex systems and adaptation challenges, it is useful to try to narrow these down by identifying and agreeing on a small set of key driving forces (around 3-5). This can also make the task of identifying tipping points or interventions more manageable than trying to identify 'tipping points' for the entire region. One way to think about these 'driving forces' is to think about them as operating at three levels[4]:

- Observable events (e.g. individual event)
- Repeating patterns of events over time or space; and
- Systemic structures (relationships between different parts of the system, the distributions of resources and power, the rules and habits and ways of thinking etc)

For example, a driving force might be the level of political attention paid to climate change adaptation (a small change could see significant action and investment). At the level of observable events this could be a regulatory decision about a power plant; at the level of patterns, a series of regulatory decisions; and at the level of structures new laws, consumption patterns[5].

A table such as the one below might help capture understandings of these driving forces:

Driving force	How impacts/ influences the region	Factors that influence/ impact the driving force (possible categories)
		Policy/ies
		Practices
		Resource flows
		Relationships/connections
		Power dynamics
		Mental models/worldviews

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Scale up: 'external' driving forces

Using the driving forces identified above, the group could then 'take a scale step up' and work through responses to these questions:

- What are important scale levels above the region, that influence it? For example, if looking at agricultural systems in the region, this could be the national or international level, where policies are made that subsidy certain types of production, or commodity markets influence local prices for cereal crops.
- Are there known global or international regional (e.g. Asia-Pacific region) drivers of change that currently influence the trajectory of the region/area (e.g. climate trends, or financial investments in a specific sector, or changing dietary preferences)?
- How do these drivers affect the region? Do they produce sudden shocks or lead to gradual change?
- How do these drivers, stressors, and shocks affect different groups of people in the region?
- How do actions within the region aggregate up, and produce an effect beyond its border? For instance, through consumption patterns or fossil fuel use.

Again, documenting these can help understand the drivers of the current situation and thereby, what adaptation actions might need to address or operate within the context of.

Bringing it all together

Once the regional adaptation planning team and stakeholders have developed an in-depth understanding of the region as a system, the information can be brought together and documented so that it can be presented to stakeholders for further discussion and iterations of development including changes, extension or analysis.

It will also be used to develop a description of the region that will be included in the regional climate change adaptation strategy and provide part of the explanation as to how the development of the strategy was approached. To finish off this step, the regional adaptation planning team and stakeholders might consider the following questions:

- What do you think the region's role is in all of this?
- What does success look like for adaptation in the region, and for the regional climate change adaptation strategy?

Reflection/learning process

After completing this process, the following reflection questions should be asked of participants:

- What has been learned during this work about the planning process, the people, or region?
- Do insights from this work change what we know (or thought we knew) about the region or adaptation dilemmas?
- How have you documented what has been learned?
  - For example, did the process identify stakeholders that have not yet been involved in the planning? Do these people need to be engaged or invited into the process? How might they be approached and engaged?
- What implications does any new knowledge developed during this work have for the previous work – including the strategy's vision, objectives, goals and description of the region or sub-region?
- Who has participated? Who was missing?
- What options did different stakeholders have for participation and did the targeted stakeholders think these methods were appropriate, considerate, safe, etc? (e.g. timing, language, resources, culture, ability, power asymmetries, organisational priorities)?
- Were stakeholders fully engaged in the process? If not, why not and what can be done?
- Were there any voices that dominated or voices that were not adequately heard? What can be done to (re)address this?
- What worked well and did not work well?
- Were there unexpected outcomes?

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