Designing Policy to Change the use of Natural Resources

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KEY POINTS

Deliberating on policy design with clarity and precision is a difficult task. When it comes to complex policy, everything is important and everything depends on everything else. This can make it difficult to know where to start the policy design process and how to work through it. As a result, concerns about fairness are often introduced too early into policy design processes. This can result in confusion and a loss of focus on the policy objective, leading to inefficient and ineffective policy instruments and policy failure. Therefore it is important for policy designers, whether these are professional staff or multi-stakeholder groups, to focus on the right information at the right times and to improve their understanding of the people aspect of the policy problem.

For successful policy design some key points are worth noting:

- There is a fundamental structure to policy problems concerning the use of natural resources. This structure can be used to break the design process into three stages and to clarify the focus of each stage.
- The three stages in designing policy to change the use of natural resources are: choosing the best mix of uses; choosing an instrument to change use; and cost sharing. These stages hold for any policy design process, including collaborative processes, where deliberations can enrich each stage of this process.
- Effective policy design is based on understanding why natural resource users do what they do. The over-use of natural resources is primarily a people problem, not a science problem. However, most policy design processes emphasise the collection of information to analyse the science problem and underemphasise the systematic collection of information to analyse the people problem.
- Both professional policy designers and stakeholder representatives would benefit from strengthening their knowledge of people's motivation for using a natural resource the way they do.
- Collaborative stakeholder groups will bring mixed levels of policy design experience to the policy design table. Consequently, they need support in gaining a sound understanding of the policy design task and knowledge of the requisite design skills and tools.
- In collaborative processes professional policy designers (e.g. regional council staff) will need to be more explicit about the frameworks and tools they use to make decisions on policy choices, and possibly advocate for their use.

A design tool, the Policy Choice Framework, has been developed to help policy designers choose policy instruments to change the use of natural resources by landholders. The tool is based on acquiring a sound understanding of people's motivation in using natural resources and supports the second stage of policy design outlined in this policy brief.

INTRODUCTION

Deliberating on policy design with clarity and precision is a difficult task, even for professional experienced policy designers, primarily because, when it comes to design, everything is important and everything depends on everything else. This can make it difficult to know where to start the policy design process and how to work through it. However, there is a fundamental structure to policy problems and this can be used to break the design process into stages and to clarify the key factors of each stage.

Governments and communities create policy for two reasons. One is to improve efficiency, that is, the operation of the economy. This is justified so that we can all be better off by making the economic cake bigger. Changing the way the economy works means changing how people behave to correct a problem with the way the economy functions. The instruments we use to change how people behave include regulations, incentives, fees, and charges.

The second is to change the distribution of wealth in the community, that is, equity. This is about changing the way the economic cake is shared. Fairness is the justification for making these changes and we use instruments like income tax, unemployment benefits, and pensions to achieve this.

Natural resource policy is aimed at making the community better off by helping the economy function better or more efficiently. The way natural resources are used is changed, provided the economic, social, environmental, and cultural benefits of a change outweigh the economic, social, environmental, and cultural costs. The design of policy to regulate the use of natural resources is challenging because rights to use natural resources are valuable, complex, and contested.

Our understanding of how community engagement processes, such as collaborative processes, can be used to resolve competing interests between diverse stakeholders over the use of natural resources is improving. However, how such processes can be best utilised to design policy for regional plans is still unclear. In particular, while there is excellent literature describing different types of policy instruments and their strengths and weaknesses, there is little literature and few tools to provide guidance on processes that a diverse group of stakeholders can actually use to choose between these instruments. The Policy Choice Framework (PCF) is one of the few tools developed for this purpose (see Box 1).

This Policy Brief provides a simple description of the three fundamental stages in designing policy for natural resources and highlights the important criteria or factors for professional staff or stakeholder groups to consider when designing policy. We also outline how the PCF can support the policy design process.

THREE STAGES IN DESIGNING POLICY

There are three fundamental stages to the design of policy to change the use of natural resources: choosing the best mix of uses; choosing an instrument to change use; and cost sharing (see Figure 1).

STAGE ONE: CHOOSING THE BEST MIX OF NATURAL RESOURCES USE

The heart of many natural resource problems is that, in the absence of government intervention, anyone can use them. These resources are non-exclusive, as one person cannot prevent anoth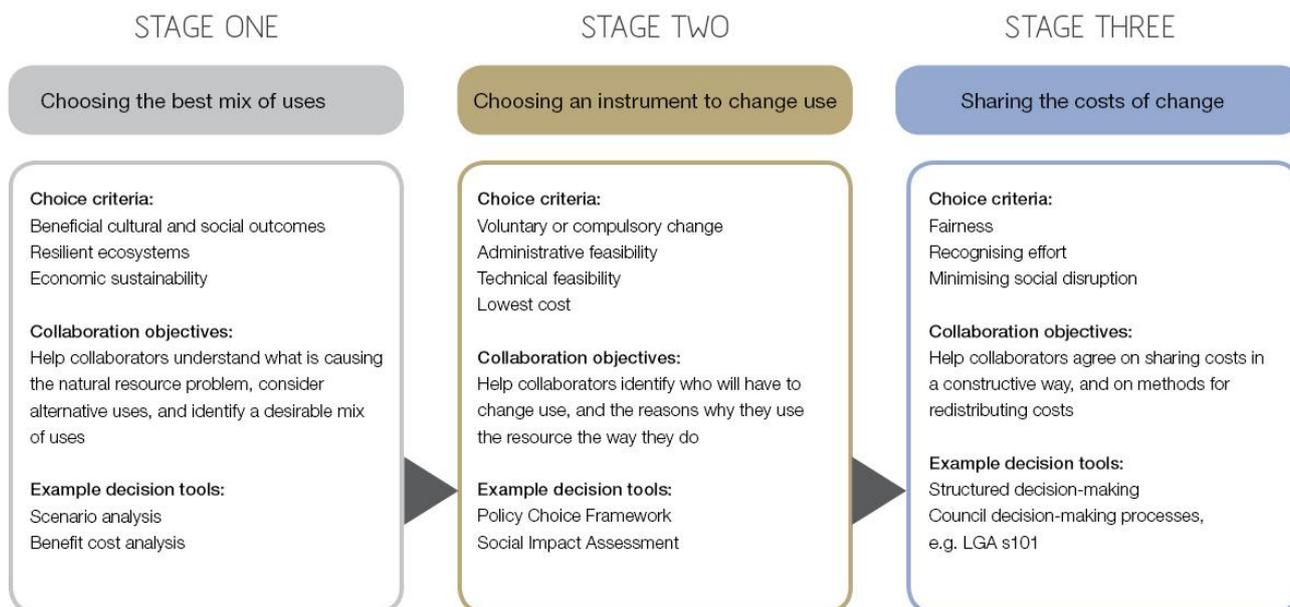er person from using the resource. This means that a person can use the resource in ways that create losses for other people (e.g. they can no longer use the resource) and that person doesn't pay for the loss they create. As a result, natural resources can be over-committed to particular uses. This misallocation of resources means the wealth and well-being of New Zealanders is actually lower than it could be; which is why governments intervene and change how natural resources are used.

Therefore, the first stage in designing policy is to decide on the most desirable mix of competing uses for the resource. This involves finding a balance among stakeholders in their preferences for resource use. Criteria can be developed for deciding on this resource use mix, which may be expressed in terms such as beneficial cultural outcomes, resilient freshwater ecosystems, and economic sustainability.

This stage involves making decisions about tradeoffs between *uses* of the resource, not individual *users*. This stage should be the initial focus. The assessment of whether to intervene to change natural resource use depends on whether the benefits from intervening are judged to outweigh the costs. This choice is made in the first stage of policy design and there are a number of tools that may be used in making this judgement (see Figure 1). For example, tools such scenario analysis and benefit cost analysis may be employed to identify feasible combinations of uses of a natural resource and the different economic benefits and costs associated with each combination.

This stage may need to be revisited once more is known about how changes in resource use can be achieved (stage two), what the costs of change will be, and how those costs might be shared (stage three).

Figure 1. Three stages in policy design and examples of applicable criteria, collaboration objectives and potential tools for each stage

STAGE ONE

Choosing the best mix of uses

Choice criteria:
Beneficial cultural and social outcomes
Resilient ecosystems
Economic sustainability

Collaboration objectives:
Help collaborators understand what is causing the natural resource problem, consider alternative uses, and identify a desirable mix of uses

Example decision tools:
Scenario analysis
Benefit cost analysis

STAGE TWO

Choosing an instrument to change use

Choice criteria:
Voluntary or compulsory change
Administrative feasibility
Technical feasibility
Lowest cost

Collaboration objectives:
Help collaborators identify who will have to change use, and the reasons why they use the resource the way they do

Example decision tools:
Policy Choice Framework
Social Impact Assessment

STAGE THREE

Sharing the costs of change

Choice criteria:
Fairness
Recognising effort
Minimising social disruption

Collaboration objectives:
Help collaborators agree on sharing costs in a constructive way, and on methods for redistributing costs

Example decision tools:
Structured decision-making
Council decision-making processes, e.g. LGA s101

STAGE TWO: CHOOSING AN INSTRUMENT(S) TO CHANGE NATURAL RESOURCE USE

Having identified the desirable mix of uses, the second stage is choosing an instrument, or package of instruments, to achieve the change in resource use. This stage involves finding a way to change who uses the resource, and how they use it.

Finding effective and lowest-cost instruments requires knowing who uses the resource (farmers, foresters, energy generators, water suppliers and others), how they use it (practices), and why they use it the way they do. This information provides insights to questions such as how many people can change, how they must change, how much it might cost them to change, and how quickly they can change.

Effective policy design and implementation is based on understanding why natural resource users do what they do. The over-use of natural resources is a people problem, not a science problem. However, most policy design processes collect information to analyse the science problem, rather than the people problem. The design of policy to match how people use a resource is rarely conducted in a systematic way. Therefore, effort needs to be directed at matching policy instruments to peoples' motivations and behaviour.

This stage involves making decisions about how to change the behaviour of individual users. One key consideration is whether enough people will volunteer to change (voluntary change) or whether people need to be compelled to change (compulsory change). Another is whether an individual's use of the resource can be measured or estimated. Some instruments like incentives, charges, and cap-and-trade schemes only work if there is some way of measuring or estimating a person's use of the resource.

There are tools that may be used in making decisions about how to change the behaviour of individual users (see Figure 1). For example, tools such the PCF may be employed to identify a set of feasible instruments for changing behaviour.

The PCF (see Box 1) was developed to assist policy designers, whether they are professional policy designers like regional council staff or a collaborative stakeholder group, with this stage of the process. In particular, it helps people:
- identify how the resource use is creating problems and the justification for taking action for correcting the problem
- correctly separate factors for choosing a policy instrument to change resource use from factors for sharing the resource among different uses and sharing the cost of changing resource use

- decide what policy instrument(s) are most likely to succeed using knowledge of, for example, farm and forestry systems and farm and land use context to assess how people must change, how many must change, and how quickly they need to change
- use information on what can be measured/estimated to decide which policy instrument(s) may be feasible
- consider and compare the consequences for policy success of using voluntary or compulsory change

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Box 1: The Policy Choice Framework

The Policy Choice Framework (PCF) is a tool to help people think about and debate policy design options when they are choosing a policy instrument for changing natural resource use, particularly in relation to agricultural use. It was developed to help policy designers with stage two of the design process.

The PCF is composed of a number of inter-related decision trees[1] that are structured to assist policy designers choose a policy instrument(s). The PCF trees provide a means for designers to start the instrument choice process by helping them correctly identify the source of non-exclusiveness[2] in resource use. This helps identify what kind of change is to be sought in farmer behaviour or other resource users and the policy instrument(s) that is most likely to achieve the desired behaviour change.

Having identified a policy instrument(s), the reactions of landowners and other resource users to the instrument may be considered and, if necessary, modifications made to the instrument. Finally, institutional and agency factors, such as whether a regional council or government agency has the resources or skills to implement the policy successfully, are considered.

A primer describing the PCF and its application in further detail is available at
http://www.landcareresearch.co.nz/__data/assets/pdf_file/0010/77608/pcf_primer_v8_2.pdf

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Notes:

1. A decision tree is a picture, graph or model consisting of nodes (decisions) and branches (answers). They represent a sequence of related decisions. While council planners do not commonly use decision trees, they can support the work of planners by making explicit in a systematic way their decision-making process and allow them to keep track of their rationale for choosing the policy instruments they do.

2. That is, the reason why one person cannot prevent another person from using the resource (see stage one).

STAGE THREE: SHARING THE COSTS OF CHANGE

Having identified the desirable mix of natural resource use and chosen an instrument(s) to achieve that mix, the third stage is deciding how the cost of changing resource use should be shared among resource users and the broader community. This stage is about deciding what, if any, compensation will be given to those users who will experience losses from changing their resource use (and who will pay). Depending on circumstances, the decisions in this stage may lead to modifications to the instrument chosen in stage two, or the development of complementary policy instruments designed specifically to redistribute the costs of change.

The consideration in this stage is fairness such as recognising any beneficial efforts already made by individuals in how they use natural resources and minimising social disruption and other social impacts. There are a number of tools that may be used in making this judgement (see Figure 1). For example, tools such as structured decision-making and Local Government Act (LGA) processes may be employed to identify acceptable ways of sharing the costs of change, including the distribution of benefits, contribution to the desired outcome, and which parties contributed to the natural resource problem (LGA s101).

Understanding and agreeing on community preferences for sharing the costs of changing resource use is challenging and often conflicted. An impasse at this stage may mean that decisions made in stages one or two need to be reconsidered.

Examples of the three stages in policy design are presented in Box 2. The examples are based on the Lake Taupō Cap-and-Trade Scheme.

Box 2: Lake Taupō Cap-and-Trade Scheme – An Example

The three stages in policy design can be illustrated using the Lake Taupo cap-and-trade scheme.

Water quality in Lake Taupo is excellent but at risk of declining due to the sensitivity of the lake to nitrogen. Levels of nitrogen had increased as a result of farming and to a lesser extent human wastewater disposal. In the first stage of policy design the Waikato Regional Council determined that the communities preferred mix of uses was to continue recreational activities and tourism, and to protect environmental and cultural values, rather than allow the Lake to absorb increasing nitrogen emissions from agriculture.

In the second stage the Council, in consultation with iwi, landholders, and other stakeholders, determined that a cap-and-trade market in nitrate emissions was the preferred policy instrument to change landholder behaviour and control the use of the assimilative capacity of the Lake by agriculture. Diffuse nitrogen emissions from each property were subject to new rules in the Waikato Regional Plan.

In the third stage, the Council resolved that the most equitable manner for sharing the cost of reducing nitrate emissions from agriculture was to:

- Allocate discharge permits on the basis of estimated historical emissions. The Council believed farmers who had developed their land in good faith in the absence of regulation were not to be penalised. Farmers noted this meant they bore ongoing costs of living within a cap or limit; and
- Additional costs of meeting the long-term nitrogen cap were shared among taxpayers and ratepayers. A public fund was established to buy permits until the volume of allocated emission permits was reduced to the cap.

As of 2015, all farmers are in compliance with the new rules, and permanent and temporary trades of nitrogen have occurred. The public fund has achieved its target and is being wound up.

The Lake Taupo cap-and-trade Scheme is described in further detail at http://www.waikatoregion.govt.nz/tr201334/

POLICY DESIGN AND COLLABORATION

Traditionally, a consultative approach has been taken to policy design in natural resources:

- Information about the nature of the policy problem and potential solutions is sought from stakeholders and relevant experts
- Skilled professionals who strive for impartiality, and are experienced in designing policy, analyse the information and formulate a policy design or designs
- Relevant authorities then decide on the final policy design.

The consultative approach is based on the assumption that a dedicated group of skilled, impartial specialists are most efficient at developing policy. In this context, impartial means the interests of any particular stakeholder will not be favoured over another when identifying and consulting with stakeholders, when determining what expert information is needed, and when developing a suite of policy options.

Critical to the success of the consultative approach is the breadth and depth of consultation with stakeholders. Important information may be missed if this process is not adequate. Some stakeholders may still respond unfavourably to the final policy design, irrespective of the consultation process.

In recent years, collaborative approaches, as proposed by the Second Report of the Land and Water Forum (LWF 2012) and signalled in the upcoming Resource Management Act (RMA) reform (Smith 2015), to developing natural resource policy, freshwater in particular, have become more widely used. Collaborative approaches to policy design can be characterised as:

- Being deliberative in nature, where deliberations are undertaken with as many of the interests in the same room as possible
- The results of these deliberations are made available to other interested parties in a timely and transparent way
- Information about the nature of the policy problem and potential solutions is available to stakeholders and may be sought from relevant experts
- Stakeholders who are sector advocates and/or community representatives (with mixed levels of experience in designing policy) share their information and formulate a policy design or designs, aiming to generate consensus on as many issues as possible and being explicit about any areas of disagreement
- Relevant authorities may then decide on the final policy design, attempting to implement the recommendations of the collaborative group to the maximum extent possible.

The collaborative approach is based on the assumption that a dedicated group of stakeholders, each representing particular values and interests, are best able to advance the resolution of these competing interests as policy is developed. In theory, a group of stakeholders with the appropriate diversity of knowledge and experience can advance the resolution of conflicting interests between themselves and negotiate more successfully amongst themselves.

The success of collaborative approaches depends on:

- having sound processes that encourage stakeholders to freely supply their knowledge and opinions and encourages them to negotiate honestly. Some stakeholders may withhold important information and negotiations may not reach sufficient agreement, irrespective of the soundness of the facilitation process. Regardless of the quality of the collaborative process, some or all stakeholders may still be critical of the final policy design
- providing stakeholders with a sound understanding of the policy design task and with knowledge of the requisite design tools and skills. How policy design proceeds, and the tools used in that process, then becomes the shared territory of the collaborative parties and the decision-making authorities.

This means professional policy designers, such as regional council and iwi planning staff, play a critical role in the success of collaborative approaches. For instance, planners must be able to articulate the design task facing stakeholders who may not have experience in RMA planning, but who are charged with the task of developing policy instruments such as limits, methods and rules for a statutory plan.

COLLABORATION AND THE THREE STAGES IN POLICY DESIGN

The three policy stages are also relevant for the deliberations within collaborative processes. In the first stage of policy design, deciding on the best mix of uses for the resource, collaborative processes can particularly contribute to:

- establishing desirable outcomes and their attributes
- gathering information on how the resource is currently used
- considering alternative *uses* of the resource, identifying a desirable mix of uses, and describing the impacts on resource users.

Collaborative processes assume that people most affected by changes in resource use have important knowledge to share about the resource and its use. Consequently, in the second stage of policy design, collaborative processes can particularly contribute to:

- identifying who will be affected by changes in resource use
- helping discover why people use the resource the way they do
- determining how they will be affected

- learning how best to inform those people who will need to change
- learning how to work most constructively with people who will need to change
- identifying any unintended impacts of the policy on people who will need to change.

Collaborative processes can contribute to deliberations in the third stage by:
- identifying community preferences for sharing the costs of changing resource use
- providing a constructive means for collective decision-making about the sharing of costs
- identifying and making explicit areas of disagreement among stakeholders.

Naturally, stakeholders may find it difficult to agree on how the costs of change should be shared. Within a collaborative process decisions about sharing costs can be advanced collectively, in a transparent, justifiable, and constructive manner. These decisions should be based on a sound understanding of the motivations of resource users and an in-depth understanding of how different instruments create gains and losses for some people. Areas of disagreement must be made explicit and, where appropriate, referred to the final decision-making authorities.

CONCLUSION

Deliberating on policy design with clarity and precision is a difficult task. When it comes to design, everything is important and everything appears to depend on everything else. This can make it difficult to know where to start the policy design process and how to work through it. As a result, in many situations concerns about fairness are introduced too early into policy design processes. This frequently results in confusion and a loss of focus on the policy objective and can lead to the selection of inefficient, often ineffective, policy instruments. Almost inevitably, the outcome is policy failure.

To help policy designers in their task we have, in this policy brief, broken the design process into three separate stages. We have described and clarified the key decisions and considerations in each stage. Each stage should be treated as independently as possible as different factors are important when making choices in each stage. We also outlined how the Policy Choice Framework might be of help to stakeholders in the second stage of the policy design process to choose an instrument to change resource use.

REFERENCES

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