

Ways to use INFFER

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INFFER has been designed as a holistic system. To deliver the greatest benefits, it should be used in a comprehensive way, working through steps 1 to step 7 (Table 1). However, we recognise that it is normal for people to want to use any new technology in ways that suit them, and that some users may benefit from elements of INFFER without adopting the comprehensive INFFER process. That is why we have created this document: to describe different ways in which INFFER or its components could be used beneficially. We aim to provide potential users with an appreciation of the range of ways that INFFER might be used, and to warn them of some problems we have observed with certain modes of use.

The document includes advice about:

- using the comprehensive INFFER process versus a partial process;
- assessing projects intended to generate public benefits;
- assessing projects aimed at generating private benefits;
- generating a Benefit: Cost Ratio for each project rather than the usual INFFER Benefit: Cost Index;
- using INFFER to provide insight into priorities for research and development; and
- assessing projects that aim to enhance community awareness and capacity.

1. Public benefits

INFFER is not limited to assessing projects that generate public benefits although, of course, it is designed to do a good job of that. See Section 2 for advice about using INFFER to assess projects that only generate private benefits.

1.1 Comprehensive process

The preferred way to use INFFER is to apply it comprehensively to the environmental planning and prioritisation of the organisation. This means considering all of the important natural assets in the area managed by the organisation, and identifying those for which a project is likely to deliver the highest value for money.

The full INFFER process is presented in Table 1. The main documents on the INFFER web site www.inffer.org are geared around this full process. The document "Overview of the INFFER process" provides more information about each step, and a diagram that explains steps 1 to 4.

Table 1. Steps in the INFFER process

	Description of Step	Relevant Document
1.	Develop a list of significant natural assets in the relevant region(s)	"Significant Asset Identification Guide"
2.	Apply an initial filter to the asset list, using a simplified set of criteria	"Filtering Significant Assets Prior to Detailed Assessment"
3.	Define projects and conduct detailed assessments of them	"Project Assessment Form", and "Project Assessment Form Instruction Manual"
4.	Select priority projects	"Selection of Priority Projects"
5.	Develop investment plans or funding proposals	"Development of investment plans or funding proposals" (this document)
6.	Implement funded projects	"Implementation of funded projects"
7.	Monitor, evaluate and adaptively manage projects	"Monitoring, Evaluation and Adaptive Management following INFFER Assessment"

1.1.1 Benefit: Cost Index vs Benefit: Cost Ratio

When applying INFFER comprehensively, if desired, you can modify the scoring system for asset significance so that the process calculates a Benefit: Cost Ratio (consistent with standard Benefit: Cost Analysis) rather than a Benefit: Cost Index, which is the standard approach.

However, a major challenge in calculating a Benefit: Cost Ratio is that it requires natural assets (including their intangible or "non-market" values) to be expressed in dollar terms. In the standard version of the full process, INFFER does not ask users to provide dollar values for the natural assets being assessed. Instead, the relative significance of different assets is quantified using a scoring system out of 100. The reasons for doing it this way are:

- (1). There is limited information available about non-market values for specific assets;

- (2). Conducting new non-market valuation studies for all of the assets we wish to assess would be prohibitively expensive;
- (3). Some users and decision makers object to the use of non-market valuations; and
- (4). The use of a scoring system is sufficient to compare the relative value for money of different projects.

The disadvantages of the scoring-system approach are:

- (1). It does not allow us to tell whether the benefits of any individual project are sufficient to outweigh its costs, only whether one project is better than another;
- (2). It does not indicate whether the overall program budget is too small or too large; and
- (3). It relies on the people completing the form to determine the asset value score, and they may or may not accurately reflect the values of the broader community. Note that asset value scores may always be adjusted later using peer review or an expert panel process.

If your organisation does wish to use dollar values rather than scores to represent the values of different assets, this can be accommodated in INFFER. As with the existing asset-value scores, the dollar value for each asset would need to relate to the asset in good condition. Degradation of the assets is captured in other parts of the assessment. The process would be:

- (1). In place of the asset value score in question 1.2 of the Project Assessment Form, enter the dollar value for the asset, in millions. This dollar value should represent both their tangible and intangible values in a single combined figure;
- (2). Complete the rest of the form as usual;
- (3). Divide the resulting Benefit: Cost Index by 20 to give you the Benefit: Cost Ratio of the project. This is a standard Benefit: Cost Ratio fully consistent with standard Benefit: Cost Analysis. (To understand the detailed logic behind the Benefit: Cost Index refer to the Project Assessment Form Instruction Manual section 6.1 and Frequently Asked Questions 601 to 606.)

1.1.2 Modified Benefit: Cost Index

Some people feel uncomfortable about the asset significance scoring system used in INFFER. Sometimes this reflects a general discomfort with the idea of specifying different levels of asset significance. Our response to that view is that specifying asset significance is a necessary evil. By not doing so, one risk giving priority to relatively unimportant assets over more important ones.

Sometimes the discomfort may relate to the particular scoring system we have developed for asset significance. If so, a different scoring system could be developed by an organisation for its own use. As long as the system provides quantitative scores, with larger scores corresponding to more significant assets, those scores can be substituted for V in the calculation of the Benefit: Cost Index. However, the following should be noted.

- The scoring system must provide numerical values;
- Care should be taken to ensure that it is logical and internally consistent;

- Use of your own system for specifying *V* will mean that the resulting Benefit: Cost Index values will not be comparable across different organisations. That may be fine for your purposes.
- Use of your own system for specifying *V* will mean that you cannot use the threshold level of 1 to indicate which projects will generate benefits in excess of costs. You would be able to compare BCIs between projects, but not to any specific threshold level.

If INFFER is being used to assess projects that will be submitted to external funders, we recommend using the standard scoring system, to minimise the risks with comparability and consistency.

1.2 Partial process

While the comprehensive process is required to deliver the full benefits of INFFER (see FAQ #3), there are circumstances where a user may prefer a partial process. Several options for using parts of the INFFER system are outlined below.

1.2.1 Just do steps 1 and 2

Steps 1 and 2 (see Table 1) could be used as a very simplified way to identify assets and projects that are reasonable prospects for investment. An organisation may wish to identify a set of projects that will go through some other decision process or consultation process, but not the full INFFER process.

Steps 1 and 2 are not sufficient to identify specific projects for investment, but they are a good start. Their processes and the questions they ask are crucial for any natural resource project that you intend will deliver improved natural resource condition.

1.2.2 Just do step 3

Sometimes organisations feel that they are already in a position to identify the assets and projects that should be assessed using the Project Assessment Form. They may have an existing strategic plan and have already consulted with experts and the community. They may have existing projects or existing ideas for projects, and just want to assess these projects. If so, it is possible to go straight to Step 3 to assess the projects.

Another case is where an organisation wishes to evaluate INFFER by using it to assess a small number of existing or prospective projects. Applying Step 3 to these projects is a good way to get a feel for what INFFER is about and how it works. A number of regional natural resource management bodies in Australia have gone down this line.

It is worth noting our experience that organisations who bypass Steps 1 and 2 and go straight to Step 3, assessing projects or assets that are believed to be among the highest priority projects for their region, sometimes find that the projects do not stand up to scrutiny. Three reasons why this can occur are listed below.

1. The existing project may be one that does not offer good value for money, or is not a good candidate for investment for other reasons. It may be a project that has a long history of investment but was originally funded without adequate consideration of its cost-effectiveness. Or it may have been identified by GIS analysis using criteria that are not adequately related to cost-effectiveness. You may not wish to invest the time in assessing such a project, especially if its weaknesses may be easily recognised prior to using the

Project Assessment Form. The project may be of a type that is not suitable for assessment using INFFER. After observing a number of examples like this, we developed the Pre-Assessment Checklist: a simple set of five questions that should be asked of all projects before they are evaluated using the Project Assessment Form. The Pre-Assessment Checklist is embedded within Step 2 of INFFER and you should use it if you proceed straight to Step 3. The pre-assessment questions can be seen in the documentation for Step 2.

2. The second risk arises if you try to assess an existing project, in which targets and delivery mechanisms have already been fully defined. The risk is that the existing project may not be internally consistent (i.e. the interventions specified will not actually generate the required level and types of works and on-ground actions to achieve the project goal). In practice, our experience has been that few existing projects are internally consistent. Indeed, one of the big contributions of INFFER is helping environmental managers develop projects that are internally consistent. This means that users wishing to evaluate an existing project need to be willing to be flexible in how they specify the goal and delivery mechanisms of the project. Users who have not been so willing have sometimes become frustrated with INFFER's requirement for internal consistency, [when in fact INFFER is providing important information by revealing that their project is poorly conceived].

3. The third risk is that, even if the existing project is internally consistent, limiting your thinking to that project will introduce constraints on what actions can be considered, or make assumptions about which actions are desirable, and these constraints or assumptions can reduce the project's value for money. To get as much as possible out of the process it is better to start with an asset, rather than an existing project. One should have as few preconceptions as possible about the project, and allow the project design to emerge in response to the questions that INFFER asks.

If you do wish to retrofit a project into a Project Assessment Form (Step 3), you need to be prepared to adjust the project design to ensure that it is internally consistent. INFFER requires this. We would emphasise again that this is a strength of INFFER, not a weakness. If the project is not internally consistent then we are misleading ourselves and others about how worthwhile it is. For example, it may show a high Benefit: Cost Index, but be based on works that are actually not adoptable on the assumed scale.

1.2.3 Use a simplified set of assessment criteria

An INFFER assessment encompasses a very comprehensive set of relevant information. Many assessment processes omit some of the information that we consider to be crucial to good decision making. There has been some interest in mining the INFFER Project Assessment Form for ideas about which information should be required in other assessment processes. If you are not going to use the full INFFER process, then we think it is a good idea to use it as an inspiration for the design of your actual process.

The bare minimum information set to have a fair chance of making reasonable investment decisions would include:

- Asset significance
- A specific, measurable, time-bound project goal
- Threats and their impacts without this project
- Effectiveness of proposed works in reducing impacts of threats

- Likely adoption of new practices by land managers and/or likely cooperation by other relevant organisations
- Delivery mechanisms
- Risks
- Costs

1.2.4 Use the Public: Private Benefits Framework

The Public: Private Benefits Framework (PPBF) (Pannell 2008; Pannell 2009; Pannell and Wilkinson, 2009) provides logical advice about which delivery mechanisms or policy tools are likely to be most appropriate for a project. It is embedded within Step 3 of INFFER, but it can be used as a stand-alone tool as well.

The PPBF gives advice based on the levels of public net benefits and private net benefits that would be generated by the project. The INFFER Project Assessment Form collects the information required to quantify these benefits. If you are using the PPBF separately from INFFER, you would need some other process to estimate the benefit levels. This may be as simple as subjective estimates based on expert judgement. This may be sufficient to provide a very general test of the appropriateness of proposed delivery mechanisms. Sometimes the logic of the PPBF makes it very obvious that the proposed mechanisms are not going to be effective in the proposed project. For example, a project may rely on extension as its primary delivery mechanism, but the required works and on-ground actions may not be adoptable by landholders at the required scale.

The PPBF web site contains a range of summary and detailed information about the PPBF. See cyllene.uwa.edu.au/~dpannell/ppf.htm.

2. Private benefits

INFFER is mostly used for assessing projects that protect public environmental assets. It can, however, also be used if the assets to be protected by the project are privately owned (e.g. agricultural land). In such cases it would be worth asking whether public support for such a project is justified (e.g. does it address a market failure¹) but even if its theoretical justification remains doubtful, INFFER can still be used to assess the cost-effectiveness of the project relative to other projects. We recognise that governments do sometimes spend public funds in ways that are inconsistent with the concept of market failure. Using INFFER in these cases at least helps to ensure that the expenditure is targeted to cases that generate the greatest net benefits.

The process for assessing a project that generates only private benefits is the same as for public benefits, with one exception: the Public: Private Benefits Framework is not relevant. That framework is founded on the economic theory of market failure due to externalities, so if there is no such market failure, the framework is not applicable. In practice, this means that

¹ Market failure is a key criterion used by economists to assess whether public investment in a project is potentially justified. For example, a project that reduces negative externalities (off-site costs) such as pollution or downstream salinity could be justified on the basis of market failure.

Consistency Check 7 in the Project Assessment Form would be ignored. Other than that, the process would be identical.

Some (perhaps most) projects would generate a mixture of public and private benefits. Indeed some of the most cost-effective projects for generating public benefits are those that also generate private benefits, so that adoption of the proposed environmental works is attractive to the relevant private citizens. A key question in such cases is: what is the asset that is the target for the project? It may be that the target asset is solely the public asset (e.g. a river), and that the private benefits generated (e.g. due to reduced soil erosion) are viewed as being relevant mainly as means to the end of wetland protection. On the other hand, the relevant assets may include both the public and private assets (e.g. the wetland and the agricultural land). These choices drive the definition of the asset in the INFFER assessment process. The asset might be defined to include only the wetland, in which case private benefits matter only because they drive adoption of new practices, or the asset might include both the wetland and some agricultural land, in which case private benefits due to land conservation are also included in the assessment.

Question 1.2 in the Project Assessment Form (“Significance of the asset”) would be answered differently in the two cases; V would be greater if the asset also includes land. Subsequent questions would also be affected (e.g. Q1.3 Key threat(s) to the asset, Q2.2 Works and actions, Q2.4 Effectiveness of works, and so on).

2.1 Benefit: Cost Index vs Benefit: Cost Ratio

If the project solely generates private benefits, and the private asset being protected by the project is readily valued in dollar terms, then it becomes easy to use INFFER to generate a Benefit: Cost Ratio rather than a Benefit: Cost Index. As noted above in Section 1.1, the process would be:

- (1). In place of the asset value score in Question 1.2 of the Project Assessment Form, enter the dollar value for the asset, in millions;
- (2). Complete the rest of the form as usual;
- (3). Divide the resulting Benefit: Cost Index by 20 to give you the Benefit: Cost Ratio of the project. This is a standard Benefit: Cost Ratio fully consistent with standard Benefit: Cost Analysis.

3. Use for other sorts of projects

3.1 Research and development

We recognise two different sorts of research and development (R&D) that are relevant to management of natural resources: [R&D to provide information for improved decision making, and R&D to develop improved technologies for resource management (see below).] These perhaps correspond to “research” and “development” respectively.

3.1.1 Information

One of the features of environmental projects is that there are always gaps in the information needed to guide decision making. Often there are many gaps, some more important than others. Even where there has been a lot of research conducted about an environmental

asset, it is common to find that the research that has been done is not the research you need to guide the assessment of your project – the research priorities chosen by scientists are not those that would be of greatest value to environmental managers. On the other hand, environmental managers have difficulty identifying and articulating what their research priorities are.

INFFER helps to address this problem by making it clear what the information requirements are for good decision making, and identifying gaps in those requirements. In each section of the Project Assessment Form, users are asked to identify knowledge gaps related to the questions in that section, and to score the quality of information used to guide responses to those questions. Our intention is that environmental managers will then be better placed to communicate their needs clearly to researchers when new research is being requested or commissioned.

In Step 4 of the INFFER process, environmental managers are prompted to consider how information gaps should be handled. Options include:

- (i) Information is adequate to proceed to project implementation;
- (ii) There are key information gaps that can be addressed as part of the project;
- (iii) The project, if funded, should start with a feasibility assessment phase for say the first year. There should be an additional decision made after that phase about whether the full project should proceed, and any necessary modifications.
- (iv) Information gaps are so pervasive and serious that they this asset needs a research/investigation project, rather than an implementation project.

Although INFFER identifies research projects that would contribute positively to improved decision making, at this stage, it does not provide a structured process to decide which of those research projects has the highest priority. This is an aspect that we may develop in future.

3.1.2 Technology development

The other type of research project is one to develop improved technologies for protection or enhancement of natural assets. For example, research might develop commercial varieties of a new species of pasture plant that has environmental benefits, as well as economic ones. The Public: Private Benefits Framework highlights that, in cases where the available environmental works have negative private benefits, this sort of technology development can be the most effective public investment. Usually, investment in a technology development project would be intended to be relevant across a broad area, rather than for a single natural asset. It may be more applicable to, say, a state government organisation than to a regional environmental manager, although the regional manager could play an important role in identifying the need for a technology development response, and negotiating or advocating for it.

3.2 Community awareness, capacity building, education, etc.

3.2.1 Asset-focused

If building the knowledge and capacity of the community is proposed as part of the strategy to protect or enhance a specific natural asset, the standard version of INFFER can be used to evaluate the relative value for money of this strategy.

3.2.2 Not asset-focussed

If it is proposed to enhance the knowledge and capacity of the community in a general way, not linked to specific natural assets, such a project would not be suitable for assessment using INFFER. Indeed, it is hard to imagine how the natural resource outcomes from such a project could be meaningfully assessed prior to the project.

References

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