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Economic Appraisal Principles and Procedures Simplified

OFFICE OF FINANCIAL MANAGEMENT

Policy & Guidelines Paper

Preface

This NSW Treasury Policy and Guidelines Paper provides a simplified summary of the NSW Government Guidelines for Economic Appraisal (TPP07-5). Non economists in particular may find this summary useful.

The Guidelines are subject to ongoing review and this revised edition incorporates the most recent amendments, and supersedes all previous editions.

Application of these Guidelines ensures that required reporting and appraisal standards are satisfied, which leads to better resource allocation decision making.

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Executive Summary

The New South Wales public sector is a major component of the State economy. It is therefore important that Government agencies provide their services as efficiently as possible.

The NSW Government Guidelines on Economic Appraisal assist efficient public sector resource allocation. This publication summarises the main points in the Guidelines.

Economic appraisal is a way of systematically analysing all the costs and benefits associated with the various ways of meeting an objective.

The use of economic appraisal techniques is encouraged in all relevant areas of public sector activity including asset management planning, program evaluation, regulation review, in addition to new capital works. The process of undertaking economic appraisals of projects should interact with the review of strategic plans within agencies on an ongoing basis.

An important feature of economic appraisal is that various methods of achieving the stated objective are assessed.

Economic appraisal is most effective when it becomes a routine part of capital works planning, incorporated from the early stages of project development.

An iterative process may then follow, as data are updated; for example, as a result of revised more detailed construction cost estimates, or changes to the project as a consequence of the environmental assessment process. The appraisal is reassessed to ensure that the preferred option provides the best value for money outcome to meet the service objective.

All public sector agencies are responsible for undertaking economic appraisals and submitting them as part of their capital works bids.

1. Introduction

Economic appraisal of proposed new capital works was introduced as a requirement for New South Wales Government agencies in December 1988.

The objective of this requirement is to ensure the efficient allocation of resources within the NSW public sector and, through this, to contribute to the efficient allocation of resources within the broader community. The State's public sector makes a significant contribution to the NSW economy and the efficiency with which the public sector uses resources can have an important impact on the performance of the State's economy and the welfare of its residents.

The aim of this publication is to improve understanding of the principles and process of economic appraisal of capital works, particularly for the non economist.

The State's Asset Acquisition Program, which is more than $12 billion per annum, provides the economic and social infrastructure which is fundamental to the economic development of the State, the delivery of Government services and the wellbeing of its people.

Economic appraisal procedures assist selection of those projects or programs which maximise benefits relative to costs.

The economic appraisal process assists ranking of projects within particular agencies, clearer definition of project objectives, wider consideration of options to meet objectives, improved strategic planning, enhanced program evaluation, better asset management and improved resource utilisation.

Benefits of the process are outlined in Section 10 of this paper.

NSW Government Guidelines for Economic Appraisal (TPP07-5) are available to assist agencies and ensure appraisals are undertaken on a consistent basis. The Guidelines contain detailed information of a technical nature and should be consulted before economic appraisal is undertaken.

This publication summarises and simplifies the key principles and reporting procedures outlined in the Guidelines.

NSW Treasury officers are available for advice on the conduct of economic appraisals. Contacts are listed in Section 11.

2. What is an Economic Appraisal?

Economic appraisal is a systematic means of analysing all the costs and benefits of various ways in which a project objective can be met.

In essence, economic appraisal shows:

- Whether the benefits of a project exceed its costs;
- Which among a range of options to achieve an objective has the highest net benefit; or
- Which option is the most cost effective, where benefits are equivalent.

Economic appraisal is more commonly known as cost benefit analysis (CBA). CBA is in fact one of two types of economic appraisal (albeit the preferred means) for Government projects. (Refer to Section 5.)

Economic appraisals assist decision making among projects competing for limited Government funds.

Economic appraisals can assist Ministers in determining the priority order of projects within agencies under their administration, and assist the Government in determining the priority of projects across Ministerial portfolios.

Clearly the results of an economic appraisal will not be the only factors taken into account when making a decision, but they provide important information on the effects of each possible decision.

3. How does economic appraisal differ from financial appraisal?

Economic appraisal differs from a financial appraisal in several respects. For example, economic appraisal considers a wider range of costs and benefits of a project.

Financial appraisal concentrates on effects on the agency sponsoring the project, whereas economic appraisal also considers external benefits and costs for other Government agencies, private sector enterprises and individuals. See also *Guidelines for Financial Appraisal.*

A proposal put forward by one Government agency may inflict costs (or confer benefits) on other Government agencies, on private sector enterprises or on individuals. These external costs and benefits must be taken into account for Government projects through economic appraisal.

In addition, economic appraisals also:

- take into account costs and benefits which may not be reflected in monetary transactions (for example the value to the public of travel time savings from a new road), and
- assesses the real economic value of Government assets by adopting the "opportunity cost" principle (whether there is an alternative use which would yield a higher value).

An economic appraisal's methodology is such that certain concepts contained in conventional financial analysis, such as depreciation, interest, inflation and sunk or historical costs are accounted for by different means or are not relevant to the evaluation of project options.

While economic appraisal is required for capital works proposals, it does not remove the need or desirability for financial analysis which will show cash flow demands on the State's finances, and the financial rate of return from the project for commercial authorities.

Commercial authorities may also wish to separately show economic appraisal results from the agency's viewpoint, as well as from the overall community perspective, for comparative purposes.

4. When should an economic appraisal be undertaken?

Economic appraisals must have been completed and submitted in advance of agencies' making their annual Budget submissions for the next financial year.

An agency's strategic planning process (including Results and Services Plans) should identify future project requirements in broad terms to meet the agency's overall objectives. The strategic planning process may be an iterative one, with the strategic plan varying following economic appraisal of individual planned projects and vice versa.

An economic appraisal should be undertaken at the earliest possible stage in project development, before any planning commitment, real or implied, is given to a particular option. Option development and evaluation should be central to the project planning process and especially for major projects may involve an iterative process. The preferred option may potentially change in response to improved information.

A public announcement which outlines details of a proposed project prior to an economic appraisal being undertaken may constrain the Government's choice of possible options and involve significant cost penalties, and should therefore be avoided.

For example, while a new facility might be required (and subsequently supported by analysis) at a particular location in the State, there will often be a range of benefits and costs associated with different potential options relating to size, scope, staging and site location, or even provision of the service in part or whole by the private sector. Such aspects should be fully assessed before a decision and announcement are made.

Economic appraisals provided in support of a Minister's submission for consideration by the Cabinet Standing Committee on the Budget (the Budget Committee) must be of an appropriate standard, in accordance with the Guidelines and be carried out in a completely objective manner.

NSW Treasury's review of appraisals, when preparing advice for the Budget Committee, ensures they are of an appropriate standard. Those agencies with recognised in-house economic expertise may conduct appraisals themselves, while other agencies may require external assistance from a consultant. In such cases, the terms of reference should be included in the material submitted to Treasury.

Early contact should be made with NSW Treasury for advice on issues that should be addressed in a particular appraisal to ensure smooth progress when appraisals are subsequently submitted for consideration.

For example, international research has shown that there is often a tendency for project proponents to insert optimism bias into analysis, underestimating costs, overestimating benefits. Treasury and the *Guidelines* can provide advice on appropriate ways to address such matters.

It may be beneficial for economic appraisal, value management, and financial analysis of a particular project to be undertaken concurrently, particularly in early planning stages. For large projects, preliminary analysis may be required, and subsequently updated as new material and data become available.

5. Content of an economic appraisal

There are two main types of economic appraisal: Cost Benefit Analysis (CBA) and Cost Effectiveness Analysis (CEA). The guiding principle is that wherever feasible, CBA is preferable to CEA.

5.1 Cost Benefit Analysis

CBA is the more comprehensive of these two techniques. It quantifies in money terms all the major costs and benefits of project options. Thus the outcomes for a range of options are translated into comparable terms to facilitate evaluation and decision making. The technique also makes explicit allowance for the many costs and benefits which cannot be valued.

It can be applied to most public sector authorities:

- that cover costs with revenues (for example, Sydney Water)
- that do not fully cover costs with revenues but which produce traded outputs (for example, STA)
- where there are accepted methodologies for calculating major benefits (for example the RTA's road appraisals quantify such benefits as cost savings to users-vehicle operating costs, travel time costs, accident costs, etc-as well as savings in road maintenance costs)
- to varying degrees for social infrastructure such as schools, hospitals and public housing.

5.2 Cost Effectiveness Analysis

Where the main benefits of a project are not readily measurable in monetary terms (using either actual or proxy values) such as in certain areas of health, education, law and order or social welfare, it may not always be possible to apply CBA.

In areas where the main benefits of a project are not currently quantifiable, it may be desirable, depending on the significance of the project (eg. size, whether it is a recurring type of project, or similar) and ease of data collection, to undertake specific research to arrive at agreed measures and improve analysis in such areas.

Where CBA is not currently feasible, the alternative approach in such cases is to use CEA to compare the costs of each option, assuming the benefits of each option are broadly similar. Where the benefits of each option differ, CEA is less useful than CBA (where costs and benefits of different kinds of options are more readily comparable).

In both CBA and CEA all unquantifiable benefits and costs should be described. If measured costs exceed benefits in CBA or, if CEA is used to support a funding request for a project, normally it is claimed that the unquantifiable benefits exceed the project's costs. Assessment of the reasonableness of this claim should be attempted, using indirect measures.

For example, a proposal may have a Net Present Cost of $10m which may equate to a cost of $1 per user over the life of the project.

It may be considered that this amount represents a reasonable estimate of the value customers would place on the project's (free) services. In effect, users might be "willing to pay" $1, but realistically would not pay say $100. This approach assesses the lower limit of the "band" of values users place on the benefits. Hence it may reasonably be assessed that the project's unquantifiable benefits would exceed its costs.

In certain cases, eg, where the main beneficiaries of a publicly funded project may be a small number of private sector commercial enterprises, the distribution of benefits and costs among the public/private sector parties should be assessed to assist decision making.

6. Steps in preparing an economic appraisal

This section explains in simple terms what the process involves. It is emphasised that technical guidance is contained in the *Guidelines*, and that economic appraisal should be carried out by experienced economists. Consultation with Treasury is recommended prior to commencement of an appraisal and during its conduct, for advice on treatment of particular issues.

Each of the steps is relevant to CBA and CEA, except that CEA does not express benefits in monetary terms.

6.1 Define objectives and scope of project

The worth of an investment can only be evaluated in terms of its objective(s). The objective should be clear and unambiguous and derive from the agency's strategic planning process. The appraisal should, for instance, review and evaluate forecast levels of demand for the project.

Care and judgement are required to avoid excessive project disaggregation (breaking a total project into its smaller integral components), excessive aggregation (a broad program consisting of large discrete projects) and failure to account for linkages to other projects (eg. of other agencies).

6.2 Identify options

The widest possible range of realistic options should be identified at the earliest possible stage of the planning process. An iterative analysis process may be appropriate, particularly for major projects, which may refine option development and evaluation as the detail and accuracy of data improves through the process.

The natural tendency to concentrate on the types of solutions that have been attempted in the past should be resisted, as it can lead to potentially successful options being dismissed at an early stage. NSW Treasury is available to discuss proposed options, to expedite later processing.

The first option to be considered is the Base Case of "Do Nothing", ie. what happens if the status quo is maintained. Doing nothing does not necessarily mean "spending nothing", eg. on upgrading fire safety, where the Base Case in effect becomes the "minimum essential expenditure option". The Base Case must be realistic. Doing nothing may involve cost penalties, or confer positive benefits. One of the benefits of "doing something" may be the avoidance of high maintenance costs.

Other practical options to be considered for meeting a project objective might include, for instance:

- Refurbishing existing facilities
- Various staging options in terms of timing and scale, rent, build or purchase
- Maintenance by the private sector
- Provision of the service or facility by the private sector
- Different combinations of capital and recurrent expenditure
- Various locations or site options.

Appraisals must report on all feasible options and clearly explain why potential options may not have been evaluated.

6.3 Identify quantifiable costs

All economic appraisals should be based on incremental costs and benefits associated with a particular project. Changes which would have occurred anyway should be excluded. Assumptions underlying all capital and recurrent cost estimates should be made explicit in the evaluation.

The degree of accuracy desirable will vary with the significance of the project, data availability and cost of obtaining missing data. Best estimates are often sufficient but if there is doubt as to whether such will be acceptable, advice should be sought from Treasury.

6.4 Identify quantifiable benefits

The following may be relevant:

- Avoided costs-incremental costs which are unavoidable if nothing is done, but may be avoided if action is taken
- Cost savings-verifiable reductions in existing levels of expenditure if a program proceeds
- Revenues-incremental revenues from introduction of the project
- Benefits to project beneficiaries not reflected in revenue flows-while difficult, attempts should be made to quantify these, with assumptions and methodologies clearly explained, and
- Residual value of asset (if any).

6.5 Calculate net benefits

Quantifiable costs and benefits over the project life - a 20 year analysis period is recommended for consistency - are expressed in Net Present Value terms (Present Value costs for CEA).

Costs and benefits should be valued in real terms over 20 years: that is, they should be expressed in constant dollar terms and not include nominal increases due to inflation.

The stream of costs and benefits should then be discounted by a real discount rate of 7%, with sensitivity testing using discount rates of 4% and 10%.

The discounting process takes account of the fact that initial investment costs are borne up-front, while benefits or operating costs may extend far into the future. Discounting the value of future costs and benefits brings these back to a common time dimension - present value - for the purpose of comparison. The process of discounting is simply a compound interest calculation worked backwards.

The process of discounting real costs and benefit values reflects, even in the absence of inflation, the concept of time preference for money. People normally prefer to receive cash sooner rather than later and pay bills later rather than sooner. The existence of real interest rates also reflects this time preference.

Using the discounted stream of costs and benefits the following decision measures should be calculated:

- Net Present Value (NPV)-the sum of benefits minus costs; a project is potentially worthwhile (subject to the availability of funds) if the NPV is greater than zero.
- Net Present Value per $ of capital investment (NPV/I)-the highest NPV may involve very high capital expenditure and capital availability is normally constrained. Projects with the highest ratios would be potentially worthwhile.
- Benefit Cost Ratio-a project is potentially worthwhile if the BCR is greater than 1 ie, the present value of benefits exceeds the present value of costs). It has become conventional to deduct ongoing costs from benefits to produce a net benefit stream, and to use initial capital costs as the denominator. This is the required basis on which results should be provided. In cases where BCR calculations are done on another basis, for example to satisfy requirements of other Governments for jointly funded projects, results should be shown on the two bases and clearly identified.
- Internal Rate of Return (IRR)-this is the discount rate at which the Net Present Value of a project is equal to zero (ie. discounted benefits equal discounted costs). A project is worthwhile if the IRR is greater than the test discount rate.

Sensitivity analysis should be undertaken to test the robustness of results under different scenarios, using different assumptions about some or all of the key variables.

Agencies should note that in a constrained Budgetary situation, NPV/I and BCR measures are important considerations for Budget funded projects and programs.

6.6 Identify qualitative factors and summarise results.

Quantifiable costs and benefits are only part of an economic appraisal. Other aspects such as environmental considerations, social or regional impacts, resource availability, funding, distribution of benefits and costs, etc, will also have to be taken into account in choosing between competing options and projects.

Some of these may be quantifiable to some extent but where they are not, qualitative aspects of options or projects should be discussed in the appraisal.

The report on the appraisal should include a clear summary of results, and indicate the preferred option.

The *Guidelines* contain further advice on technical issues relating to the above. Advice is also available from Treasury.

7. Budget Committee consideration of capital projects

The Guidelines establish requirements for evaluation of capital works, tailored to the characteristics and scale of projects. Appraisals for major projects (costing in excess of $10m) should be submitted to NSW Treasury, as they are completed throughout the year prior to the agency's annual Budget submission. NSW Treasury reviews those appraisals and provides advice to the Budget Committee.

While economic appraisal is required for all projects with a total cost in excess of $1m, only summaries are normally required to be submitted for projects costing between $1m and $10m.

Reports on projects costing in excess of $10m are required to be submitted in full. Certain projects costing below $10m may be identified for specific reporting requirements.

Appraisals should be accompanied by a Ministerial letter indicating support or otherwise for the findings and recommendations of the report, together with a copy of the terms of reference for the study.

Where projects are deemed by agencies to be absolutely essential (for example, due to urgent health and/or safety reasons) and no realistic alternatives are available, a full economic appraisal may not be required. However, such cases must be discussed with Treasury at the outset and will require detailed justification.

8. The role of Treasury in economic appraisal

NSW Treasury provides advice on all submissions to the Budget Committee, including advice on economic appraisals of projects.

As all Government projects are in competition for limited capital funds, Treasury ensures that economic appraisals have considered all potential options and that linkages with other agencies have been considered, that assumptions underlying costs and benefits, including demand projections, are based on reasonable grounds and that the appraisal has been conducted in accordance with the Guidelines.

For example, a review of an appraisal disclosed that an inappropriate methodology and incorrect assumptions had been used. The appraisal was revised to address these issues, resulting in a reversal of the two project options. The new preferred option which was subsequently endorsed by the Government represented a net saving of $9m (NPV) compared to the original proposal.

Recommendations by NSW Treasury to the Budget Committee are based on the review of the appraisal's content, the Minister's accompanying request and discussions with relevant agencies and consultants.

Liaison is maintained with other agencies to ensure that all relevant aspects of a project are taken into account.

NSW Treasury staff are available for preliminary discussion and advice on proposed appraisals of projects. Contact by agencies and consultants at an early stage in the preparation of an appraisal is recommended to ensure that appraisals subsequently submitted for approval are satisfactory.

9. What NSW Treasury looks for in an economic appraisal

In its review of economic appraisals to provide advice on proposed projects or programs, above all, NSW Treasury looks for objectivity in an economic appraisal. Common sense is an important guiding principle.

The economic appraisal should present an independent, unbiased assessment of all the costs and benefits of the various means of achieving the stated service delivery objective.

The economic appraisal should not be a "business case" which simply promotes a preferred approach. The economic appraisal may form part of a business case, to explain how a preferred approach came to be selected.

In providing NSW Treasury advice on the best value for money approach from the community's viewpoint to meet a service delivery objective, Treasury closely analyses the appraisal usually in consultation with the proponent agency to better understand the results.

NSW Treasury's review of an economic appraisal considers issues which include:

- Has the appraisal been carried out in accordance with the NSW Government Guidelines for Economic Appraisal? Was NSW Treasury contacted by the consultant or agency at the outset? Were the proposed methodology and the approach to any contentious issues discussed and agreed with Treasury?

- Is the service delivery objective clear and unambiguous and the fundamental need confirmed?

- Have all reasonable, feasible options been considered, costed and analysed?

- Does the appraisal represent an objective analysis of the options to arrive at a preferred option, and is not simple a case to support a predetermined option? Has there been an iterative process to option development, where appropriate?

- Is there a realistic Base Case, as described in the Guidelines, against which other options' costs and benefits have been compared?

- Have all relevant costs and benefits, quantifiable and non quantifiable, been included? Are they comprehensive and do the estimates appear reasonable? For example, if it is proposed to construct a facility in a new location, have relocation costs and remediation costs been included in the analysis as well as the new facility construction costs? If a refurbished facility is proposed as an option, have costs of any temporary accommodation etc been included?

- NSW Treasury considers how the data are produced and reviews the assumptions incorporated in the analysis. This is to ensure there is no "project bias" in the analysis, for example, in terms of overoptimistic benefits and/or underestimated costs. Treasury considers the sources and basis of estimates - are they credible, informed, independent, the latest available, etc? Such matters may be discussed with the agency and with specialists within Treasury.

- Have a range of sensitivities, including worst case scenarios, been assessed and commented on in the appraisal results? Treasury considers whether the sensitivity tests carried out are reasonable and comprehensive. For instance, to allow decision makers to be fully informed it may be appropriate to consider what impact there would be on the appraisal results if, for example, both estimated costs increase and benefits decrease, not just one or the other? What are the chances of that happening? What are the risk management strategies to address such possibilities? Do they involve additional costs that should be incorporated in the analysis? What contingencies have been allowed for?

- Changes to the scope of the project can affect results - eg changes to address public concerns as a result of the Environmental Impact Assessment process, or other factors. Such possibilities should as far as is reasonably possible be taken into account upfront in the sensitivity analysis. If the outcome of the Environmental Impact Assessment process significantly alters costs or benefits, the project should be reassessed to ensure that it is still worthwhile proceeding.

- There should be reassessment of major project parameters as project planning proceeds, and if these vary significantly reassessment of the decision to proceed with the proposed project may be necessary to avoid implementing a project that has negative net benefits.

- NSW Treasury's approach to its review of appraisals is pragmatic and practical. Common sense is adopted in interpreting results and aspects of the appraisal are clarified with agencies where necessary.

- To ensure that NSW Treasury's advice to assist decision making in Government is timely and progresses smoothly, agencies should liaise with Treasury on an ongoing basis and ensure that draft appraisals are provided informally well in advance of formal submissions.

- Advice is available from NSW Treasury to assist agencies in the preparation of economic appraisals.

10. A case study

Experience since the introduction of the requirement for economic appraisal of new capital works has shown that there is no such thing as a "standard" economic appraisal - even within individual agencies. There may be a degree of commonality of approach and content in certain areas, but more often than not each appraisal is different, because each project has its own individual issues to be considered.

Reports on appraisals should contain all relevant information (including detailed spreadsheets in Appendices), clearly set out and explained, and provide the required results for decision making in summary form.

For illustrative purposes, following is a summary of a hypothetical appraisal of a project with an Estimated Total Cost of $12m.

10.1 Objective

The appraisal considers four options to achieve the project objective of providing a specific service to the public, in accordance with the agency's strategic plan. The benefits under each option in terms of level of service are considered to be broadly similar.

10.2 Options

1. Base case: maintain existing facilities at four different locations
2. One complex at a central location
3. Reduced complex at central location and retain two smaller facilities at existing locations
4. Smaller complex at central location and retain three smaller facilities at existing locations

10.3 Costs

Quantifiable costs are:

- Capital costs (land purchase and construction at new site, relocation costs and refurbishment costs at existing locations)
- Operating costs (staff, leases, building maintenance, costs to another department)
- Travel costs for members of the public to each location.

10.4 Benefits

Quantifiable benefits are:

- Sale proceeds from existing properties
- Residual value of the new complex at end of 20 years
- Savings in leasing and staffing costs.

10.5 Qualitative aspects

- Improved working conditions for staff at new complex
- Improved comfort for public at new complex.

10.6 Results

The table below summarises results by comparing the incremental effect of each option to the base case.

Results of economic evaluation at 7% discount rate			
	Options incremental to base case 1		
	Option 2	**Option 3**	**Option 4**
Capital Costs $m (Present Value)	8.64	8.61	8.49
Benefits $m (Present Value)	9.12	4.54	-2.06
Net Present Value $m	0.48	-4.07	-10.56
NPV/Capital Costs	0.06	-0.47	-1.24
Benefit Cost Ratio	1.06	0.53	0.24
Internal Rate of Return %	7.88	neg	neg

The analysis shows that Option 2- construct a new facility at a central location-is the preferred option. Despite its high capital cost relative to the base case, cost savings could be obtained from lower leasing costs, lower staff costs, sale of properties and residual value of the new property. Qualitative aspects also favour this option.

Sensitivity tests of several variables (alternative discount rates, higher capital costs, higher property sales, higher staff levels, higher accessibility costs, different demand growth rates) do not materially alter the outcome and Option 2 remains the preferred option.

The appraisal results are then reviewed in NSW Treasury and advice prepared (see next section).

10.7 Review of appraisal in Treasury

Treasury normally discusses the results with the initiating agency and/or the consultants who prepared the study, clarifying certain assumptions and resolving any other queries. Contact would also be made with other agencies as appropriate.

An important consideration for this project from the Treasury's point of view would be that the preferred option (2) results, although positive, are only marginal compared to the Base Case of maintaining existing facilities: NPV $0.48m; BCR 1.06; IRR 7.88% (compared to 7%); NPV/Capital Costs 0.06.

This aspect, together with any other relevant considerations, including specific Government priorities, would be taken into account when making a recommendation to the Budget Committee.

It is important for initiating agencies to note that although economic appraisal of a particular project may show positive results, this does not automatically mean that it will qualify for funding in the coming Budget year. For this reason no action should be committed on any project until availability of funds is confirmed.

In this example the project might be supported, subject to availability of funds. The subsequent review of the State's Capital Budget by the Budget Committee may mean that in a constrained funding environment, other projects might be preferred for funding in the coming year. The project might be resubmitted by the Minister for funding consideration the following year.

The economic appraisal process, including review of appraisals by NSW Treasury, contributes toward ensuring that among all the worthwhile projects put forward by agencies for funding, those projects which provide the greatest net benefit to the community, in accordance with Government policies, receive priority in the allocation of available funds.

11. Benefits of the economic appraisal process

Since the introduction of the economic appraisal process for capital works in 1988, several hundred appraisals of major projects have been reviewed by the central agencies.

Ongoing review of appraisals has disclosed significant benefits at the agency level and from a whole-of-Government perspective. The economic appraisal process has reduced potential capital expenditure by hundreds of millions of dollars. For example:

- The estimated benefits of a proposed $180m dam to irrigate crops did not exceed its costs, and the proposal did not proceed as it was not economically viable.
- Updated population data for an economic appraisal of a proposed $80m regional hospital expansion showed that the bulk of demand would not occur for several years: a staged expansion of $20m was approved as the most appropriate and cost effective means of improving health care in the area.
- The cost of maintaining an existing education facility was assessed as $10m NPV cheaper over a 20 year analysis period than a proposed $40m new facility: cost effective provision of equivalent services in the existing facility, rather than a new facility, was adopted.
- Assessment of costs and benefits of alternative locations and different designs for a new jail resulted in a capital cost saving of $45m compared with an initial proposal, as well as overcoming potential community objections.
- Proposed relocation of an existing research establishment at a cost of $28m could not be justified in terms of expected benefits, and the proposal was not approved.
- Benefits relative to costs were found to be maximised with 3 new commuter vessels rather than 5 as initially proposed, resulting in a capital cost saving of $10m.
- Analytical review of service requirements for the area to be served by a proposed $200m hospital found that the scope of the hospital could be reduced without having an adverse community impact, resulting in a $20m saving for use elsewhere in the health budget.
- As an indication of savings in smaller projects, analysis of population and other data as part of two economic appraisals- a $5m school and a $2m water supply augmentation project-showed that both projects could be responsibly deferred for at least 5 years.

Besides reducing the call on limited capital funds, economic appraisal has provided other benefits, such as:

- Identifying preferred routes for new roads and rail lines to maximise benefits relative to costs; assisting in planning optimum locations for new fire stations; recommending amalgamation of water rehabilitation programs of two agencies into one coordinated program - at an estimated cost saving for the community of $16m NPV; and
- Assisting in developing a cost sharing formula for a natural resource project undertaken with another State.

12. Contact

For further advice and assistance contact:

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13. Acknowledgment

These guidelines are an update of a document originally prepared in 1990 by Roger Sayers, Senior Economic Analyst, Capital Works Unit, Premier's Department. They were compiled from material contained in NSW Guidelines for Economic Appraisal, and experience with review of economic appraisals submitted by agencies, including discussion with other agencies and private consultants.

Revisions to the document in 1997, 1999 and 2006 were prepared by Roger Sayers, Senior Economic Analyst, Treasury.

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Peter Marshall, NSW Treasury

The revision was undertaken in the context of revisions to the NSW Guidelines for Economic Appraisal following consultation between Treasury and a number of agencies.

14. Related Publications

1. NSW Government Guidelines for Economic Appraisal – NSW Treasury Policy & Guidelines Paper (TPP07-5)
2. Guidelines for Financial Appraisal – NSW Treasury Policy & Guidelines Paper (TPP07-4).