



Determining Cost Share in a Government/Industry Agreement

(Updated to include feedback from Design Workshop 3 – Nov 2010 and
Minister for Biosecurity Announcement – June 2011)

June 2011



Ministry of Agriculture and Forestry
Te Manatū Ahuwhenua, Ngāherehere



DETERMINING COST SHARE	1
1. Purpose	1
2. Proposed cost share calculation process	1
2.1 Principles of Cost Share Calculation	1
2.2 Recommended Cost Share Model: Splitting Costs According to Ratio of Benefits	2
Step 1: Agree final priority risk organisms	2
Step 2: Jointly agree on the biology of the risk organism	3
Step 3: Jointly agree scenario and organism impacts	3
Step 4: Value the benefits of avoiding the impacts	4
Step 5: Agree final cost share	4
Step 6: Record cost share in Operational Agreement	6
Appendix 1	7

DETERMINING COST SHARE

1. PURPOSE

This paper outlines the proposed process for calculating a cost share for each priority risk organism identified by industry and MAF. It has been amended following feedback at the design workshop in November 2010.

2. PROPOSED COST SHARE CALCULATION PROCESS

This paper focuses on outlining the process for calculating and agreeing a MAF/Industry cost share for each priority risk organism.

It is important to note that agreeing to the cost share does not commit either party to committing funds to specific readiness or response activities - decisions around how much money to invest and in what programme, occur after the cost share is calculated.

2.1 Principles of Cost Share Calculation

- The proportion of public benefit relative to industry benefit will determine the cost shares of readiness and response
- Where two or more industries benefit from a readiness or response activity the industry portion of costs will be shared amongst them.
- Where possible one cost share will be set per risk organism. This will apply to all readiness and responses for that organism.
- Cost share categorisation is not revisited based on the actual response event.

MAF assessed a number of different options for determining cost shares. Outlined below is the recommended approach, which reflects industry feedback from the Design workshop in Nov 2010. In this approach a mixture of quantitative and qualitative analysis is carried out to determine a ratio of public to private benefits.

An alternative approach using qualitative benefit analysis only was also considered. This approach was broadly based on the Australian model which uses an intuitive qualitative assessment of the impacts based on the 'importance' of the impacts to both industry and government. It uses a number of qualitative screens in a high level decision tree to determine the final cost share.

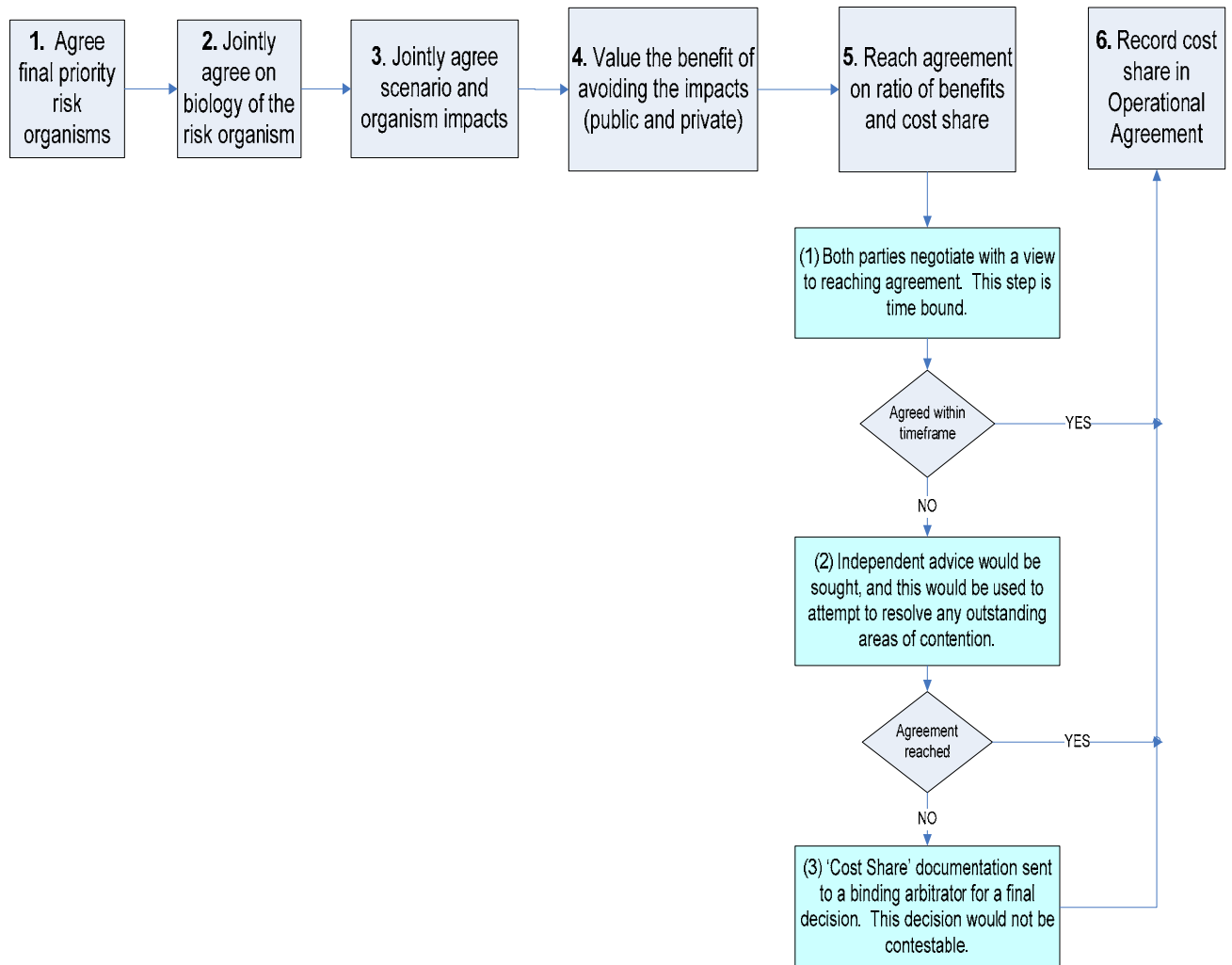
This option had some shortfalls particularly around the in built tendency for the model to elevate the cost share for industry based on the relative importance of a pest to them - even though the actual dollar impact may have been significantly smaller than the corresponding public assessment.

The recommended approach addresses these shortfalls.

2.2 Recommended Cost Share Model: Splitting Costs According to Ratio of Benefits

The diagram below outlines the process for determining cost shares based on an analysis of benefits using a mixture of quantitative values (NZ dollars) when known and qualitative statements, when it is difficult to value a benefit in dollar terms e.g. value of an iconic bird such as kiwi.

A detailed description of each step follows.



Step 1: Agree final priority risk organisms

As part of the High Level Work Plan process, MAF and industry identify the priority risks and use this to agree which risk organisms to calculate a cost share for.

Where one risk organism affects several industries, all industries will need to be involved in the cost share calculation process for that organism.

Step 2: Jointly agree on the biology of the risk organism

MAF and industry research the scientific information available for the risk organism and agree on the basic biological facts to be used throughout the process. For areas where science is unknown or divided, the two parties will agree on the position to be used for cost share calculation.

Step 3: Jointly agree scenario and organism impacts

In order to ensure the process is simple and clear, it is important that the scenario used for the benefit valuation is consistent for all cost share calculations.

It is proposed that the benefits are calculated based on the following scenario:

The organism has spread to its full possible range within New Zealand, no joint response has taken place and minimal management options have been implemented.

MAF and Industry will jointly agree (based on the organism biology) the public and private impacts that would occur in the above scenario.

Example: Asian Gypsy Moth

Impacts may include:

For Horticultural Industries:

25% of trees are infected

10% of infected trees die

For surviving trees there is a yield loss of 19.5%

Additional hygiene measures to ensure export can occur

Treating packaging

Cleaning transportation

Inspection of goods before exporting

For Forestry:

Less than 1% of trees are infected

For infected trees there is a yield loss of less than 1%

Additional hygiene practices are required to continue to export to some countries which may not accept the existing fumigation regimes:

10% of exported logs need to be treated with methyl bromide instead of phosine

Public Impacts:

60% of household trees are infected and 40% of trees in open spaces are infected:

Defoliation and loss of trees:

Reduced enjoyment of garden and open spaces, household gardens have a reduced yield of fruit

10% of affected trees die

Public nuisance:

Droppings from caterpillars

Moths massing on buildings

Egg masses on cars

Health impacts:

Itchiness in humans on contact with caterpillars

Please Note: These are example impacts only - these need to be identified and agreed by the affected parties.

Step 4: Value the benefits of avoiding the impacts

MAF will independently calculate the value of the impacts to the public and non-signatories and industry will independently calculate the value of their impacts as identified in step 3. Costs will be calculated for one year and will assume the scenario is occurring today.

A variety of well accepted methods can be used to value benefits, including but not restricted to:

- Market prices / opportunity costs;
- Hedonic pricing; and
- Benefit transfer.

See Appendix 1 for further information about these methods.

There are particular challenges in valuing public benefits such as reduced enjoyment of garden and open spaces. Where public benefits are difficult to quantify it is proposed that recognised economic techniques are used to at least provide a minimum value. Statements are then developed to reflect the impact on public benefits where it is not possible to generate a dollar value.

Using the industry impact, the value of each of the cost share buckets is calculated. MAF looks at the bucket valuations and determines which one is most likely to represent public benefit (estimated dollar value plus the qualitative statement). MAF will need to detail its evidence for that valuation, i.e. why that valuation is most likely and not one of the other valuations.

The cost share associated with this valuation is selected and agreed with the signatories through the standard process.

Step 5: Agree final cost share

The design workshop supported the proposal that broad buckets were used rather than a point by point ratio.

Using buckets rather than using a point to point ratio has advantages because:

- It is easier to generate cost shares when information is limited;
- The debate is focused on the more substantial issues rather than having long debates over specific numbers
- The final cost shares are less precise but easier to agree.

Based on feedback from the workshop the proposed buckets are as follows:

Government (%)	Industry (%)	
100	0	Which by definition then falls outside of scope for GIA)
90	10	
70	30	
50	50	

Note: The workshop participants noted that there was always some public benefit and therefore 100% industry was not possible. The 100% industry category has therefore been removed from the table.

Note: The table reflects the minimum Government cost share of 50% towards activities under the GIA in response to industries' concerns following the announcement from the Minister for Biosecurity in June 2011.

To identify the relevant cost share bucket:

- Take the estimated impacts of the pest on the public and on industry;
- Calculate the percentages;
- Use the calculated percentages to align with the appropriate cost share bucket.

Percentage Range		Cost share bucket	
Gov	Industry	Gov	Industry
100% to 95%	< 5%	100%	0%
94% to 80%	6% to 20%	90%	10%
79% to 60%	21% to 40%	70%	30%
59% to 40%	> 41%	50%	50%

Reaching a final decision on cost categorisation

All parties recognised the importance of having an agreed method for reaching a final decision on cost categorisation within a reasonable timeframe. Feedback from the workshop supported the following cascading decision process:

1. Both parties negotiate with a view to reaching agreement. This step is time bound. The time limit for completion is set by mutual agreement at the beginning of the process.
2. If agreement is not reached within the agreed timeframe then independent advice would be sought, and this would be used to attempt to resolve any outstanding areas of contention.
3. If agreement is still not reached the cost categorisation would be sent to a binding arbitrator for a final decision. This decision would not be contestable.

The cost associated with seeking independent advice/arbitration would be split equally between all signatories.

Step 6: Record cost share in Operational Agreement

The risk organism and agreed cost share are recorded in an Operational Agreement. However - this **does not** mean that either party is bound to funding readiness activities or responding to the risk organism. These decisions will be made jointly at a later date.

Cost Share Exceptions

When there are programmes covering:

- multiple pests with different cost share ratios, e.g. high risk site surveillance programme,
- disease complex, e.g. Liberibacter and Tomato Potato Psyllid,

it is proposed that the cost share for the affected programme is recalculated by adding up the total of all impacts by all High Priority pests relevant to the programme and calculating the cost share based on the total public/private benefits for all these pests.

Appendix 1

There are several techniques that estimate at least a minimum value that people put on public benefits. Three common techniques are:

- market prices / opportunity costs;
- hedonic pricing;
- benefit transfer;

Market prices / opportunity cost

People reveal how much they value a public benefit by the value they forgo by not doing something else. For example, the value of Kauri has been estimated (at a minimum) at the value of pine trees. If people valued Kauri at less than the profit that can be made from pine plantations, then Kauri forests would be sold to foresters so that they could plant pine instead. Therefore, the value of Kauri must be at least as valuable as pine.

Hedonic pricing

People reveal how much they value a public benefit by the implicit price they pay in other markets. For example, beachside houses have a higher value than houses far away from the beach. People pay lower prices for houses away from the beach and higher prices for beachside houses. If the houses are more or less the same in other characteristics (e.g. they're in the same suburb/city so they're broadly the same size and character, etc), then the implicit price people pay for the benefit of easy access to the beach is the difference in price between the beachside house and other houses.

Benefit transfer

Values can be gathered from studies or analysis of the same pest on similar environments elsewhere, or of similar pests. For example, because *Styela* and *Sabella* are similar pests, information on the impacts of *Styela* was used to estimate the impacts of *Sabella*.