

**Task
3.2**

Design a portfolio of interventions

Task 3.2.2 Evaluate pathways to climate resilience

What is this task about?

This task consists of evaluating the performance of the adaptation pathways you have formulated in Task 3.2.1 against the secondary resilience objectives (Task 1.1.2) and to ensure that they remain flexible, consistent, feasible, robust and effective in terms of their adaptation performance across the planning time horizon. The evaluation provides an explicit indication regarding how well your various alternative pathways will help to achieve your shared vision (Task 2.3.1) and in accordance with your Theory of Change (Task 2.4.1). The task reveals which pathway alternatives best achieve both the primary adaptation and secondary resilience objectives, as well as which ones can perform and adapt best your specific context considering the planning uncertainties. The resulting few prioritised (i.e. preferred) adaptation pathways become the core of your Climate Resilience Strategy. Be sure to engage your stakeholders in the evaluation processes as per your stakeholder engagement strategy (Task 2.1.1).

Evaluating your pathways consists of:

- **Selecting an evaluation methodology** (e.g., scorecards, multicriteria analysis, etc.) and associated evaluation criteria with which to prioritise your preferred set of adaptation pathways.
- **Reaching an agreement** on the relative importance of each criterion and its associated indicators (i.e., weighting).
- **Ranking your adaptation pathway** alternatives according to their integrated performance/impacts to select a few preferred pathways, to be included in your Climate Resilience Strategy.

Why is it important?

Carrying out an evaluation of your adaptation pathways allows you to filter the potentially large number of potential pathways (developed in Task 3.2.1) and prioritise a more manageable number of best performing ones for inclusion in your Climate Resilience Strategy. Performing the evaluation also ensures that the preferred pathways not only allow you to achieve your prioritised primary adaptation objectives, but also perform as desired in terms of your secondary resilience objectives and other relevant evaluation criteria. This allows you to prioritise those pathways best capable of adapting to the uncertain climate and socioeconomic conditions that may emerge, and thereby stimulate your region's transition towards its shared vision and climate resilience.

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How can you complete it?

As per the previous task, you can evaluate your pathways using qualitative, semi-quantitative or quantitative methods. Whichever method is selected, this involves stepping through the following activities. The engagement of stakeholders in pathways evaluation activities is critical to ensure broad agreement for and ownership over the Climate Resilience Strategy.

- **Select the preferred pathways prioritisation methodology and associated evaluation criteria:** determine which evaluation methodology you will use to evaluate your alternative pathways. Common methodologies include Multi-Criteria Analysis, Social Return of Investment, Cost-Benefit analysis, Cost-effectiveness, Social return of investment (SROI), or a combination of these. The criteria to include in your methodology should evaluate the performance of the pathways in terms of your broader resilience objectives, as well as additional criteria relating to their implementation and delivery (either drawn or amalgamated from the set of options evaluation criteria from Task 3.1.2. e.g. costs, adaptivity, implementation feasibility, transitional qualities).
- **Evaluate the performance of pathways alternatives:** against the specified set of evaluation criteria using your selected methodology. This should highlight the inherent synergies and trade-offs present in each of the pathways in terms of achieving the planning objectives and transitioning your region towards its vision.
- **Rank the overall performance of each pathway alternative:** by aggregating the results of the individual evaluation criteria for each pathway and ranking their comparative abilities to improve your region's resilience.
- **Select the best performing pathways and visualise them in a simplified pathways map**

Further detailed technical guidance on completing this task, along with useful tools and methods, can be found in **Appendix D14**.

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What are key inputs for the task?

- Updated problem framing (Task 1.1.2)
- Shared vision for climate resilience (Task 2.3.1) and the
- Theory of Change (Task 2.4.1)
- List of adaptation pathways alternatives (Task 3.2.1)

What are the expected outputs?

The key outputs from this task are a limited set of preferred adaptation pathways (i.e., 3-4 pathways) to include in the Climate Resilience Strategy for implementation. Each of these pathways should achieve the identified primary adaptation objectives, as well as performing sufficiently well against the remaining secondary resilience objectives and criteria. The preferred pathways serve as inputs to Task 3.3 of the Adaptation Investment Cycle guidance to develop the necessary Investment Strategies to mobilise the associated finance.



Before moving on, have you...

- ☐ Evaluated your set of alternative pathways against their abilities to achieve the integrated set planning objectives and other associated evaluation criteria?
- ☐ Identified 3-4 best performing pathways to be included in the Climate Resilience Strategy?
- ☐ Visualised the best performing pathways for communication to stakeholders?

D14.

Task 3.2.2 Evaluate pathways – Technical guidance on how to complete

You can complete this task using qualitative, semi-quantitative, or quantitative methods. The methods you have previously applied during tasks 1.3.1 (risk assessment) and 3.2.1 (risk-assessment of options and pathways) will inform the extent to which you can quantify your pathways evaluation. Completing the first activity of this task determines the evaluation method that is appropriate to your decision context.

You evaluate your pathways by stepping through the following activities.

Identify the preferred pathways prioritisation methodology and associated evaluation criteria:

Determine how you will evaluate your pathway alternatives. Multi-criteria analysis is most often used, as it can be applied to either qualitative, semi-quantitative or quantitative analyses. However, more quantitative (or hybrid) approaches are also possible; for example, undertaking a full cost-benefit analysis or incorporating cost-effectiveness information. Within the Regional Resilience Journey, we anticipate cost-benefit analysis being applied to your Action Plan, such that we recommend more qualitative or semi-quantitative methods for your evaluation here.

If you have formulated your pathways according to the Task 3.2.1 guidance, each pathway should be capable of addressing your climate risks against your planning time horizon more or less equivalently. Hence, there is not a need to evaluate the performance of your pathways against your primary adaptation objectives. The focus of this evaluation is rather on the impacts of your alternative pathways on your secondary resilience objectives, as well as any additional criteria relating to their implementation and delivery (either drawn or amalgamated from the set of options evaluation criteria from Task 3.1.2. e.g. costs, adaptivity, implementation feasibility, transitional qualities).

For example, the degree of uncertainty you are confronting may mean that you wish to prioritise more flexible pathways, while in other instances, you may wish to prioritise more transformational, robust and/or path-dependent adaptations. This then allows you to evaluate the various trade-offs present between your alternatives and the relative abilities of your pathways to most effectively build towards achieving your shared vision.

Your evaluation methodology is therefore dependent on the type and amount of information you have available to measure your adaptation pathways against these criteria. If you have been able to quantify the impacts of your options and pathways, then more quantitative methods may be appropriate.

You also need to decide how and when you are going to involve your stakeholders in the pathways evaluation. Stakeholders can be involved in any (or all) of the following activities. Stakeholder engagement is compatible with either qualitative, semi-quantitative or quantitative methods, although their contribution may be larger when undertaking qualitative analyses.

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Evaluate the performance of pathways alternatives: Evaluate the performance or impacts of each alternative pathway against each specified indicator/criterion.

Qualitative analyses

A simple way to perform qualitative analyses is to use a simple multi-criteria scorecard. In the scorecard, you can relatively score the effects of each pathway using '+' or '-' symbols, or similar. Multiple plusses (e.g. '++', '+++') can indicate stronger positive impacts, while multiple minuses (e.g. '--', '---') can indicate stronger negative impacts. Assign a special symbol ('0', or an empty space for example) to pathways that lead to no discernible impacts on a specific indicator. You can also choose to qualify your scores with additional information as relevant, although your objective is to be able to easily compare your scores between the alternative pathways. An example scorecard evaluating the performance of four alternative pathways is shown below.

Scores can be assigned to the pathways for each indicator in different ways. One approach can involve expert judgement, often supported by findings from the literature and past experience in your region. You will likely also want to consult relevant stakeholder groups during this evaluation. This can be achieved through participatory approaches, for example, via either a workshop setting or individual consultation (e.g., consult environmental groups to assess the environmental impacts of pathways, etc.).

Semi-quantitative analyses

In semi-quantitative analyses, you apply a more traditional weighted multi-criteria analysis. Score each pathway against each criterion against a common scale relative to the other pathways. In this approach, the scores can again be based on

thway alternative	Costs	Environmental impact	Feasibility	Sustainability	Transformative potential
Pathway 1	+	--	++	0	0
Pathway 2	-	+	--	+	+
Pathway 3	0	+	+	0	-
Pathway 4	-	+	0	+	++

expert judgement as with qualitative evaluations, or rather be informed by more quantitative calculations/modelling for all or some impacts. In the above example, pathway, 'Costs' scores could for example be established by calculating the approximate capital and operational expenditure required to implement the measure. For relative emissions, you could use calculations of each pathway's 'net carbon emissions' to inform the scores. When scoring the criteria, be sure to involve your stakeholders in the process to ensure legitimacy of the evaluation results.

Quantitative analyses

In quantitative analyses, either the directly calculated outputs for each criterion can be listed and compared directly, or these can serve as inputs to a weighted multi-criteria analysis as above. These types of analyses typically rely on extensive computer modelling, in which domain- and sector-specific models may need to be applied. Different models may be needed for the calculation of different indicators. Only undertake these types of evaluations if the quantification is going to significantly impact the decision taken. In other words, will the additional precision lead to a different decision? Stakeholders should also be engaged in the evaluation, but more in terms of validating the modelled outputs.

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Determine the overall performance of each pathway alternative:

Having scored the impacts of your pathways against each indicator, determine its overall performance across all indicators. In more qualitative analysis, this can take the form of a sensemaking exercise (e.g. 'Based on these scores, I intuitively feel that pathway 2 is better than pathway 1, pathway 4 is better than pathway 3, and pathway 4 is better than pathway 2', in the scorecard above), while in semi-quantitative and quantitative approaches, each criterion can have weights assigned to it before calculating the combined effects of each pathway against the entire set of criteria:

$$X_{\text{pathway}} = \sum_{i=0}^n (w_i \times x_i)$$

Where,

X_{pathway} = Total score for a given pathway

w_i = Assigned weighting for criterion i

x_i = Assigned score for criterion i

If each criterion is valued equally, you can use a common weighting or simply average the individual criterion scores for each pathway. More commonly, different weights are assigned to the criteria, which need to be determined in consultation with your stakeholders to ensure the legitimacy of the derived results. Keep in mind that different stakeholder groups may have different priorities and preferences; your goal is to make sure that the final weighting is accepted by all stakeholders. Depending on stakeholder preferences, you can also set stricter selection criteria for the pathways, for example by excluding those pathways with any negative environmental impact, or only including pathways that are evaluated to be 'sustainable', etc.

Select the best performing pathways and visualise them in a simplified pathways map: Based on the results of the evaluation, make a final selection of the pathways to include in your Climate Resilience Strategy. These will be the 3-4 'best' performing pathways, taking into consideration your evaluation results. Ideally, your preferred pathways will stem from the same set of (preferably low- or no-regret) short-term adaptation options, as these will be the set of options that your region will include within its Climate Resilience Investment Plan. In the mid- longer-terms, multiple pathways should still be possible depending on the set of conditions that emerges. Make a note of any dependencies or potential lock-ins present within your preferred pathways, alongside any critical key decision moments.

As with the previous activities, involve your stakeholders in the final selection of preferred pathways. This is most usefully achieved via a workshop setting, in which stakeholders can discuss the results of the evaluation, revise these if necessary and agree on their preferred pathways. Visualise the preferred pathways in the form of pathways map using the same techniques described in Task 3.2.1.



Supporting resources:

Useful tools

- Policy credibility assessment tool

Useful methods

- Multi-criteria analysis (MCA)
- Cost-Benefit Analysis (CBA)
- Pathways evaluation workshop
- Pathways evaluation surveys