



PB ASSOCIATES

**REVIEW OF ASSET PLANNING AND
CAPITAL AND OPERATING EXPENDITURE
OF STATE WATER CORPORATION**

Prepared for

**INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES**



10 March 2006

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Document Identifier : p:\158355 State Water Expenditure Review Report.doc

Report Revision : 11

Report Status : Final

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Date Issued : 10 March 2006

EXECUTIVE SUMMARY

This report presents the results of an independent review of the capital and operating expenditure proposals of State Water Corporation (State Water). The report provides the Independent Pricing and Regulatory Tribunal of New South Wales (IPART) with an opinion on whether the future operating and capital expenditures are clear and defensible with respect to establishing appropriate revenue targets. Historic operating and capital expenditures have been reviewed to provide background and supporting data for the review of future expenditure.

SUMMARY OF FINDINGS

The terms of reference for this review require PB Associates to address four key areas. The four requirements and a summary of the findings are provided in this section.

PB Associates reviewed expenditure from the perspective that the business would identify obligations and define required service levels, assess the ability to deliver against these obligations and service levels and determine where shortcomings in ability to deliver existed. Based on the obligations and shortcomings identified a programme of capital works and operating expenditures could be determined. Options and timing for solutions would be considered in reference to the obligations and an efficient expenditure programme would result. The price service proposal should reflect the efficient expenditure programme and the obligations and required service levels.

1. The identification of major cost drivers and the subsequent recommendation of efficient cost levels for future years, consistent with maintaining service delivery capacity.

PB Associates believes that State Water has effectively identified the major cost drivers for the business and has conducted a rigorous process to identify obligations and mandatory service levels required. Definition of non mandatory service levels in agreement with customers has occurred, however the process of negotiating agreed levels of service has not included a price service negotiation to ensure that customers are willing to pay for the service levels agreed.

Setting performance targets and monitoring performance against these is a critical step in linking the capital and operating expenditure forecasts back to the business drivers. If the drivers are to be used as a justification for expenditure forecasts, then there needs to be a clear understanding as to how the targets were set; where the targets are not being met; and how the proposed expenditure will ensure that the business improves service to the required level. Despite the volume of information provided by State Water, this link is still not clearly made.

PB Associates recommends that "price-service" discussions with customers and stakeholders would strengthen the justification for proposed expenditure levels. Clear links between proposed project expenditure and timing and the requirement to meet certain obligations and service levels would also increase the defensibility of forecasts provided.

2. An assessment of State Water's asset management framework plans and practices.

State Water has an Asset Management Plan in place which outlines a robust framework for obtaining knowledge about assets, condition assessment and monitoring, maintenance and planning, analysis of options including risk based approaches, consideration of life cycle costing and deliverability.

Evidence suggests that the asset management framework is rigorously applied for the major capital projects; however there are a very large number of lesser projects identified and the justification for these projects is less clear.

A range of other asset management practices are in place or have recently been developed or revised due to the corporatisation of the business, these include governance arrangements, cost accounting, resourcing, capitalization policies etc. In the context that State Water is a recently corporatised organisation and has undergone significant changes in the past few years, PB Associates expects that these will be more consistently applied as the business settles into its new structure.

3. A retrospective review of capital and operating expenditures to reflect efficient and prudent expenditure.

Detailed information was provided for the historical capital and operating expenditure levels however the data did not cover the entire four year period required to be reviewed by PB Associates. Inadequacies with the previous cost accounting systems resulted in some inconsistencies in the valley and product breakdowns of historical expenditure and this limited the level of analysis able to be conducted by PB Associate. PB Associates were not able to provide a definitive opinion on the prudence and efficiency of the historic expenditures however a number of observations and comments were made and are summarised below.

The review showed there had been consistent and significant under delivery of the capital works programme which cast doubt over the adequacy of the expenditure forecasting methods and ability to accurately assess State Water's ability to deliver on its plans. PB Associates has recommended a range of improvements that could be made in order to better demonstrate capital efficiency in the capital works programmes including issues at the planning and decision stage, construction and procurement stage and the commissioning/post delivery stage.

The review of operating expenditure analysed significant increases in annual spending/budgets from 2003/04 to 2004/05 and 2004/05 to 2005/06 and found that whilst State Water was able to detail what the additional costs had been spent on the justification for these additional expenditures was lacking. The 2005/06 budget includes expenditure for a significant number of additional staff however the definition and justification of the need for these staff has not been presented.

4. An assessment of future capital costs and operating expenditure to enable consideration of the revenue requirement for State Water for the coming regulatory period.

The Capital works programmes were reviewed and PB Associates believes that the works identified within these programmes are prudent to meet obligations and defined service levels. The methodology for determining timing of proposed projects and consideration of past record of deliverability of the programme has led PB Associates to recommend some reductions in the proposed Valley and Fish River Water Supply Scheme capital works programme, which takes in consideration the current state of planning and approval for the major capital items and the potential risks and consequent delays in delivering on the works programme.

MDBC and DBBRC works are pass through costs, which are funded by New South Wales Government. The actual works required for MDBC and DBBRC and the basis of the timing and rates of expenditure for this work is not evident in State Water's submission or supporting documents. We recommend that evidence of the directives given by Government to undertake this work in the time frame proposed is to be provided. PB Associates has not made any recommendations on the MDBC and DBBRC expenditures.

The recommended level of capital expenditure is shown below in Table A and the full details of these recommendations can be found in section 5.1 of this report.

Table A Recommended Capital Expenditure Levels – Valley Works (2005 \$)
(excluding costs for MDBC / DBBRC / FRWSS)

Capital Program	2006/07 \$'000	2007/08 \$'000	2008/09 \$'000	2009/10 \$'000	2010/11\$ \$'000
Valley Works					
Current proposal from State Water	27,154	51,724	46,856	47,383	62,553
Recommended by PB Associates	22,500	36,200	38,800	37,500	54,600
Fish River					
Current proposal from State Water	2,500	1,801	1,325	1,334	1,037
Recommended by PB Associates	2,500				
MDBC & DBBRC					
Current proposal from State Water	21,173	17,713	14,538	11,274	12,159
Recommended* by PB Associates	21,173	17,713	14,538	11,274	12,159

* subject to clarification as recommended in section 5.1.8

Valley expenditures could be established by adjustment of each Valley's submission expenditures on a pro-rata basis of recommended totals versus the submission

totals. However given the large number of relatively small projects (section 4.1.2) PB Associates recommends that State Water be given the opportunity to adjust Valley budgets on the basis of priority.

All expenditures are deferred. No listed works are recommended for deletion. The impact on long terms programs requires re-assessment fo priorities by State Water.

In the review of operating expenditure levels PB Associates found that the justification for significant increases in the overall level of operating expenditure were not well supported. PB Associates has recommended a level of operating expenditure based on a reasonable trend from historical levels, taking into consideration expected uncertainties in the planning and decisions on programmes presently planned to reduce operating expenditure and the deliverability of the capital expenditure programme which are expected to impact on future maintenance requirements.. The recommendation is summarised in Table B and the full details of the analysis can be found in section 5.2 of this report.

Table B Recommended Operating Expenditure Levels (2005 \$)

(excluding costs for MDRC / DBBRC / FRWSS)

Key Operations expenditures	2006/07 \$'000	2007/08 \$'000	2008/09 \$'000	2009/10 \$'000	2010/11 \$'000
Current proposal from State Water	33,191	33,191	32,194	31,230	30,292
Recommended by PB Associates	28,100	28,700	29,200	29,800	30,300

SUMMARY OF REPORT CONTENTS

Regulatory and Operating Environment

1. PB Associates concludes that State Water has adequately identified its regulatory environment and has satisfactorily cross-referenced these obligations to critical success factors and product codes. However, PB Associates believes that the level of detail provided in State Water's submission is insufficient to explain specific expenditure project costs and how these are justified by the regulatory drivers.
2. State Water has not provided historical or current performance levels against operating targets and accordingly it is difficult for PB Associates to establish whether any additional expenditure is justified with respect to achieving required performance standards.

Service Delivery Environment

3. State Water's submission does not explain the process used to formulate the service levels agreed to as part of the service delivery agreements. No specific information has been provided as to whether State Water is currently meeting the service level requirements under the obligations listed above, or how any specific gaps can be linked back to the forecast expenditure programmes.
4. PB Associates contends that setting performance targets and monitoring performance against these is a critical step in linking the capital and operating expenditure forecasts back to the business drivers. If the drivers are to be used as a justification for expenditure forecasts, then there needs to be a clear understanding as to how the targets were set; where the targets are not being met; and how the proposed expenditure will ensure that the business improves service to the required level.

Business Drivers

5. While State Water has established a strong business process model that is transparent and relates expenditures at activity levels (products) back to its business drivers and attendant business obligations, PB Associates recommends that this model could be enhanced by incorporating stronger "price-service" analysis, and negotiation with customers and other stakeholders in order to better determine the business "operating point".
6. PB Associates believes that the cost allocation model between Valleys is reasonable and transparent.

Governance Arrangements

7. PB Associates supports State Water's efforts to enhance its capital investment decision making, and recommends that in addition to State Water's current practices, the achievement of agreed customer targets be included into State Water's Governance process.

Risk Management Practices

8. PB Associates supports State Water incorporating risk assessments and risk management techniques into the consideration of projects and further developing the risk management framework because it will assist in establishing the risk profile for State Water and will be able to be used in better establishing its expenditure priorities, staging, optional risk paths and timing of works.

Policies & Procedures

9. PB Associates notes that many of the corporate documents are still in draft format. PB Associates recommends that the Total Asset Management Plan and corporate policies and plans be updated and/or completed periodically, so as to support the current and future price determinations and to better enable performance against the "price-service" determination to be assessed in terms of the Total Asset Management Plan and corporate plans.

Cost Accounting and Reporting Systems

10. PB Associates believes it will take some time for the new information management system to be utilised to its full potential but the implementation of this new system is regarded as being a positive step for State Water.

Approaches to Optimise Costing

11. State Water's submission does not focus on the optimisation of costs. The Total Asset Management Plan 2004 describes the Optimal Renewal Decision Making process that applies to projects competing for limited resources. This is not yet fully functional. PB Associates reinforces its comments concerning the conduct of "price-service" negotiations with its various stakeholders as one way of achieving a mutual sharing or allocation of risks.

Capital Project Selection

12. PB Associates is satisfied that the asset management framework and approach is sound. The capital programme is based on September 2005 estimates while the Total Asset Management Plan 2004 is based on estimates from July 2004. It is not clear to PB Associates what methodology was used to select the capital projects included in the capital forecasts submitted to IPART in its submission.

Resourcing

13. Staff numbers have increased from 258 FTE's in 2002 to 304 FTE's in 2005 and are forecast to further increase to 310 FTE's in 2006/07. PB Associates notes that no supporting data on service levels has been provided for historical or current performance levels. The operating expenditure forecasts which are static and then declining are inconsistent with the State Water's expectation that staff numbers will increase.

Salaries

14. PB Associates believes that:

- The estimated (in the “pipeline”) salary rises in 2005/06 dollars should be added to all forecasts since this is a given and is not an inflation factor.
- The efficiency targets set by the Board, while being an “ambit claim” based on benchmarking similar businesses in the first few years of establishment, should be reflected in evidence as to how these efficiencies are to be achieved.

Opex Efficiencies

15. There are no details provided as to how the efficiency gains of 3% factored into the operating expenditure forecasts will be made or how the figure of 3% was determined. Without further information, PB Associates is unable to provide an opinion as to whether this efficiency improvement is achievable.

Valley Accounts

16. State Water captures costs on a valley by valley basis and classifies expenditure into a range of product types. A recommendation arising from a review of State Water’s previous submission stated that if IPART chooses to regulate on cost allocation by “Product Code”, then the existing valley based accounts should be subject to regulatory audit. PB Associates agrees with this and recommends that a regulatory audit be undertaken of the 2004/05 Valley accounts to ensure that correct allocation is occurring and so that future price determinations can have assurance of correct cost attribution.

Capitalisation Rules

17. PB Associates has conducted a review of State Water’s capitalisation policy and agrees that it represents a reasonable policy. PB Associates recommends that the items in the Capital Works programme be adjusted to conform to the new policy. PB Associates is unable to assess whether the effect of adjusting the capital works programme to match the new capitalisation policy will have a material impact on the overall forecast.

Asset Management

18. State Water’s framework for asset management generally follows the New South Wales Government Asset Management Guidelines. PB Associates is unable to say whether the same rigorous approach is applied to the large number of smaller projects listed in the Total Asset Management Plan. PB Associates recommends that further justification for these costs be provided at an appropriate level of analysis given the size of the expenditure and/or complexity of the work.

Depreciation of Assets – Asset Lives

19. There is an apparent rise of \$3.3 million in the depreciation charge over the Price Period which reflects the significant 5 year capital programme (\$320 million). PB Associates recommends that further analysis be provided to support the optimal life estimates and hence depreciation rates adopted.

Historical Capital Expenditure

20. There is limited historical information on project delivery against budget and generally this demonstrates consistent under delivery of capital works against budget. Continual under delivery brings into question the forecasting processes utilised to formulate the budgets and also the capacity of the business to deliver on planned projects.
21. The cost trends over the period 2001 to 2005 suggest that State Water's efforts on compliance and major preventative maintenance has increased. This has been adequately explained by State Water as it improves its total asset management approach to its infrastructure.
22. PB Associates queries the reliability of historic allocations to Valley accounts. The information provided is not in a form which demonstrates the efficiency of this historic expenditure. However, it is acknowledged that new management systems are in now place and further review of the issues involved in "legacy" systems is unlikely to be cost effective.
23. While PB Associates supports a recovery in preventative maintenance expenditure, there still appears to be a great deal of work to be done to provide clear evidence of the priorities and levels of these increasing expenditures. The explanations given in State Water's Submission for the overall increases in operations expenditure do not specifically indicate that the increase is being allocated towards increased preventative maintenance, but rather head office corporatisation costs and other regional activities.

Historical Operating Expenditure

24. There is a substantial rise (\$5 million approx) in Valley Operating expenditure between 2003/04 (\$20.3 million) and 2004/05 (\$25.1 million). State Water has provided Document No. 19 "State Water comments on OPEXV3" which provides some explanation for the \$5 million increase in operations expenditure from 2003/04 to 2004/05.
25. PB Associates believes that State Water has not quantified the reasons for these increases. For example "improved funding" is not considered to be a justification for "catching up with" maintenance, in itself. PB Associates considers that an adjustment of expenditure levels would be preceded by an argument that unacceptable service levels, business targets and risks were being run and that the prioritisation of all maintenance work required such an adjustment. Likewise options to achieve the "Water Savings Plan" requirements without additional resources are not canvassed.

26. PB Associates is unable to support the proposed increase in resources into the future apart from the additional head office governance staff due to corporatisation without linking the increases to additional work.
27. PB Associates recommends increased transparency in the allocation of overheads and definition of how efficiency gains sought are to be achieved. There is no means of identifying and measuring the efficiency of operating expenditure in State Water's submission.

Forecast Capital Expenditure

28. State Water has carried out portfolio risk assessments followed by detailed risk analysis for its 16 major dams and 14 minor dams. In August 2004 State Water revealed to the New South Wales Treasury that only 3 of its 30 major dams satisfied dam safety requirements and provided an upgrade programme over the next 20 to 30 years. State Water's Submission shows that significant amounts are to be spent on dam upgrades within the next seven to nine years within the over all long term forecast of capital expenditure to 2035.

Dam Safety Compliance

29. Under the New South Wales Dam Safety Act, State Water has a legal responsibility to show that it is undertaking appropriate measures to minimise the risk of dam failure. State Water is required to inform the New South Wales Dam Safety Regulator, by providing regular updates regarding the progress of the upgrading programme
30. PB Associates has assumed that State Water will pursue the upgrade programme with vigour. PB Associates recommends that State Water provides IPART with an assurance and evidence of any risks in its deliverable targets and, adjust timelines outwards and/or annual expenditure over the price period.

Major Period Maintenance

31. While there is sufficient information provided to ascertain what these works are, and the validity of undertaking such work is not questioned, PB Associates is unable to assess the justification for the timing and the estimates of these as no evidence is given for the options analysis under the life cycle optimisation procedures stated as being used in the Total Asset Management Plan 2004.

Capex on fishways and cold water pollution

32. PB Associates acknowledges that the expenditure on modifications to meet this obligation is prudent in the light of the Government's decisions and policy. PB Associates is unable to state whether the works are efficient and adequately estimated and timed as there is no detailed information provided to us for assessment.

Other Capex

33. PB Associates suggests that State Water provide further commentary on the basis of this proposed \$78 million spend.

General Review Comments on Capital Expenditure

34. PB Associates recommends that the Valley based capital works forecast programme for the price period be established at a trend level based on recent expenditures and take into consideration the current state of planning for the major items and the potential risks in delivery the programme. PB Associates' recommendation for the capital expenditure is shown in Table A. PB Associates acknowledges that this may require amending once further once the basis for the allocations for works other than beyond dam safety compliance works and the Dams Regulator basis of the timing for dam safety compliance work is clarified.
35. New South Wales Govt obligated works: It is assumed that MDBC and DBBRC works are pass through costs which are funded by New South Wales Government. The basis of the timing and hence rates of expenditure for this work is not evident and evidence of the directives given by Government to undertake this work should be supplied.

General Review Comments on Operating Expenditure

36. PB Associates is satisfied that State Water has adequately identified its obligations and has listed its activities (products) it considers necessary to meet the obligations. However despite a listing of the allocation of the products to the obligations there is no critical analysis of the basis for the ongoing spread and effort of the activities within the programmes. This is particularly so for long established activity.
37. Overall PB Associates is not satisfied that there is adequate linkage between the stated programmes, the targets to be achieved and the consequential dollars allocated. Linkages to business performance targets with evidence of "sign-off" by the beneficiaries would be an improvement (users, WAMC and other Departments).
38. Continuation of Valley Operating expenditure is forecast to generally remain at 05/06 levels throughout the price period except for a 3% real net savings commencing from 08/09 and continuing throughout the remainder of the period. The basis of a "steady state" level in a stated "zero budgeting" environment which is developed "bottom up" (by Valley areas) is not evident. This relates also to the previous point concerning the continuation of ongoing work and the take up of new work. Additionally, there is no mention of why the 3% figure has been adopted as the target or how the savings will be achieved.
39. There could be some argument for an increase in expenditure over the price period given the operating environment and the infrastructure used to provide these services (remote, widely dispersed business serving 6,300 licence holders, using many control structures in an environment where additional responsibility has been added and legacy deficiencies exist in asset condition and safety).

40. Additionally the Total Asset Management Plan 2004 lists a wide variety of “future actions”. The impact of these (dollars and timing) in the submission is not evident.
41. PB Associates recommends that the Valley forecast expenditure be set at a reasonable trend level based on progression from historical levels. PB Associates’ recommendation for the operating expenditure level is shown in Table B. In deriving the expenditure levels PB Associates has considered that there are a number of uncertainties in the planning and decisions on programmes presently planned to reduce expenditure and the deliverability of the capital expenditure programme which may impact on future maintenance requirements.

1. INTRODUCTION

1.1 BACKGROUND TO THE REVIEW

1.1.1 The revised regulatory framework

The Independent Pricing and Regulatory Tribunal (IPART) was established in mid-1992 by the Government Pricing Tribunal Act to regulate the pricing of government monopoly services of New South Wales (NSW) government agencies. In its role as a regulator, IPART is responsible for determining maximum bulk water prices for the State Water Corporation (State Water) and the Water Administration Ministerial Corporation (WAMC), which is a legal entity administered by Department of Natural Resources (DNR).

State Water was established on 1st July 2004. It was separated from the then Department of Land and Water Conservation (DLWC) to comply with the National Competition Policy to increase transparency and cost recovery of water delivery and resource management. State Water's main responsibilities include, bulk water delivery, asset management (it owns and operates the bulk water infrastructure in regional and rural NSW) and customer service to regulated river users and the environment¹.

In its last price determination IPART set a three-year price path from 1st October 2001 to 30th June 2004, covering bulk water prices for State Water and for DNR's Water Resource Management (WRM) activities. IPART's 2001 determination was due to expire last year, on 30th June 2004, the year when both agencies were going through institutional change. IPART found that the information provided by State Water was insufficient at that time to determine prices for the next 3-4 years. Also due to the late submission by DIPNR, in February 2005, there was insufficient time for IPART and stakeholders to consider in detail the full range of issues involved in setting a medium-term price path and to undertake a full comprehensive review. As a result, IPART only determined the maximum charges to apply for 2005/06².

State Water and DNR are now required to submit separate pricing submissions to IPART, these submissions have been received recently. IPART is required to assess the submissions and accordingly has sought an independent review of the submissions to determine whether the past four year (2001/02 to 2004/05) expenditures and proposed four year (2005/06 to 2008/09) future expenditure forecasts are consistent with the requirements of the legislative framework. For the capital works programme the review period covers 1996/97 through to 2035/36. Based on this review IPART expects to set the maximum prices for State Water and DNR for up to four years for the period commencing July 2006.

PB Associates notes that the current review includes a previous period when State Water was part of the former Department of Land and Water Conservation

¹ State Water Corporation Submission (September, 2005)

² Independent Pricing and Regulatory Tribunal, State Water and Water Administration Ministerial Corporation, Bulk Water Prices for 2005/06, August 2005.

(DLWC) until April 2003, and then part of the Department of Utilities, Energy and Sustainability (DEUS) until corporatised on 1st July 2004.

PB Associates acknowledges that previous financial performance and expenditures are influenced by the business frameworks, procedures, management structures and systems existing during these transitional times. This has caused State Water some significant difficulty in being able to adequately extract information/data from years prior to State Water's corporatisation (i.e. earlier than 2004/05).

1.1.2 Objectives of the expenditure review

The objectives of the review include:

- A retrospective review of capital and operating expenditures to reflect efficient and prudent expenditure.
- An assessment of future capital costs and operating expenditure to enable consideration of the revenue requirement for State Water and DNR for the coming regulatory period.
- The identification of major cost drivers and the subsequent recommendation of efficient cost levels for future years, consistent with maintaining service delivery capacity.
- An assessment of State Water's and DNR's asset management framework plans and practices.

1.2 TIMETABLE FOR REVIEW

Review Timetable

14 November 2005	PB Associates was appointed to review State Water's asset management, capital and operating expenditure with reference to State Water's (September, 2005) Submission to IPART to set Bulk Water Resource Management Charges from 1 July 2006.
8 December 2005	Meeting with State Water to: <ul style="list-style-type: none"> • obtain an understanding of how State Water had derived its expenditure figures; and • understand the business and expenditure planning processes, risk management practices and governance arrangements of State Water.
21 / 22 December 2005	PB Associates meet with State Water's Asset Management Team to obtain detailed information relating to its capital expenditure programme.
20 January 2006	Paper on issues relating to the Expenditure Review prepared for IPART.
30 January 2006.	PB Associates' Draft Expenditure Review Report was provided to State Water for its comment.
7 February 2006	Comments on PB Associates initial findings received from State Water.

1.3 METHODOLOGY

PB Associates has approached this review by first defining the process flow that we would expect a well managed utility to follow in developing capital and operating expenditure forecasts. Figure 1-1 and Figure 1-2 illustrate the process flow charts for developing Capital Works Plan and an Operational Expenditure Plan.

PB Associates has then reviewed detailed data provided by the businesses in order to determine whether information has been gathered and analysed by the business in order to develop prudent and efficient expenditure forecasts. As shown in both the flow charts we believe that strong links between identification of service obligations and the strategies proposed to deliver them are critical in developing robust and defensible expenditure forecasts.

Figure 1-1 Process Flow Chart for developing Capital Works Plan

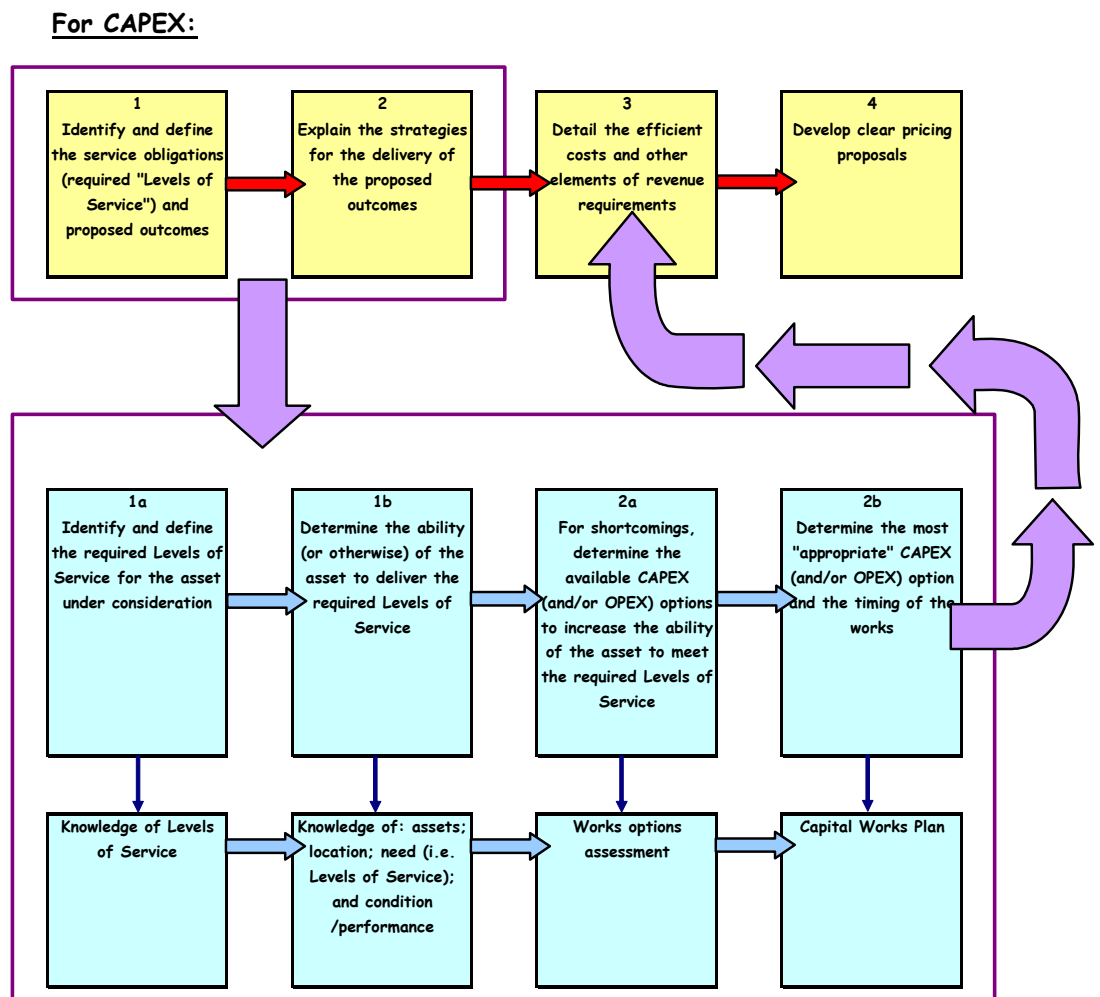
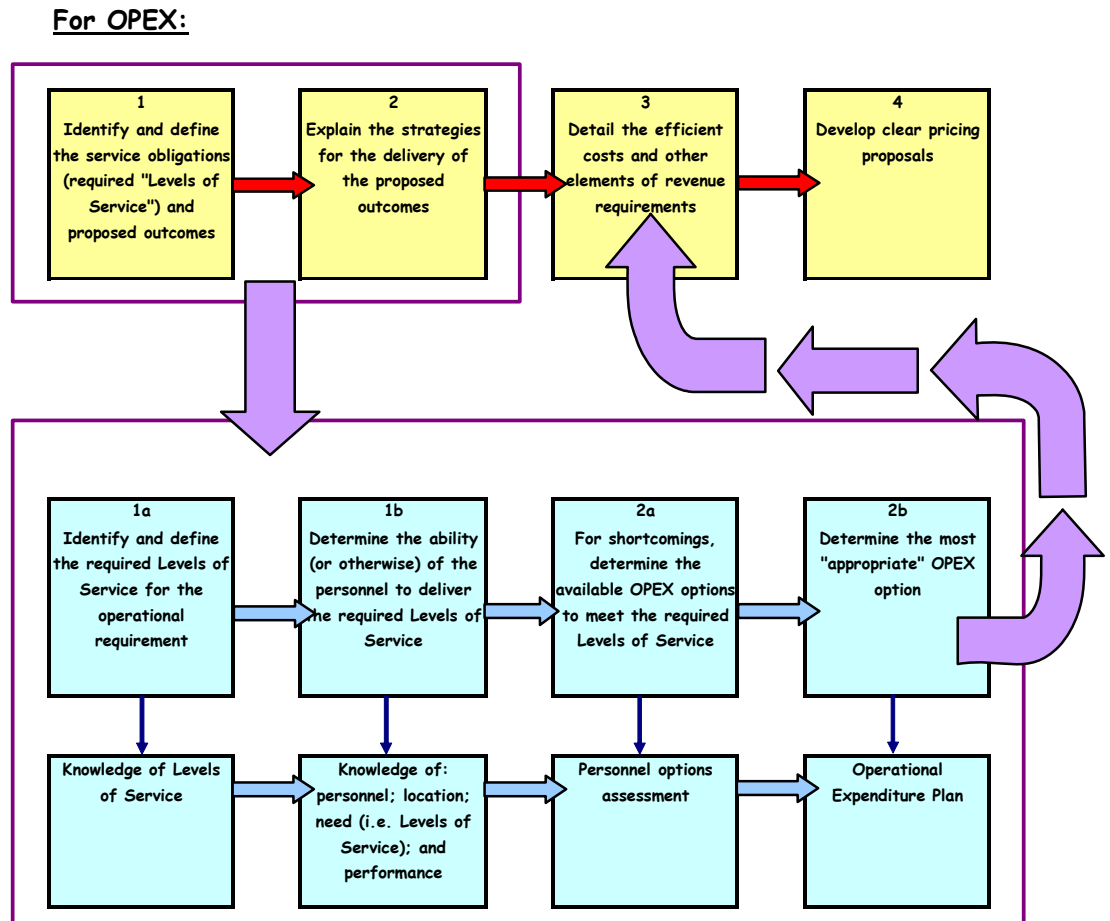


Figure 1-2 Process Flow Chart for developing Operational Expenditure Plan



1.4 FORMAT OF THIS REPORT

This report has been structured to include the following sections:

- **Executive Summary** - includes a high level summary of the recommendations with respect to State Water's expenditure proposal as well as a summary of each section of the report.
- **Introduction** – describes the background to the review, the terms of reference and time line and PB Associates approach and methodology for the review.
- **Business Drivers** – provides a high level overview of the environment in which the business operates and identifies the main business drivers.
- **Business and Expenditure Planning Process** – Reviews specific aspects of the management framework, plans and practices currently used by the

business and comments on the appropriateness of these processes with respect to delivery of the service obligations of the business. PB Associates has recommended improvements in a number of areas where either the processes or information provided regarding the processes were lacking.

- **Historical Expenditure** – reviews the historical capital and operating expenditure data provided by State Water and comments on the efficiency of the expenditure in specific areas.
- **Forecast Expenditure** – Reviews the forecast capital and operating expenditure proposed by State Water and provides recommendations for consideration of the revenue requirement for the business in the coming regulatory period.

A number of conclusions and recommendations have been made in various sections of the report and these are summarized in the Executive Summary.

2. BUSINESS DRIVERS

2.1 GENERAL

State Water's submission (Section 5.1) identifies a number of business drivers that relate to three main areas as follows:

1. The Regulatory Environment – State Owned Corporations (SOC), Acts, regulations, policy frameworks.
2. The Operating Environment - Operating Licence requirements, Water Savings Plans (WSP) and Works Approvals, and performance indicators and measures.
3. The Service Delivery Environment - Customer Service Charter, MoU, complaints and disputes systems, community consultation.

State Water's current submission provides details of its business planning approach in response to conclusions contained in a previous consultant report to IPART³ concerning the lack of linkages between business drivers and expenditures. This submission describes which regulatory instruments or other obligations each of the business drivers has been drawn from.

State Water has also established a list of "Critical Success Factors" as part of its Corporate Plan and set performance measures/targets for each of these. The "Critical Success Factors" have been drawn, in part, from the high level performance indicators listed in its Operating Licence and the Memoranda of Understanding (MoU) held with several Government departments.

The process for generating service levels or targets for these indicators has not been explained in State Water's submission; particularly, the sensitivity of these target service levels to cost.

Appendix 8 of State Water's submission links critical success factors to the business drivers in a table format. Table 5.2 in the submission also lists the critical success factors and shows how the Programme Structure has been formulated to address each of these factors. It also provides "Products" (cost codes) associated with each programme. All of the detail provided is intended to demonstrate that the expenditure forecasts are closely linked to the business drivers.

Expenditure forecasts are presented by valley and by product code. However, despite the level of detail described above, it is still difficult to understand the nature of each type of expenditure and how this can be linked to achieving the critical success factors and the other identified obligations.

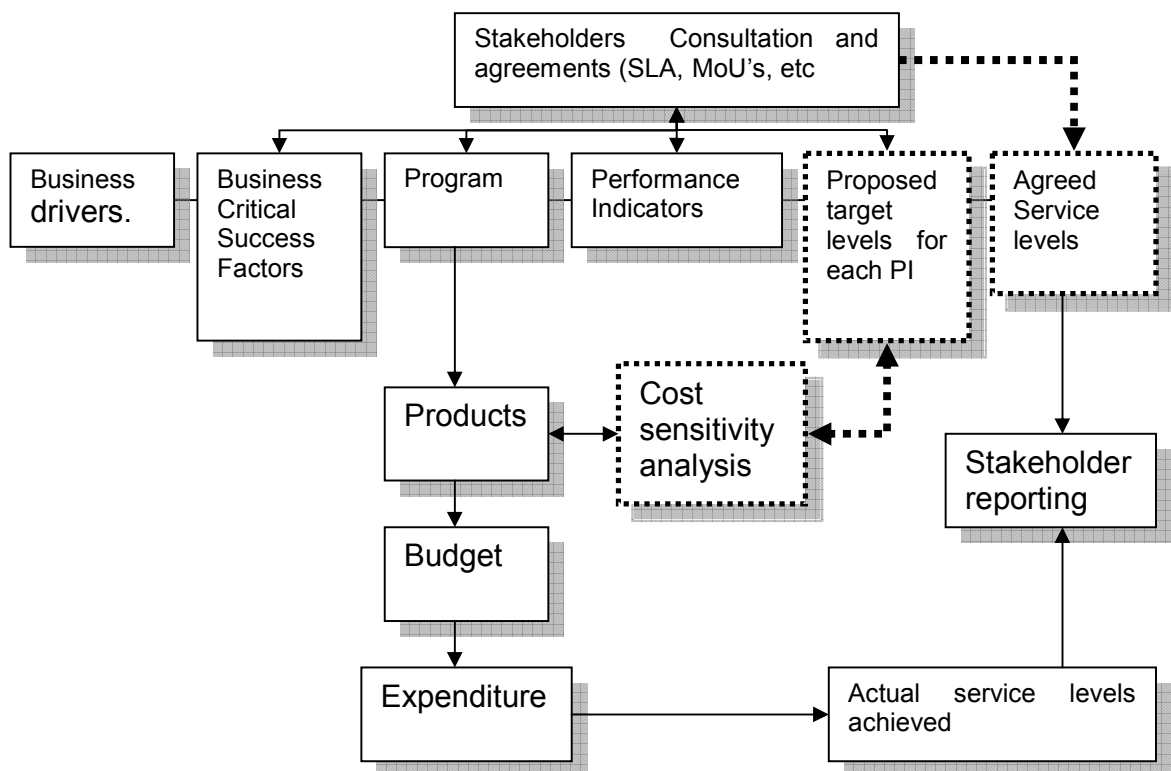
For any business operating in a competitive environment there are competitive market forces that dictate the "price-service" offering. However, in a monopoly

³ Marsden Jacob Associates-CardnoMBK (2005): "Review of Capital Expenditure, Asset Management and Operating Expenditure of State Water Corporation", Report to IPART, 5th May 2005.

business, such as State Water’s, there is a strong imperative to undertake a “willingness to pay” analysis in order to determine the appropriate level of service for which customers are willing to pay. This applies equally for irrigators demanding certain service responsiveness and efficiencies and for Government Ministers and other Regulators, acting on behalf of the community, who demand certain actions to be undertaken. The performance measures and targets set by State Water do not appear to be based on customer survey information.

Figure 2-1 provides a business process chart presents, in a simplified format, a method for establishing a “willingness to pay” for direct beneficiaries (water users) or responding to Government and other Regulator directives.

Figure 2-1 Willingness to Pay Process Chart



State Water has demonstrated a substantial commitment to many of the identified process steps. The boxes shown hatched indicate, where, in the opinion of PB Associates, there has been an inadequate demonstration of negotiation with stakeholders regarding the cost implications of meeting certain deadlines or targets. A demonstrated process of State Water identifying and communicating the cost implications of achieving, or not achieving, desired target levels back to stakeholders would better assist the justification of the proposed future expenditures; expenditures that are substantially greater than historical expenditures.

State Water⁴ has expressed a concern regarding the additional costs that may arise from undertaking “willingness to pay” negotiations with its customers and question whether cost recovery would subsequently occur. “Willingness to pay” negotiations and agreements with customers are less likely to cause debate regarding the cost of the negotiations provided cost savings result.

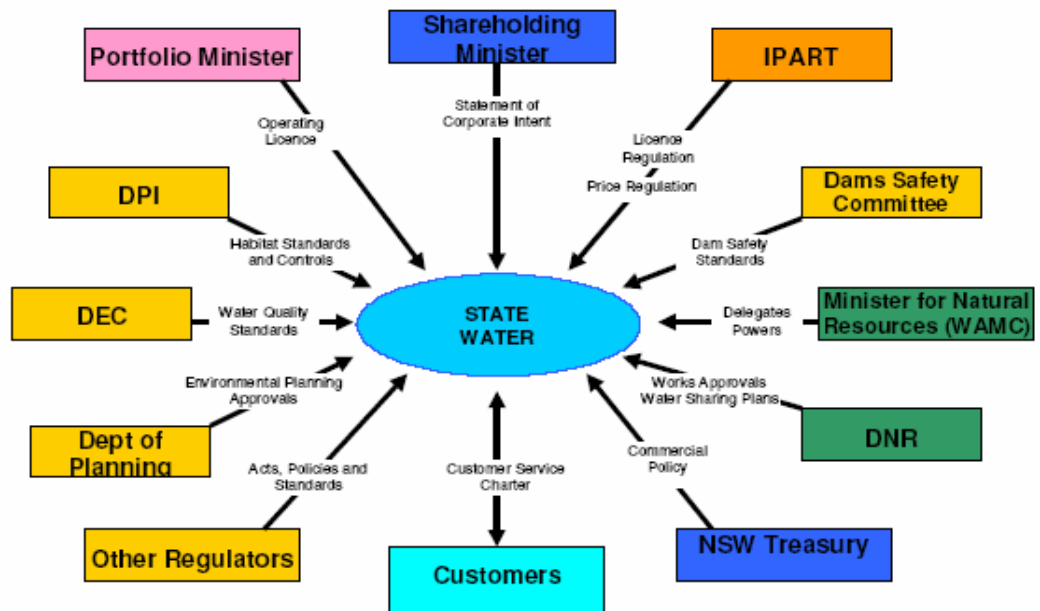
Clearly, as discussed in State Water’s Submission (Section 7.7.3), there is some level of concern from State Water’s customers regarding the apparent financial constraints on State Water (and its predecessors). Evidence of State Water undertaking this “willingness to pay” negotiation with its customers and outcomes from such negotiations would better enable PB Associates to accept State Water’s cost forecasts.

The absence of evidence of State Water’s negotiations with its customers makes it difficult for PB Associates to assess the adequacy and efficiency of the proposed expenditures.

2.2 REGULATORY ENVIRONMENT

State Water is a highly regulated business. The diagram below, which was extracted from State Water’s submission, shows how State Water operates within a multifaceted legislative, regulatory and water-market framework.

Figure 2-2 State Water’s Legislative, Regulatory and Market Framework



⁴ Comment on PB Associates’ draft report. Letter to PB Associates from State Water, 7 Feb 2006.

State Water has regulatory requirements under the following legislation:

- State Owned Corporations Amendment Act;
- State Water Corporation Act 2004;
- Water Management Act 2000;
- Water Act 1912;
- Dams Safety Act 1978;
- IPART Act 1992;
- Fisheries Management Act 1994, and
- other Acts.

State Water has provided a table listing each of the regulatory instruments and summarising the obligations under each one. It is noted that this summary does not consider specific clauses that could be directly related to specific projects but rather provides a generalised comment. For example: Soil Conservation Act 1938 – *State Water must manage its catchments and lands in accordance with this Act.*

Each of the drivers is assigned a reference number and these are later used to cross-reference the regulatory and other requirements with State Water's critical success factors and overall programme structure.

State Water has been thorough in its identification of the regulatory drivers that apply to its business.

PB Associates concludes that State Water has adequately identified its regulatory environment and has satisfactorily cross-referenced these obligations to critical success factors and product codes. However, PB Associates believes that the level of detail provided in State Water's submission is insufficient to explain specific expenditure project costs and how these are justified by the regulatory drivers.

2.3 OPERATING ENVIRONMENT

As stated above, State Water operates in a complex operating environment with multiple drivers, stakeholders and expected outcomes.

State Water has its operating requirements defined by:

- its operating licence;
- water management works approvals from DNR;
- the 10 water sharing plans and;
- its customers' access licences and works approvals.

As with State Water's regulatory requirements these operating requirements are outlined in a table contained in State Water's submission together with a general summary of each obligation.

State Water has separately defined critical success factors, some of which appear to be loosely linked to operating licence requirements. Performance standards or targets have not been specified in the operating licence, however State Water has stated targets for performance indicators for each aspect of the critical success factors (Appendix 6 of State Water's submission).

No information has been provided explaining how the targets for each critical success factor have been established.

As discussed previously, PB Associates would anticipate that a monopoly utility would undertake a rigorous exercise of:

- evaluating the required performance level for each of its Programmes and Products,
- ascertaining whether this required performance level is currently being achieved; and
- estimating the expected/required costs to maintain or improve the service level to meet the requirements.

Any areas identified where improvement was required could then be directly linked to expenditure in order to achieve the outcome.

State Water has not provided historical or current performance levels against targets and accordingly it is difficult for PB Associates to establish whether any additional expenditure is justified with respect to achieving required performance standards.

2.4 SERVICE DELIVERY ENVIRONMENT

State Water has service delivery obligations under State Water's:

- customer service charter;
- Fish River customer contracts; and
- MoU's with the DPI, DNR and the Department of Environment and Conservation.

State Water has established a Customer Service Charter and a number of Memoranda of Understanding (MoU) and contracts with specific entities. These agreements specify levels of service to be provided by State Water. However, unlike regulatory obligations, these agreements have been formulated by State Water. In effect, the regulatory and operating environment may have been imposed on State Water, but the service delivery environment has been created by State Water in agreement with other parties.

Therefore, in a similar manner to setting performance targets, PB Associates would expect that a cost analysis and "willingness to pay" study/negotiation would have been performed in order to establish appropriate service levels. State Water's submission does not explain the process used to formulate the service levels agreed to as part of the service delivery agreements. No specific information has been provided as to whether State Water is currently meeting the service level requirements under the obligations listed above, or how any specific gaps can be linked back to the forecast expenditure programmes.

2.5 CONCLUSIONS

The cost drivers identified by State Water provide a framework for developing the capital and operating programmes in order to meet the performance targets and critical success factors identified. Appendix 10 of State Water's submission provides the capital and operating expenditure forecasts on a "Valley" basis and by "Product" that can eventually be traced back through the other 4 tables of information to the business drivers and performance targets.

State Water has established the drivers for the major dam safety compliance capital works using a sound process based on established standards (under ANCOLD guidelines and State Dams Committee requirements) using risk management processes as recommended in the guidelines. Industry based standards are available for the risk attached to large dams such as floods and earthquakes.

There are a wide variety of other expenditures identified in State Water's submission, both in capital expenditure and operating expenditure. Currently, insufficient data has been provided to explain how the performance targets and service delivery levels were determined, and no information is provided to demonstrate the current level of performance with respect to the stated targets.

PB Associates contends that setting performance targets and monitoring performance against these is a critical step in linking the capital and operating expenditure forecasts back to the business drivers. If the drivers are to be used as a justification for expenditure forecasts, then there needs to be a clear understanding as to how the targets were set; where the targets are not being met; and how the proposed expenditure will ensure that the business improves service to the required level. Despite the volume of information provided, this link is still not clearly made.

State Water, in a recent response to PB Associates⁵, acknowledges that comprehensive assessments of levels of service, risk and cost have not yet been completed given the recent establishment of the Operating Licence and the practicality of doing this work across the broad spectrum of infrastructure and services.

However, PB Associates contends that a "price-service" debate with all beneficiaries/stakeholders, to achieve sound "willingness to pay" outcomes (or "time to comply" for Government or Agency directives) is warranted, as discussed earlier.

⁵ Letter to PB Associates from State Water in Response to draft report, 7 Feb 2006.

3. BUSINESS AND EXPENDITURE PLANNING PROCESS

The business and expenditure planning processes contribute to the development of prudent and efficient capital and operating expenditure plans. PB Associates has reviewed specific aspects of State Water's business and expenditure planning processes as the foundation of the expenditure review.

3.1 GOVERNANCE ARRANGEMENTS

State Water commenced operation as a State Owned Corporation on 1st July 2004. The corporate structure includes a Board of Directors, Shareholding Ministers, Portfolio Minister, a Chief Executive Officer and a senior management team.

Appendix 1 of State Water's submission outlines the progress made under the new corporate governance and indicates a 14 month period in which the following corporate governance documents and systems have been developed or updated: State Water's corporate plan; statement of corporate intent; asset management plan; memoranda of understanding with other bodies; customer service charter; payroll system; and financial management system.

State Water's Operating Licence clearly defines principal obligations with respect to customer and community engagement, complaint handling, asset management, water delivery operations, the environment and performance indicators for the business, but does not set specific targets for these indicators. State Water's submission provides an overview of the governance of the corporation. State Water indicated, in initial briefings to PB Associates, that there was an Authorisations Manual which was referenced for accountabilities and delegations in decision making. PB Associates has not audited the authorisation procedures in any detail.

State Water has defined a set of "Critical Success Factors" which are linked to specific obligations within various Acts and other instruments; however these do not readily link back to the Operating Licence requirements. The Board is responsible for ensuring that the Operating Licence requirements are met, but PB Associates is unaware, from the information provided, what information is presented to the Board in order that they may satisfy themselves that the requirements are being met, or will be met in future, as a result of the planned programmes and forecast expenditure.

The Total Asset Management Plan 2004 (TAMP 2004) describes in significant detail the life cycle asset management approach and includes a number of flow charts illustrating processes which include the development of capital and operating programmes. The description includes the development of options for, and prioritisation of, projects. However, these functions appear to be undertaken by the asset management staff of State Water and the descriptions do not explain how these recommendations are communicated to the management team and Board of Directors for approval.

The process and responsibilities of the Board of Directors in ensuring that expenditure levels are prudent, efficient and sufficient to meet regulatory obligations are not clearly indicated in the documentation provided. For example, there is no clear indication of how capital and operating expenditure is communicated, reviewed and approved as part of State Water's governance process. However, in a recent response to PB Associates, State Water has indicated that the capital investment planning process is currently under review.

PB Associates supports State Water's efforts to enhance its capital investment decision making, and recommends, that in addition to State Water's current practices, the achievement of agreed customer targets be included into State Water's Governance process.

3.2 RISK MANAGEMENT PRACTICES

In Section 5 of State Water's submission, State Water states: *"Through a process of risk analysis and assessment, State Water has identified key areas of risk and ways of managing risk. In each of these areas, State Water has developed projects, jobs and activities to deliver the products, whose outcomes and inputs can be measured. State Water's operating cost and capital cost structure reflects the imperatives placed on its business by a number of regulatory and market drivers."*

Throughout State Water's submission a number of references are made to incorporating risk assessment and risk management techniques into the consideration of projects that form part of the works programme. A range of risks are referred to including: Business Risks, Project Risks, Economic and Financial Risks, Occupational, Health and Safety Risks, and Environmental Risks. State Water has indicated that it is introducing a total programme risk management approach to enable risk-based priorities across the whole portfolio to be established and managed.

The Corporate Plan (preliminary Draft 2005/06 to 2006/07) states that State Water is implementing a Risk Management plan to manage the top ten risks to the business and at this stage has: identified these risks, defined the likelihood/consequences and has developed strategies to mitigate the risks. Risks identified in the document are high level business risks relating to issues from financial risks through to physical risks of asset failure.

Activities have been identified as "Proposed Risk Management Action" against each risk but it is not clear whether these activities have been allowed for in expenditure forecasts submitted to IPART as part of this submission. It appears that State Water has started to consider risk management issues, but based on statements in the corporate plan still have some way to go until a risk management system is fully implemented.

PB Associates supports the continued development of the risk management system as it will assist in establishing the risk profile for State Water and will be able to be used in better establishing its expenditure priorities, staging, optional risk paths and timing of works.

3.3 POLICIES & PROCEDURES

As noted above, State Water has advised that there has been a significant effort put into developing its corporate documents since it was established in July 2004. A list of documents produced includes: corporate plan; statement of corporate intent; asset management plan; memoranda of understanding with other bodies; customer service charter; payroll system; and financial management system.

PB Associates notes that many of these documents appear to be still in draft format, based on copies of the documents provided for this review.

A Total Asset Management Plan (TAMP) has been in existence since 2000 with the latest version being the TAMP 2004. This document is a high level explanation of the processes in place relating to State Water's knowledge of assets; customer and stakeholder needs; information management; human resources; asset management decisions and life cycle management; implementation of TAMP; benchmarking and monitoring and reporting of performance.

PB Associates recommends that the TAMP and corporate policies and plans be updated and/or completed periodically, so as to support the current and future price determinations and to better enable performance against the "price-service" determination to be assessed in terms of the TAMP and corporate plans.

3.4 COST ACCOUNTING AND REPORTING SYSTEMS & LEGACY SYSTEMS

Historically, State Water has relied on a SAP financial reporting systems managed by various state government departments to provide financial information relating to its activities. The TAMP 2004 states that due to SAP configuration constraints, historical cost information cannot be analysed within the system but must be downloaded to spreadsheets to enable analysis by valley and/or product code, etc (page 75).

The review conducted for IPART by MJA-CardnoMBK in 2005 determined that these systems were inadequate⁶ for a commercial business subject to regulatory oversight by IPART and highlighted numerous deficiencies that impacted State Water's ability to manage its business activities. State Water agreed, at that time, that the systems were inadequate and has since implemented a new information management system. State Water believes its new information management system will provide improved governance of the capital and operating programmes.

State Water has detailed the source of the new information management system and outlined the modules being implemented. State Water was well aware of the deficiencies in the previous system and it is understood that the replacement

⁶ Marsden Jacob Associates-CardnoMBK (2005): "Review of Capital Expenditure, Asset Management and Operating Expenditure of State Water Corporation", Report to IPART, 5th May.... Para 80, Executive summary.

system has been selected to address these deficiencies. The system has been in place since 1st July 2005, a period of approximately 6 months.

A range of issues are still to be completed, for example the integration of the Project Delivery System (PDS) which is still under development.

The MJA-CardnoMBK (2005) report highlighted issues relating to inconsistency in the use of product codes to classify various types of expenditure in the previous accounting and reporting system⁷. There is no information to suggest that in implementing the new system these historical inconsistencies have been revisited by State Water. PB Associates accepts that there is little value in attempting to recast historical expenditure records and therefore has analysed historical expenditure data at a high level only. State Water was able to extract and provide historical annual product costs for the years 2002/03 onwards, which have attributed costs closely matching those in more recent years.

PB Associates has not conducted an in-depth review of the implementation and effectiveness of the new system. It is PB Associates opinion that after only 6 months of operation, which would have included a range of activities related to data cleansing, de-bugging, formatting relevant reports, etc, the system is not currently utilised to its full potential and it would be difficult to establish its effectiveness in improving governance of expenditure programmes. However, the ongoing development of this system is strongly supported.

3.5 APPROACHES TO OPTIMISE COSTING

State Water's submission does not focus on the optimisation of costs. Section 5.3 discusses the effective implementation of business strategy, however this gives a high level overview of the structured approach to business strategy rather than specific details of how costs may be optimised.

The TAMP 2004 describes the Optimal Renewal Decision Making (ODRM) process that applies to projects competing for limited resources and how State Water determines the priority of projects in order to achieve maximum benefit. A flow chart describing the process is included, however the document states that State Water follows an informal methodology for ODRM and there are no documented procedures or processes currently in place. The TAMP explains that the methodology described "should" be used as a basis for formalising the current system.

State Water has advised⁸ that the ORDM process is not yet fully functional, principally because of difficulties in reaching agreement with regulators and customers. PB Associates reinforces its earlier comments concerning the conduct of "price-service" negotiations with its various stakeholders as one way of achieving a mutual sharing or allocation of risks.

⁷ E.g. Para 82, Executive Summary, Marsden Jacob Associates-CardnoMBK (2005).

⁸ Letter to PB Associates from State Water, 6 Feb 2006.

3.6 CAPITAL PROJECT SELECTION

Most utilities have a long list of projects that have been identified and should be completed for various reasons. Usually there are limitations on the budget and resources available to complete these projects and therefore a process to select the projects which will give the best overall result to the business is needed.

The TAMP 2004 describes the life cycle management (LCM) process in considerable detail and explains that this process is used to select what will be included in the works programme from competing projects and to select the most appropriate project option. The process involves a peer group of asset management staff considering information about preliminary works programmes, risk assessment, priority ratings, maintenance and condition assessment, regulatory compliance issues, knowledge and experience of staff, levels of service and stakeholder requirements, historical information, external resource availability, and resources within State Water.

For both selection of the projects and the best option for each project, it appears that the LCM process is used for only large projects in excess of \$500,000. For smaller projects, the TAMP 2004 explains that State Water relies on the experience and knowledge of local staff to determine which projects proceed. It is not clear how budgets are allocated for these discretionary projects or how the expenditure level is controlled.

In State Water's submission a new system is described, called the Project Delivery System (PDS). The PDS appears to be used to assess project options in terms of regulatory requirements and associated risks. It is not clear what role the PDS will play or has played in capital project selection and determination of projects to be included in the works programme and capital forecasts. The system is still under development but the intention is to use it to manage capital projects.

In summary, a significant amount of information has been provided regarding how asset management decisions might be made.

PB Associates is satisfied that the Asset Management framework and approach is sound (refer later section 3.13).

The capital programme is based on September 2005 estimates while the TAMP 2004 is based on estimates from July 2004. There are differences in the estimates.

It is not clear to PB Associates what methodology was used to select the capital projects included in the capital forecasts submitted to IPART.

3.7 RESOURCING

State Water's submission provides information on the number of full time equivalent (FTE) staff and the changes in this number during the past 4 years. Staff numbers have increased from 258 FTE's in 2002 to 304 FTE's in 2005 and are forecast to further increase to 310 FTE's in 2006/07. No forecasts for staff numbers are provided for the period 2007/08 to 2009/10. The reasons provided for the historical staff increases include:

- previous financial constraints being removed which have allowed additional staff to be employed and service levels to be improved to meet Customer Service Charter commitments;
- operating as a stand alone business, State Water is now required to provide financial and corporate support services from among its own employees rather than outsourcing to other Government departments; and
- increasing the Risk Management team to enhance capital programme delivery outcomes.

In Section 7.1 of State Water's submission it is noted that remuneration costs are scheduled to increase by 4% on 1st July 2006 and 2007. The 4% per annum cost increase and the increase for the 6 additional staff do not appear to be factored into the operating cost forecasts for 2006/07 and 2007/08 (refer to the following section).

The information provided states that in the past State Water has been budget constrained and as a result has not employed the appropriate number of staff which has resulted in a reduction in service levels. By implication, the increases in staff numbers have been required to provide the "required service level".

PB Associates notes that no supporting data on service levels has been provided for historical or current performance levels. Assuming that the additional staff are warranted for the activities described above, PB Associates expects that similar staffing levels would be required in future to maintain the service levels required. The operating expenditure forecasts which are static and then declining by 3% are inconsistent with this expectation.

3.8 SALARIES

PB Associates has not been provided with detailed salary information. State Water notes in its submission that it is expecting remuneration costs to increase by 4% on 1st July 2006 and 2007 due to a Government agreement. State Water has confirmed⁹ that the 4% increase in remuneration costs has not been allowed for in the operating expenditure forecasts in the Submission, as some salaries are capitalised and the remainder are to be resourced through efficiency measures or contract revenue.

PB Associates does not accept this assertion since the explanation of the increase in operating costs given in provided documents¹⁰ and discussed in this report in Section 4.2.1 clearly indicates the 4% has been allowed for (at least in some Valleys).

PB Associates recommends that:

- (a) The estimated (in the "pipeline") salary rises in 2005/06 dollars should be added to all forecasts since this is a given and is not an inflation factor.

⁹ Letter to PB Associates from State Water 6 Feb 2006.

¹⁰ ..Doc 19. State Water Corporation comments on OPEXV3.doc.

- (b) The efficiency targets set by the Board, while being an “ambit claim” based on benchmarking similar businesses in the first few years of establishment, should be reflected in evidence as to how these efficiencies are to be achieved. This is a clear service delivery issue for customers.

3.9 OPEX EFFICIENCIES

State Water states that: “*Considerable effort was put into improving commercial and operating systems during the year to increase operational and cost efficiency*”. Operating expenditure forecasts are static for the 3 years from 2005/06 to 2007/08 then forecast to reduce by 3% per annum due to efficiency improvements.

State Water has not provided any details as to how the 3% efficiency improvements were determined or how State Water plans to achieve the efficiencies. There is no estimate for staff numbers throughout the forecast period although the 3% reduction in operating costs combined with the expected increases in remuneration costs, implies that staff numbers will reduce. PB Associates was not able to reconcile with contradicting information in the submission describing additional staff requirements in various areas.

PB Associates is unable to provide an opinion on the basis of the submission and the supporting material as to whether the proposed 3% efficiency improvement is achievable and PB Associates has not allowed for any efficiency improvements within its the recommended operating expenditure.

3.10 VALLEY ACCOUNTS

State Water captures costs on a valley by valley basis and classifies expenditure into a range of product types. The MJA-CardnoMBK report¹¹ indicated that there were significant inconsistencies in the application of the product codes to expenditure incurred that resulted in the product based accounts not being considered reliable, but concluded that “Valley Accounts may well report total valley costs reasonably”.

MJA-CardnoMBK recommended, that the existing valley based accounts be subject to regulatory audit if IPART chooses to continue the practice of regulating cost allocation by Product Code. PB Associates understands that a regulatory audit has not occurred as per this recommendation.

3.11 CAPITALISATION RULES

State Water’s submission does not specifically address its capitalisation policy, however a document titled Capitalisation Policy Approved 28-10-05 was supplied with the documentation provided to PB Associates. This policy outlines thresholds for capitalisation or expensing various types of expenditure.

PB Associates has conducted a brief review of the policy and agrees that it represents a reasonable capitalisation policy.

¹¹ (Para 82, Exec Summary), Marsden Jacob Associates-CardnoMBK (2005).

In the MJA-CardnoMBK review it was noted that State Water advised that in 2004 it had adopted a revised capitalisation policy requiring expenditure exceeding a \$10,000 threshold for infrastructure and \$5,000 for buildings, and that occurs once every five or more years, to be defined as major periodic maintenance (MPM) and capitalised. The MJA-CardnoMBK review discovered that numerous items in the TAMP 2004 had not been classified in line with the new capitalisation policy.

PB Associates has conducted a high level review of the expenditures listed in the EXPLAN¹² to determine their consistency with the new capitalisation policy. Once again it appears that a number of entries are not consistent with the new policy for capitalisation thresholds for various expenditure types.

State Water has advised¹³ that the IPART submission is based on previous capitalisation policies.

PB Associates recommends that the items in the Capital Works programme be adjusted to conform to the new policy. PB Associates is unable to assess whether the effect of adjusting the capital works programme to match the new capitalisation policy will have a material impact on the overall forecast.

3.12 ASSET MANAGEMENT

The Total Asset Management Plan 2004 and associated appendices provide ample evidence concerning the approach to asset management taken by State Water.

The document clearly states and details the processes contained within the asset management (AM) framework. In reviewing these documents PB Associates observed the following:

- The framework and methodology generally follows the NSW Government AM Guidelines
- Processes exist for:
 - Obtaining full knowledge about assets;
 - Monitoring asset condition, performance and surveillance.
- Maintenance protocols and planning, including preventative programmes, major preventative maintenance (MPM) and its treatment under capitalisation rules (refer section 3.12) and, optimisation of maintenance schedules.
- Assessment of condition and need for response under a risk based approach. In the case of the dams ample evidence exists that State Water is following the ANCOLD guidelines directed by the dams regulator, the NSW Dams Safety Committee.
- Analysis of options including risk based approaches.
- Decisions on projects take into account life cycle considerations

¹² .Explan ResummarisedV2.xls.

¹³ Letter to PB Associates from State Water 7 Feb 2006.

- Deliverability (timing and staging)
- Application of these methodologies appears extensive as reported in the TAMP 2004 and includes benchmarking studies and surveys; although the latter may not have yielded benefits as yet and further development is suggested.

Detailed works programmes are prepared and a long term view (30 years) has been obtained.

While the result for the major capital items (viz. dams and dam compliance) is apparent there is a very large number of lesser projects listed in the TAMP 2004..

PB Associates is unable to say whether the same rigorous approach using the full framework provisions is applied, at an appropriate level of analysis given the size of the expenditure and/or complexity of the work, to these other items. It is noted that previous reviews have accepted the asset management approach and PB Associates does also. However, justification for the scope and priority of the large number of other projects cannot be assessed. (Refer to later sections for discussion on Forecast Capital expenditure programmes).

It is noted that the Fish River costs are not yet incorporated into the EXPLAN model. State Water provided separate information on these capital costs forecasts¹⁴.

3.13 DEPRECIATION OF ASSETS- ASSET LIVES

For 2006/07, depreciation (or Return of Capital) comprises:

- \$2,297,000 for long lived assets attributed to users,
- \$318,000 for short lived assets attributed to users (and depreciated over accounting lives), and
- \$1,966,000 for the Government share of long life assets.

It is noted that the level of depreciation increases substantially in future years of the price period. There is a substantial 5 year capital programme (\$320 million) with the work mainly focussed on very long lived assets (say 70-150 years plus) giving a depreciation rate of about 1% or less. Roughly, this would amount to \$3.2 million additional in depreciation if all expenditure could be attributed to extending service life. This compares well with the apparent rise of \$3.3 million in the depreciation charge over the regulatory period.

The TAMP 2004 Appendix schedules and the pro-forma Balance Sheet in the Draft Corporate Plan provide evidence of the allowance for depreciation. No discussion has been provided on the default economic lives adopted for each type of asset and the basis of the asset lives selected. Presumably, the Financial Auditors of State Water have periodically conducted an assessment of the adopted asset lives.

¹⁴ Doc21. Capital Works FRWSS Planning.xls.

Further the AM methodology and capitalisation rules will result in assets lives for particular assets and components being modified by the rehabilitation and renewal work arising from the assessment of condition and/or performance and will be tempered by the expected ongoing preventative maintenance.

PB Associates would expect consideration of trade offs between capital and operating expenditure to be considered in the asset management planning process. There is no discussion or results in the TAMP 2004 concerning the outcomes of such an analysis which considers the level of preventive maintenance and MPM against economic service life.

It is appreciated that a substantial component of the capital works programme is expended on upgrading assets to meet compliance requirements for environmental or safety reasons and this overrides the issue of sustaining expected asset life (in many cases). However there are a large range of other (ageing) assets for which these aspects could be an issue and which need to be presented.

PB Associates recommends that further analysis be provided to support the optimal life estimates and hence depreciation rates adopted.

4. HISTORICAL EXPENDITURE

4.1 HISTORICAL CAPITAL EXPENDITURE

4.1.1 Historical capital expenditure data

State Water has provided the information shown in Table 4-1 in its submission to IPART and other documents have been provided in support of its submission. Specific details to allow a rigorous evaluation of the efficiency of expenditure could not be ascertained from the historical data because of the way in which relevant data was allocated in the legacy accounting systems and results in some gaps in the following table.

Table 4-1 Historical Capital Expenditure

	HISTORICAL (<i>Actual \$'000</i>)				Budget
	2001/02	2002/03	2003/04	2004/05	2005/06
Border Rivers		288	482	227	278
Gwydir		2,599	2,341	1,538	3,743
Namoi		4,051	2,642	1,940	3,964
Peel		657	1,664	1,490	1,543
Macquarie		1,283	6,971	2,195	1,881
Lachlan		2,369	2,278	2,051	3,945
Murrumbidgee		1,988	2,089	1,708	3,553
Murray		926	1,153	958	3,776
North Coast		276	98	344	553
Hunter		1,414	943	913	1,735
South Coast		15	42	146	373
Sub Total		15,866	20,703	13,510	25,344
MDBC				8,183	16,557
DBBRC				39	194
Fish River				6,197	6,196
TOTAL		15,866	20,703	27,929	48,291

State Water's submission also included information regarding the allocation of valley expenditures to particular products for 2002/03 and 2004/05 and this is shown in

Table 4-2 and Table 4-3.

A break down of 2004/05 and 2005/06 capital expenditure by product was not provided.

Table 4-2 2002/03 Capital Expenditure –regulated streams (actual \$'000)¹⁵

New Product	Sub Product	Expenditure	IPART User share	Border Rivers	Gwydir	Namoi	Peel	Macquarie	Lachlan	Murrumbidgee	Murray	North Coast	Hunter	South Coast	TOTAL
3110	PC402	Asset management plans, standards and audit	100%	86	236	172	64	343	-	386	-	-	322	-	1609
3520	PC437	River structures develop - regulatory compliance	100%	-	-	-	-	-	2	-	5	-	-	-	7
3520	PC456	Dam Compliance- Upgrade	0%	-	1,080	2,388	523	113	283	176	-	-	-	-	4563
3530	PC430	Water infrastructure rehabilitation & development	20%	-	-	-	-	-	-	9	-	-	-	-	9
3530	PC431	Dam rehabilitation & refurbishment	20%	12	30	74	9	110	-	391	-	148	561	-	1335
3530	PC432	Dam major periodic maintenance	100%	127	274	425	54	243	279	65	-	5	62	12	1546
3530	PC435	River structure rehabilitation & refurbishment	20%	50	979	509	7	384	1,425	710	506	-	-	-	4570
3530	PC436	River structures major periodic maintenance	100%	-	-	-	-	-	162	-	-	-	-	-	162
3540	PC434	Dam development - service enhance/growth	100%	-	-	-	-	-	-	155	45	123	-	-	323
3540	PC438	River structures develop - service enhanc/growth	100%	-	-	169	-	85	4	60	22	-	461	-	801
5620	PC404	Hydro power station development	0%	-	-	-	-	5	-	36	-	-	8	-	49
6310	PC452	Regulated River Compliance-Environment	50%	9	-	-	-	-	-	-	26	-	-	-	35
6320	PC450	Dam Compliance-Environment	50%	4	-	314	-	-	-	-	-	-	-	-	318
#N/A	PC400	Rural water infrastructure policy and planning	100%	-	-	-	-	-	214	-	322	-	-	3	539
Total				288	2,599	4,051	657	1,283	2,369	1,988	926	276	1,414	15	15866

Table 4-3 2003/04 Capital Expenditure –regulated streams (actual \$'000)

New Product	Sub Product	Expenditure	IPART User share	Border Rivers	Gwydir	Namoi	Peel	Macquarie	Lachlan	Murrumbidgee	Murray	North Coast	Hunter	South Coast	TOTAL
3520	PC437	River structure develop - regulatory compliance	100%	-	-	-	-	2	11	-	-	-	-	-	13
3520	PC456	Dam Compliance-Upgrade	0%	-	316	1,033	1,458	280	237	556	-	-	-	-	3880
3530	PC430	Water infrastructure rehabilitation & development	20%	-	-	-	-	5,590	10	2	126	12	-	-	5740
3530	PC431	Dam rehabilitation & refurbishment	20%	-	84	8	-	342	326	901	50	62	430	5	2208
3530	PC432	Dam major periodic maintenance	100%	425	646	699	95	286	170	-	671	24	461	26	3503
3530	PC435	River structure rehabilitation & refurbishment	20%	57	1,023	799	111	389	510	501	209	-	-	11	3610
3530	PC436	River struct.major periodic maintenance	100%	-	272	-	-	-	-	-	-	-	-	-	272
3540	PC434	Dam development - service enhance/growth	100%	-	-	-	-	-	-	57	1	-	-	-	58
3540	PC438	River structure develop - service enhanc/growth	100%	-	-	-	-	38	473	-	55	-	-	-	566
4210	PC451	Dam Compliance-OH&S	50%	-	-	-	-	35	-	-	-	-	37	-	72
5620	PC404	Hydro power station development	0%	-	-	-	-	9	-	72	-	-	15	-	96
6310	PC452	Regulated River Compliance	50%	-	-	-	-	-	541	-	41	-	-	-	582
6320	PC450	Dam Compliance-Environment	50%	-	-	103	-	-	-	-	-	-	-	-	103
Total Capital Expenditure				482	2,341	2,642	1,664	6,971	2,278	2,089	1,153	98	943	42	20703

The 2002/03 expenditures are dominated by major preventative maintenance (MPM) and compliance work (76% of the total of \$15.8 million spent). MPM and compliance expenditure has risen to over 90% of the \$20 million spent in 2003/04. Figures for 2005/06 indicate that dam's compliance and MPM expenditure continue to represent the majority (70%) of the proposed capital spend.

The EXPLAN model, provided by State Water, was used to extract the 2005/06 figures shown in Table 4-1. A total of \$10.9 million is proposed in 2005/06 for valley expenditure relating to dams whilst a further \$9.6 million is attributed to other capital works on regulated streams.

Due to changes in the structure and reporting systems used by State Water during this 4 year period (as highlighted in the MJA-CardnoMBK (2005) Report)

¹⁵ Source: "Historical Opex Capex from previous submission for PB.xls". 6 Feb 2006

there are inconsistencies in the valley cost breakdowns from year to year. PB Associates is of the view that conducting detailed analysis on a valley by valley basis for historical costs will not provide robust conclusions.

The information provided by State Water does not detail achievements of its Capital Works programme against plan budget for each year. Accordingly, no firm conclusion can be provided on the quality of capital forecasts during the 2001/02 to 2004/05 period, or the deliverability of the "spend" against budget amounts.

Trends suggest that effort on compliance and major preventative maintenance (MPM) has been rising. This has been adequately explained by State Water as it improves its total asset management approach to its infrastructure.

4.1.2 Efficiency of historical capital expenditure

A review of State Water's capital expenditures on its dams and river structures indicate that work falls within several categories as follows:

- upgrades to achieve mandatory or directed compliance. This includes dam safety upgrades, environmental compliance and OH&S compliance works;
- replacements or renewals in which assets are replaced and have new lives;
- Major Preventative Maintenance (MPM) and rehabilitation designed to recover condition so as to ensure performance over expected remaining life,;and
- enhancements to provide new capacity or achieve improved operating performance.

Capital efficiency relates to the planning and decision stage, the construction or procurement stage and commissioning stage.

At the **planning and decision stage**, capital efficiency would be typically measured by factors including:

1. The rate of achievement of mandated compliance represented by number of structures non-complying versus dollars outlaid.
2. The rate of reduction in the whole of business prioritised risk profile as a result of capital dollars outlaid.
3. The minimisation of life cycle total costs.
4. Net present savings in annual or periodic routine or emergency/breakdown maintenance over remaining expected service life versus MPM capital dollars expended.
5. The net present savings in operating costs due to capital expenditure on structural enhancements or alternatively, the increase in water sales or income in a demand growth scenario.
6. The number of customers water orders met on time as a result of capital expenditure on operating equipment e.g. SCADA.

These measures should be documented at the planning and decision making stage using cost benefit analyses for options against outcomes and using risk analysis against corporate attitude to risk during decision making.

State Water has amply demonstrated that there is a strong planning process to developing projects using the TAMP methodology. Also an example is given in the submission of a small job achieving substantial operational savings.

It is not apparent however in the submission how the expenditures are targeted against some of the other efficiency measures as shown above. This relates to comments by us elsewhere concerning the linkages between specific targets and directives on time to comply and the capital spend. Product and valley expenditures should show the efficiency of the proposed expenditure summary form with reference back to the appropriate planning report.

PB Associates strongly recommends that State Water should develop and report their proposals against such measures.

At the **procurement stage** efficiency measures include

1. Reliability and verification of estimating using independent price estimators and/or benchmarking.
2. Competitive tendering for prices.
3. Delivery methods designed to achieve efficiencies in prices including staging, rate of expenditure, and bundling of tasks into one contract. Examples might include many smaller jobs in a region and opportunistically undertaking several jobs in association with a major task e.g. at dams. PB Associates has analysed the proposed capital works in valleys. This shows a large number of small expenditures spread across many areas with a large fraction attributed to MPM works.
4. Achieving expenditures against budget.

Figure 4-1 Number of Dams Capital Works projects versus Value

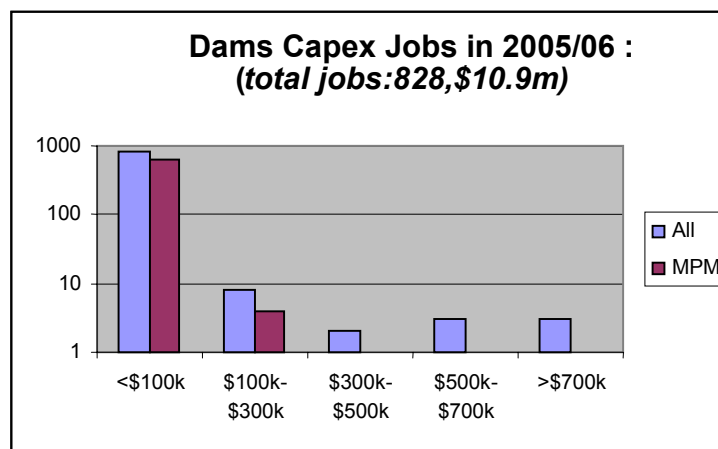
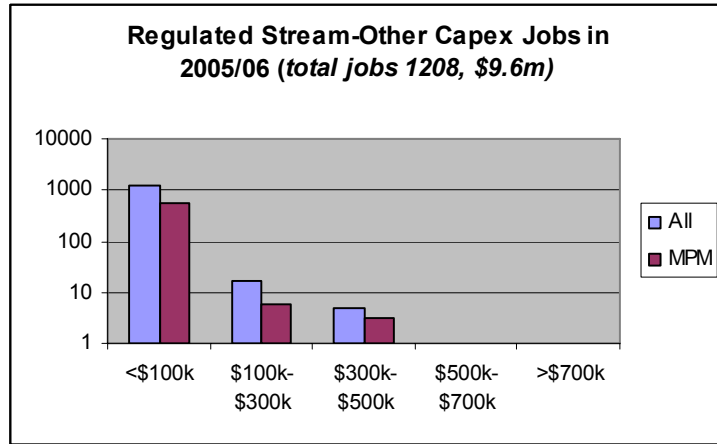


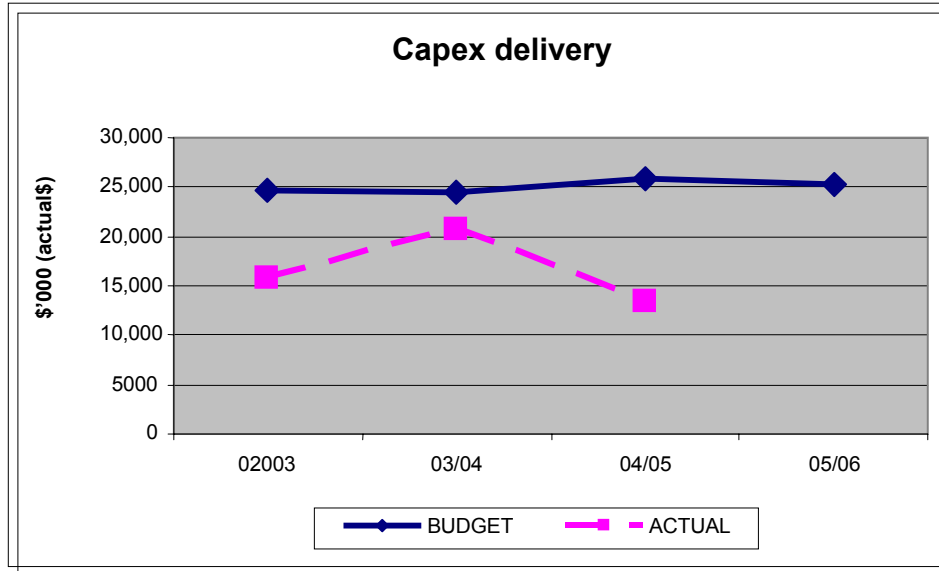
Figure 4-2 Number of Regulated Stream – other Capital projects versus Value



State Water calls for competitive tenders for all of its construction work. Where it is undertaking work on major dams, State Water also uses the opportunity to undertake other works not necessarily associated with safety upgrades but to economise on project set-up and establishment costs. PB Associates believes that State Water’s planning for this size of project is appropriate. However the confidence in estimating accuracy and ability to effectively deliver lesser works – rehabilitation of secondary structures and small weirs is not apparent.

Actual expenditure on projects does not correlate well against budget as shown by Figure 4.3 and Table 4-4 below and indicates that there is a mismatch between the implementation of capital projects and projected budget and timelines.

Figure 4-3 Actual Delivery of Capital Programme against Budget



Performance over the historical period has not been better than 85% (2003/04) in any one year. Overall performance against budget over the 3 years shown in Figure 4-3 has been 67% on average.

PB Associates accepts that for the dams there is an ongoing programme with various decisions points and timelines stretched by options and decision making as well as allocation of funds. Two other factors which may have affected delivery include the drought period which may delay access to complete works and the business reorganisation which occurred during these years.

There are other lesser projects in the MPM and river structures categories for which there has been substantial under-expenditure. Table 4-4 shows the percentage of budget spent in years 2002/03 and 2003/04.

Table 4-4 Actual MPM and River structures Expenditure versus Budget 2003/04 and 2002/03

Actual Expenditure versus Budget		
	2002/03	2003/04
MPM	65%	95%
River structures	92%	86%

On the basis of the trends evident in Figure 4.3 and Table 4.4 above, PB Associates recommends a “delivery adjustment” factor of 20% in the first year reducing to 5% in year 4 of the price period to allow for this factor in MPM and other non dam safety areas. There are a large number of small capital works planned (<\$100k) for upgrading of weirs etc. The delivery adjustment

factor does not apply to the capital works on the major dams on the basis that we have considered State Water's delivery programme for these projects separately. While a higher delivery adjustment could be justified PB Associates expects that there will be some improvement in project delivery over time.

Overall baseline Capital expenditure from which to judge future works is adopted at \$20 million in 2005\$ for 2005/06.

PB Associates strongly recommends that achievement of budgeted expenditure levels must be a primary goal of State Water.

The final area for consideration of efficiency is in the **commissioning stage** where post construction audits should be used to capture knowledge about final costs, delivery methods and outcomes. Evidence of efficiency gains to be proposed in future works via outcomes from this process is required.

PB Associates recommends that future submissions show the allowance for this aspect.

4.2 HISTORICAL OPERATING EXPENDITURE

4.2.1 Historical operating expenditure data

Table 4-5 presents a summary by Valley of the historical operating expenditures provided by State Water.

Table 4-5 Historical Operating Expenditure

	HISTORICAL (<i>Actual \$'000</i>)				Budget
	2001/02 ¹⁶	2002/03	2003/04	2004/05 ¹⁷	2005/06
Border Rivers		1,270	1,249	861	1,596
Gwydir		1,762	1,974	2,117	3,365
Namoi		2,787	1,934	2,800	3,913
Peel		722	763	749	1,317
Macquarie		3,576	2,719	2,893	3,867
Lachlan		3,218	3,069	3,407	4,408
Murrumbidgee		3,531	3,574	5,110	6,530
Murray		2,108	1,584	2,111	2,575
North Coast		431	373	641	783
Hunter		2,632	2,620	3,740	3,879
South Coast		429	461	758	775
SUB TOTAL		22,466	20,320	25,187	33,008
MDBC				Note 2	536
DBBRC				Note 2	8,806
Fish River				2,660	3,617
TOTAL	Note 1	22,466	20,320	27,848	45,967

Some observations on the data provided and extracted include:

- The grand total for the 2003/04 operating expenditure presented in the 2003/04 annual report matches the totals presented in the TAMP 2004. However, the allocation between Valleys is differently stated in the annual report to that stated in the Valley accounts for regulated expenditure, shown in the TAMP 2004, Appendix C. The total in Table 4-6 differs from the total shown in Table 4-5 due to the inclusion of other expenditures above the regulated component.

¹⁶ Note 1: State Water did not provide matching data for 2001/02 due to difficulty in extracting information from legacy systems.

¹⁷ Note 2: Not Applicable in 2004/05.

Table 4-6 Comparison of 2003/04 expenditure from Annual Report and TAMP 2004

Valley	2003/04 from Annual Report \$'000	2003/04 from TAMP 2004 \$'000
North Coast		
Border Rivers	418	1,258
Gwydir	2,297	1,973
Namoi	2,715	1,947
Peel	1,671	765
Central		
Macquarie	6,891	2,724
Lachlan	2,297	3,069
South		
Murrumbidgee	2,088	3,817
Murray	1,253	1,859
Coastal		
North Coast	104	374
Hunter	1,044	2,632
South Coast	104	462
TOTAL	20,882	20,880

- Table 4-7, Table 4-8 and Table 4-9 show the allocation of historical operations expenditure to products by valley. The tables are included in this report for completeness as they did not form part of State Water's submission to IPART.
- PB Associates understand that historic allocations to Valley accounts may not have been done on a reliable and consistent basis, therefore in depth analysis of comparisons between specific product codes, valley and years is unlikely to provide meaningful results. However, it is acknowledged that new systems are in place and further review of the issues involved in "legacy" systems is unlikely to be cost effective.
- PB Associates recommends that an early audit be undertaken of the 2004/05 Valley accounts to ensure that correct allocation is occurring and so that future price determinations can have assurance of correct cost allocation.

Table 4-7 2002/03 operating expenditure (Regulated Streams- excluding MDBC, DBBRC)

New Product	Sub Product	Expenditure	IPART User share	Border Rivers	Gwydir	Namoi	Peel	Macquarie	Lachlan	Murrumbidgee	Murray	North Coast	Hunter	South Coast	Total Regulated	
1110	PC102	Customer & industry liaison	100%	25	30	45	0	56	53	54	71	0	0	0	334	
2110	PC120	Annual river operations planning	100%	31	0	75	0	0	0	10	0	7	37	0	160	
2120	PA100	Quantity data collection & archiving	70%	80	239	292	62	518	411	417	78	0	107	0	2204	
2130	PA120	Quality data collection & archiving	50%	23	5	9	19	31	26	5	10	2	28	5	163	
2150	PC200	Reg river operations	100%	279	261	383	119	686	585	793	338	46	183	65	3738	
2155	PC100	State river operations policy and plans	100%	15	5	4	4	0	0	1	37	0	0	0	66	
2170	PB230	Surface Water Licence Surveillance	100%	0	0	1	0	0	0	15	12	0	0	0	28	
2180	PC221	Reg metering	100%	99	120	329	93	241	437	440	680	0	440	0	2879	
3130	PC405	Dam safety emergency plans	100%	3	0	5	2	1	1	9	0	1	5	4	31	
3130	PC420	Water infrastructure surveillance	100%	40	44	48	25	75	64	47	0	18	80	16	457	
3130	PC421	Storage surveillance data colln and analysis	100%	42	113	226	24	202	216	195	13	99	258	56	1444	
3130	PC423	Reg, rereg,other structure surveillance data coll	100%	3	26	37	13	21	30	42	25	0	0	0	197	
3140	PC410	Rural water infrastructure maintenance	100%	112	0	0	0	36	37	0	0	0	0	0	185	
3140	PC413	Maintenance of land and buildings	100%	113	105	152	67	195	195	205	27	183	249	146	1637	
3140	PC416	Maintenance of dam works	100%	0	274	676	157	576	513	275	301	75	660	129	3636	
3140	PC417	River structure maintenance	100%	203	107	173	2	391	221	350	109	0	0	0	1556	
3490	PC412	Storage maintenance audit	100%	5	10	8	4	3	4	8	0	0	6	8	56	
5220	PC220	Reg billing	100%	20	25	41	28	34	52	43	50	0	27	0	320	
5250	PC408	Public liability and other infrastr insurance	100%	138	379	275	103	510	340	622	347	0	552	0	3266	
6130	PC419	River channels and banks maintenance	75%	0	19	8	0	0	0	0	10	0	0	0	37	
#N/A	PA130	Quality data management	50%	28	0	0	0	0	0	0	0	0	0	0	28	
#N/A	PA220	Groundwater quality data collection	100%	11	0	0	0	0	33	0	0	0	0	0	44	
				-	1,270	1,762	2,787	722	3,576	3,218	3,531	2,108	431	2,632	429	22466

Table 4-8 2003/04 operating expenditure (Regulated Streams- excluding MDBC, DBBRC)

New Product	Sub Product	Expenditure	IPART User share	Border Rivers	Gwydir	Namoi	Peel	Macquarie	Lachlan	Murrumbidgee	Murray	North Coast	Hunter	South Coast	Total Regulated	
2120	PA100	Quantity data collection & archiving	70%	101	304	288	109	267	219	539	135	15	212	25	2214	
2130	PA120	Quality data collection & archiving	50%	19	8	13	18	21	42	2	8	5	34	3	173	
5510	PA220	Groundwater quality data collection	100%	-	-	-	-	-	18	-	-	-	-	-	18	
2170	PB230	Surface Water Licence Surveillance	100%	6	-	2	-	-	-	7	7	-	-	-	22	
1110	PC102	Customer & industry liaison	100%	3	25	29	-	46	57	27	51	-	-	-	238	
2150	PC200	Reg river operations	100%	167	296	297	122	564	542	521	261	30	169	44	3013	
5220	PC220	Reg billing	100%	31	20	39	26	34	55	49	70	1	6	48	379	
2180	PC221	Reg metering	100%	381	215	-	84	214	508	536	659	-	489	-	3086	
2160	PC310	Flood operation plans	100%	-	-	4	-	1	-	7	-	-	-	-	12	
3130	PC405	Dam safety emergency plans	100%	7	4	15	9	1	2	4	-	1	2	4	49	
5250	PC408	Public liability and other infrastr insurance	100%	55	201	146	55	274	183	329	120	-	293	-	1656	
3140	PC410	Rural water infrastructure maintenance	100%	-	-	-	-	57	59	-	-	-	-	-	116	
3490	PC412	Storage maintenance audit	100%	23	20	19	9	6	18	29	-	7	42	12	185	
3140	PC413	Maintenance of land and buildings	100%	56	189	143	53	251	202	308	51	94	464	119	1930	
3480	PC414	Mnt/ops recr & non-water supply facilities	0%	-	-	-	-	-	6	-	8	-	-	-	14	
3140	PC416	Maintenance of dam works	100%	-	419	755	164	618	716	413	127	94	630	119	4055	
3140	PC417	River structure maintenance	100%	82	98	151	-	122	188	434	49	-	-	-	1124	
6130	PC419	River channels and banks maintenance	75%	-	21	10	-	-	-	13	5	-	-	-	49	
3130	PC420	Water infrastructure surveillance	100%	30	25	23	9	36	32	48	-	14	48	12	277	
3130	PC421	Storage surveillance data colln and analysis	100%	257	98	-	69	189	206	254	28	112	231	61	1505	
3130	PC423	Reg, rereg,other structure surveillance data coll	100%	31	31	-	36	18	16	54	5	-	-	14	205	
					1,249	1,974	1,934	763	2,719	3,069	3,574	1,584	373	2,620	461	20320

Table 4-9 2004/05 operating expenditure (Regulated Streams- excluding MDBC, DBBRC)

Product	Product Name	User Share	Border	Gwydir	Namoi	Peel	Macquarie	Lachlan	Murrumbidgee	Murray	N Coast	Hunter	S Coast	Total Regulated
1110	Customer Information & R	100%	14.1	18.5	31.2		46.4	46.5	19.8	38.4				214.9
2110	Water Operations Planning	100%	13.9	0.7			2.1			0.7		8.9		26.3
2120	Hydrometric Monitoring	100%	125	422.5	434.6	128.6	434.8	492.4	878.9	127.3	17.5	268.4	34.9	3364.9
2150	River Operations	100%	180.2	312.8	455.5	107.7	610.3	534.5	838.6	544	11.4	298.2	109.4	4002.6
2160	Flood Operations	50%		0			1.9	0.6	2.1			3.2		7.8
2180	Metering	100%	81.4	191.9	259.8	87.1	230.3	478.9	558.6	838		735.2		3461.2
3130	Dam Safety Compliance C	100%	74.6	155.4	338.7	108	264.6	333	408.8	36.7	208.4	372.4	280.6	2581.2
3140	Preventive Maintenance	100%	307.6	837.4	1136.3	255	1058.1	1349.9	1920.9	418.3	402.7	1792.2	312.4	9790.8
3490	Asset Mgt O&M Audit & R	100%	1	2.3	2.8	-0.1	0.4	0.3	16.3	8		11	6.4	48.4
5220	Billing & Receipts	100%	15.8	3	15.5	16	9.1	14	183.9	40.6	0.7	0	13.8	312.4
5250	Insurance	100%	47	172.5	125.5	47	235.2	156.8	282.3	58.5		250.9		1375.7
	Total		860.6	2117	2799.9	749.3	2893.2	3406.9	5110.2	2110.5	640.7	3740.4	757.5	25186.2

Table 4-10 2005/06 operating expenditure (Regulated Streams- excluding MDBC, DBBRC, FRWSS)

Product	Product Name	User Share	Border Rivers	Gwydir	Namoi	Peel	Macquarie	Lachlan	M'bidgee	Murray	North Coast	Hunter	South Coast	Total
1120	Customer Support	100%	33.3	47.9	37.8	7.0	64.8	66.8	151.6	238.5	2.1	49.7	3.6	703
2120	Hydrometric Monitoring	100%	151.5	487.1	519.6	129.9	584.5	670.0	1,025.1	108.0	28.2	298.8	43.8	4,047
2130	Water Quality Monitoring	100%	127.5	136.7	212.2	141.3	96.8	112.2	247.6	17.5	52.3	233.2	52.6	1,430
2150	River Operations	100%	329.1	474.9	546.2	175.6	513.7	620.0	1,153.6	489.3	82.5	394.8	120.3	4,900
2180	Metering	100%	136.0	256.8	351.7	124.4	336.1	578.2	667.9	852.3	3.9	548.2	4.4	3,860
3130	Dam Safety Compliance C	100%	178.5	295.5	343.6	230.4	492.1	436.9	676.6	67.0	189.6	583.8	141.0	3,635
3140	Preventive Maintenance	100%	587.4	1,502.6	1,760.7	453.1	1,550.1	1,749.0	2,304.3	756.0	376.9	1,547.3	387.1	12,975
5220	Billing & Receipts	100%	7.7	15.3	18.8	13.4	21.4	19.5	28.0	28.3	3.0	10.7	3.0	169
5250	Insurance	90%	44.8	148.1	122.6	41.6	207.8	155.7	275.1	17.8	44.7	212.7	19.5	1,290
	Total		1,596	3,365	3,913	1,317	3,867	4,408	6,530	2,575	783	3,879	775	33,008

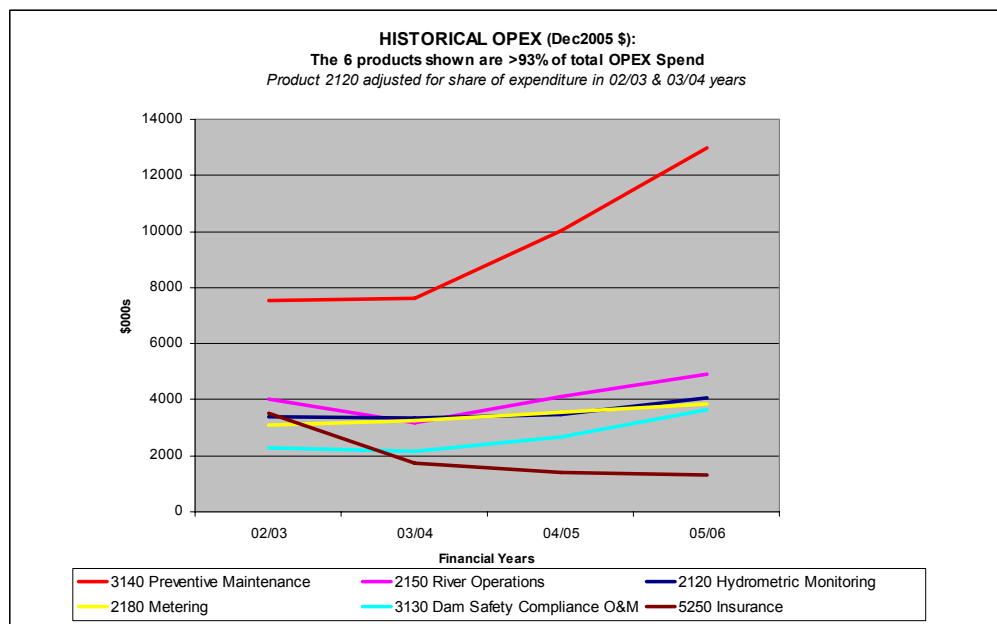
- The 2004/05 and 2005/06 data for programmes in each Valley was provided by State Water¹⁸. The source of the information was not described. State Water has attempted to allocate the new product codes to the old codes. Due to the cross allocation of current data from new to old product codes and the inconsistencies in historic data allocations PB Associates has not conducted in depth analysis of this data. We note however that in general the figures provided appear to follow a logical trend.
- The TAMP 2004 Appendix C Valley accounts quotes predicted 2004/05 total regulated O&M as \$30 million, yet the actual was only \$25.2 million. No explanation is given as to why the under expenditure occurred. However in several areas State Water explained that the drought provided increased opportunities to complete projects as did the removal of financial constraints following Corporatisation in July 2004. The failure to complete the budgeted programme casts doubt over both the delivery capability and the expenditure forecasting processes.
- Trends in historical operations expenditure are presented in Figure 4-4 for selected product activities. The expenditures have been indexed to current dollars and show only those six (6) products that dominate the expenditures (in all comprising over 90% of the total spend).

¹⁸.Doc. 16. 0405 Opex.xls and Doc 17. State Water OPEX Summary for 2005-06 final.xls.

It is obvious that a substantial increase in preventative maintenance has, and is continuing to occur. The submission explains the basis of this; being, largely, the removal of financial constraints and, assessment, under asset management life cycle work, to bring maintenance up to a reasonable level. For an asset replacement base of some \$2.5 billion (TAMP 2004 and submission Section 4.2.2) and a conservative weighted average life of say 100 years and given many of the assets are now older than half life, the maintenance costs presented are of the order of magnitude that PB Associates would expect.

While PB Associates supports a recovery in preventative maintenance expenditure, there is much to be done to provide clear evidence of the priorities and levels of these increasing expenditures (discussed further below in section 4.2.2). The explanations given for the overall increases in operations expenditure (considered in section 4.2.2) do not specifically indicate that the increase is being allocated towards increased preventative maintenance, but rather head office corporatisation costs and other regional activities.

Figure 4-4 Historical Operating Expenditure trends by product code



The anomalies in historical expenditure data described above and the accounting inconsistencies in classification of data identified in previous consultants reports mean that robust comparisons of historical and forecast expenditure may not provide valid conclusions. PB Associates understands that a new financial system has been implemented.

PB Associates recommends that quality based procedures and controls must be in place to ensure that Valley expenditure is accurately budgeted and allocated.

4.2.2 Efficiency of historical operating expenditure

IPART's terms of reference required PB Associates to provide an opinion on the efficiency of historic operating expenditure. This section explains the investigation and analysis completed by PB Associates during the course of this work.

MJA-CardnoMBK (2005)¹⁹ raised a number of concerns relating to the lack of supporting evidence to the results of cost analysis for resource allocation to particular activities. PB Associates has similar concerns. The submission would be enhanced by providing supporting evidence of results of cost analysis.

The following sections explain a number of areas where evidence to support costs incurred is lacking.

Increases in Operating Expenditure 2003/04 to 2004/05

There is a substantial rise (\$5 million approx) in Valley Operating expenditure between 2003/04 (\$20.3 million) and 2004/05 (\$25.1 million). State Water has provided Document No. 19 "State Water comments on OPEXV3" which provides some explanation for the \$5 million increase in operations expenditure. The explanation includes:

- improved funding position allowing maintenance to be done that could not be completed previously (\$1.9 million);
- additional staff to improve river operations (\$1.0 million);
- better identification of services for hydrographic costs (\$1.2 million);
- better cost identification for surveillance activities (\$0.7 million); and
- additional corporate costs (approximately \$0.5 million) for Board and other Head Office functions as the business grows.

In all these cases insufficient evidence is provided to justify the increases. For example "improved funding" is not considered to be a justification for "catching up with" maintenance, in itself. PB Associates consider that an adjustment of expenditure levels should be preceded by an argument that unacceptable service levels, business targets and risks were being run and that the prioritisation of all maintenance work required such an adjustment. Similarly options to achieve WSP requirements without additional resources are not canvassed. Increases in costs by State Water due to better network service definition by DNR must be questioned.

¹⁹ Paragraph 83 of the Executive Summary

Increases in Operating Expenditure 2004/05 to 2005/06

There is a substantial rise (approximately \$8 million) in Valley operating expenditures between 2004/05 (\$25 million) and 2005/06 budget (\$33 million). The information shown in table 4-11 was provided in support of these increases.

Table 4-11 Explanation of Increases in 2005/06 budget compared to 2004/05 expenditure

Area	EFT 2004/05	EFT 2005/06	Additional cost \$'000)	State Water's explanation on the increases
Corporate Services: staffing increases				
Head office staffing	2.5	14.5	\$1,200	Additional costs to enable State Water as a corporate entity to meet regulatory requirements and provide good Corporate Governance as required by statute in NSW.
Risk management staffing	4	12	\$800	Additional costs to enable the safe and efficient operation of structures and in line with legislative requirements according to DSC, heritage and environmental requirements
Strategic asset services staffing	3	4	\$100	These costs are required to ensure: Efficient planning Support for engineering services Appropriate monitoring of storages to ensure ongoing safety of structures in accordance with requirements of DSC
Total - staffing	9.5	30.5	\$2,100	
Corporate Services: non-staffing increases				
IT			\$1,500	Additional costs of network and operational costs of IT infrastructure.
Premises			\$600	Additional annual rent for new office premise
Other			\$100	Undefined
Total – non staffing			\$2,200	
Valley Services: increases				
Central Area: Macquarie Valley				
"A" costs			\$228	4% wage rise, 1 new position, allowance for entitlements and variation in funding sources for existing staff
"B" costs:	\$413	\$540	\$127	-DNR hydrometric charges increase.
	\$5	\$66	\$61	-new responsibility
			\$102	-minor variations to several existing works
Total–Macquarie Valley			\$518	
Central Area: Lachlan Valley				
"A" costs			\$171	4% wage rise, new position, filling of vacant positions and variation in funding sources for existing staff
North Area				
"A" costs			\$935	4% wage rise, 2 new position, filling of vacant positions (6 proposed) and variation in funding sources for existing staff
South Area				
"A" costs			\$800	8 positions currently to be filled

Area	EFT 2004/05	EFT 2005/06	Additional cost \$'000)	State Water's explanation on the increases
Coastal Area				
"A" costs			\$601	7 positions to be filled. (excluding FRWSS)
GRAND TOTAL			\$7,843	c.f. 04/05: \$25,200k and 05/06: \$33,100km

Claims that "corporatisation" has provided the opportunity to resource-up and get works, previously long restrained by insufficient budget during the time that State Water was located within a Government Department, has not been justified by providing strong evidence of the need to upgrade effort.

A common method of presenting operating expenditure budgets for regulatory purposes is to separate ongoing expenditure from increases in expenditure requirements brought about by new obligations or new opportunities (if justified). In this style of presentation direct evidence should be supplied describing the justification for the increases in expenditure and details of how the increase was estimated.

To some extent State Water has provided information to explain the \$8 million increase in budgeted expenditure from 2004/05 to 2005/06 see table 4-11²⁰, and also Table 8.6 in State Water's submission which lists additional and other resources required. However neither of these references provides the details of why each component of additional expenditure is required and whether these relate to new obligations or existing operating requirements.

While there is full explanation of the source of the \$7.8 million there is only partial justification for this amount (e.g. mandated 4% rise in salaries and wages and some obvious set up costs IT and premises).

The increase of some 20 FTEs to accommodate the corporatisation is undefined. There are a substantial number of vacant positions proposed to be filled. In all cases including the valley proposals it is uncertain whether these are vacant existing positions or new positions. In all cases there is insufficient evidence to show that the proposed staffing increases are the best option and indeed maintain efficiencies.

An option that does not appear to have been considered in relation to the additional risk management and strategic services is whether these requirements could be met through redeployment of existing staff or outsourcing to a consultant since this work is largely dependant upon the rate of achievement of goals and performance targets. State Water advised²¹ that it considers the outsourcing of resources in an environment where an adequate level of expertise in-house is lacking is an unacceptable risk. In areas where sufficient in-house resources do exist such as construction and maintenance outsourcing is utilised.

²⁰ Table extracted from State Water Document 19 "State Water comments on OPEXV3".

²¹ Letter to PB Associates from State Water, 7 Feb 2006.

PB Associates is unable to support the proposed increase in resources into the future, with the exception of the additional head office governance staff due to corporatisation, without linking the increases to specific additional work and obligations.

Efficiency gains forecast and allocation of overheads

There is a lack of transparency in the allocation of overheads and efficiency gains sought.

The basis of the allocation of corporate overheads (shared services) as a proportion of Valley accounts is discussed in the submission and at the 8th December 2005 presentation by State Water to PB Associates. However, the component of each Valley expenditure attributed to overhead/head office administration is not presented.

Shared services appear to represent a very high proportion (at least 24% of total opex based on figure 7.5 of the submission). Water users in the Valleys require evidence of the efficiency of these services within the local cost structure and this has not been provided.

Efficiency issues for these costs are not canvassed in State Water's submission. State Water states that it had a need to implement its own business systems and supporting corporate governance structure as a result of the corporatisation. Proposals to show what efforts will be made in future to optimise this overhead cost have not been given.

Contestability

Contestability of services was reviewed by MJA-CardnoMBK as well as use of technology (e.g. SCADA) to enhance productivity. State Water has responded to the MJA-CardnoMBK comments in their submission indicating in Table 7.7, that there has been no market testing of contestable services in the water delivery services area.

The submission indicates that much of the activity is considered to be "core business" and that during the early start up period, which has occurred under severe drought conditions, contestability of services has not been a priority to date. State Water further indicates that it has identified areas where contestability could be undertaken, but no indication has been provided as to anticipated timing and whether this has been allowed for in the expenditure forecasts.

Cost Accounting

It is noted that State Water has introduced, from 1st July 05, a new financial management system. The expected effectiveness of this into the future is not defined nor are impacts on the development and linkage with the project delivery system.

Clear evidence that "cross cost accounting" is not occurring in proposed expenditures for the Fish River "business" is required. Even though separate budgets are presented for 2005/06 onwards in the forecast tables there is no

evidence as to the nature of the costs or the justification for these. PB Associates notes that apparently 14 more staff were taken on/transferred to the new business (Table 7.5 in the submission). However data provided in Table 4-11 suggests that some of these staff are to be taken on in the Central Area.

Additional staff have been taken on in risk management.

State Water provides comment in the TAMP 2004 document (p42) that the Dams safety compliance work has progressed beyond the initial screening and the detailed investigation stages. PB Associates would expect that most, if not all, of these new employment remuneration costs could be capitalised, since expenditures most likely relate to future works. It is also noted that most of the work is undertaken by external service providers. Further, State Water indicates in its submission (Section 7.7.5) that costs of the Asset Services Branch "are primarily attributed to the capital programme in proportion to time spent on the capital projects". This further reinforces the need for transparency in allocation of head office overhead costs.

PB Associates recommends increased transparency in the allocation of overheads and definition of how efficiency gains sought are to be achieved.

5. FORECAST EXPENDITURE

5.1 FORECAST CAPITAL EXPENDITURE

5.1.1 Capital expenditure forecast data

State Water has provided information on its proposed capital expenditure over the regulatory period. Subsequent to State Water's presentation to PB Associates, State Water provided additional data and clarification regarding the capital works programme and its estimated expenditure. Table 5-1 summarises the proposed expenditures by Valley.

Table 5-1 Forecast Capital Expenditure²²

	BUDGET	FORECAST (2005\$ million)					
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	TOTAL
Border Rivers	0.278	0.295	0.085	0.058	0.027	0.136	0.601
Gwydir	3.743	2.621	1.611	1.851	5.641	10.530	22.254
Namoi	3.964	9.378	26.293	23.632	19.918	2.213	81.434
Peel	1.543	1,146	3.668	6.093	6.733	0.521	18.161
Macquarie	1.881	1.597	2.254	3.012	5.405	19.926	32.194
Lachlan	3.945	3.527	4.808	2.983	6.649	24.340	42.307
Murrumbidgee	3.553	3.504	9.684	5.914	1.111	2.734	22.947
Murray	3.776	2.810	1.479	2.465	0.846	1.026	8.626
North Coast	0.553	0.681	0.458	0.056	0.038	0.213	1.446
Hunter	1.735	1.388	1.284	0.491	0.998	0.847	5.008
South Coast	0.373	0.202	0.100	0.297	0.016	0.066	0.681
Sub Total	25.344	27.149	51.724	46.852	47.382	62.552	235.659
MDBC	16.557	20.606	17.561	14.372	11.126	11.950	75.615
DBBRC	0.194	0.567	0.152	0.165	0.148	0.259	1.291
Fish River	6.196	2.500	1.801	1.325	1.334	1.037	7.997
TOTAL	48.291	50.822	71.238	62.714	59.990	75.798	320.562

²² Data sourced from Appendix 10 Volume 2 State Water Submission (2006/07 to 2010/11) and "Capital expenditure table for PD" 6 Feb 2006,

The submission presented several tables for each year based on the expenditures across various types of programmes.

It is significant that the 5 product areas that comprise nearly 70% of the total are:

- dams compliance, which includes safety works and upgrades for environmental reasons;
- major period maintenance (capitalised under existing Capitalisation Rules);
- fish ways/fish passage works;
- modifications to structures to mitigate impacts of Cold Water Release; and
- salt interception works.

The other 30% is comprised of a large number of other works spread across the valleys, mainly aimed at asset sustaining and upgrade work.

Table 5-2 shows the expected forecast for these top 5 areas as well as the percentages of the total capital expenditure for each and for the total over the period 2006/07 to 2010/11.

Table 5-2 Capital Expenditure Forecast for 5 major expenditure types

	BUDGET	FORECAST (2005 \$'000)					TOTAL
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	
Significant Asset sustaining projects							
1. Dams safety compliance ¹	11,771	15,958	38,580	35,110	30,085	50,652	170,385
		31%	53%	55%	49%	67%	53%
2. MPM projects	12,468 ¹	13,221	9,739	9,238	7,879	10,441	50,518
		26%	19%	13%	13%	17%	16%
Significant new works by directive and substantially paid for by Govt. Some under agreement with MDBC/Murray Water Authority and using State Water as the constructing authority							
3. Fish passage ways	5,905 ¹	8,955	9,124	6,282	6,000	6,165	36,526
4. Cold Water Mitigation	218 ¹	250	615	1,040	7,720	2,325	11,950
5. Salt interception	4,800 ¹	4,800	4,800	3,000	1,200	900	14,700
TOTAL 3, 4, & 5							63,176
% TOTAL CAPEX FORECAST							20%

Note 1: from "Capital expenditure table for PD.xls".6Feb2006

5.1.2 Overall basis of the forecast

State Water has a large portfolio of very long lived assets, including over 30 major and minor dams, regulators and weirs. In previous submissions to IPART, State Water has indicated that many structures had deteriorated significantly and that it planned an intensive programme of renewal works on the dams over a projected period.

In August 2004 State Water revealed to the NSW Treasury that only 3 of its more than 30²³ dams satisfied dam safety requirements and provided an upgrade programme over the next 20-30 years.

The current submission and figures within EXPLAN reveal significant amounts to be spent on dam upgrades within the next seven to nine years within the overall long term forecast of capital expenditure to 2035 provided by State Water in EXPLAN. There are many projects in the register.

The first four major expenditure types were assessed by PB Associates and are discussed in the following sections.

5.1.3 Dams safety compliance

Over 50% of the total capital expenditure forecasts for the regulatory period relate to dam safety compliance. In order to better understand the basis for this significant component of the forecast PB Associates has reviewed State Water's approach to dam safety and has reviewed in detail four specific dam safety compliance projects forecast to be conducted during the regulatory period. The details of the four project reviews are contained in Appendix A of this report. A summary of the findings and conclusions is included in this section.

Dam Safety Compliance Review

State Water has carried out portfolio risk assessment followed by detailed risk analysis for its 16 major dams and 14 minor dams (State Water summary report of Dec 2002). The portfolio risk assessment commenced in 1999 and the detailed risk analysis was completed in 2002.

PB Associates notes that the risk assessment process was carried out by external consultants and the results peer reviewed prior to State Water accepting the findings.

The outcomes of the risk assessment is summarised below:

- The hazard category for Keepit, Chaffey, Blowering, Burrendong, and Wyangala dams is "Extreme" – this is in accordance with the current ANCOLD Guidelines. The hazard category for Copeton and Split Rock dams is 'High A'.
- The population at risk, if the dams were to breach, ranges between 1,185 for Split Rock Dam to 13,087 for Blowering Dam.
- The total economic, potential environmental and loss of asset damage, in dollar value, is also estimated to be over \$1 billion for each of the dams.
- Similarly, potential cultural and heritage damage is also estimated to be significant.
- Insufficient flood handling capacity appears to be the main deficiency; while the potential for piping failure also contributes to the overall risk of the dams.

²³ It is noted that current figures show (State Water Dec 2002) 16 major dams whereas the 2004 Treasury report suggested there were 118 such Ref NSW Treasury Report "State Water-Financial Review" August 2004.

Only two of the sixteen dams show a seismic deficiency; these dams are Blowering and Burrendong. The deficiency is in terms of NSW Dams Safety Committee's requirement as well as ANCOLD's compliance.

PB Associates notes that the submission does not include an assessment of Capex prior to the 2006/07 financial year. However, prior expenditures on dam safety upgrade projects, in a changing business environment are possibly not relevant to the future pricing. Previous performance with respect to dam safety upgrade capital spending should not be extrapolated, given the extent of recent consolidation within State Water.

It is assumed that State Water will pursue the dam safety upgrade programme with vigour although no discussion is provided in the submission on its ability to meet the substantial proposed effort. PB Associates has not given any detailed consideration on State Water's ability to be meet the dam safety upgrade that has been outlined in the submission.

State Water recently advised²⁴ that they were exploring alternative delivery mechanisms and options especially given current competitive market for engineering and construction resources. In such an environment, State Water should provide evidence of the risk in its deliverable targets and, adjust timelines outwards and/or annual expenditures over the price period downwards, accordingly.

PB Associates recommends that State Water provide to IPART assurance and evidence from State Water on this deliverability aspect or provide adjusted forecasts.

Reviewed Projects: A considerable amount of dam safety compliance capital works is programmed over the next 7 to 9 years primarily to upgrade State Water's dams to comply with NSW Dam Safety Committee's²⁵ (DSC's) requirements and ANCOLD Guidelines in terms of reducing the risk of dam failure.

PB Associates has reviewed the Project Plans for four of State Water's dams:

- I. Keepit
- II. Chaffey
- III. Burrendong
- IV. Wyangala

Planning Procedures and Completeness: PB Associates has reviewed the supporting documentation provided by State Water justifying the capital expenditure for undertaking remedial works to these dams and is satisfied that State Water has appropriate processes in place for monitoring/surveillance, maintaining and assessing the safety risk of its certified dams. State Water also

²⁴ Letter to PB Associates from State Water, 7 Feb 2006.

²⁵ In NSW the Dams Safety Committee is the Regulator for dams and it is required to follow up with the dam owner on a regular basis regarding how the owner will improve the safety of the dam.

has made available any independent reports that may have been prepared in justifying the remedial works.

On the basis of the supporting documentation, PB Associates is satisfied that the proposed remedial works on the Keepit, Chaffey and Burrendong Dams will shift the currently unacceptable risk as defined by the ANCOLD Guidelines and required by the Dams Regulator to a risk level that does comply and is sufficient. The work is soundly based on adequate knowledge and uses proven methods considered current best practice while recognising possible future shifts in knowledge about the PMF, climate change, catchment changes etc.

The proposed upgrading works at Wyangala Dam are at the investigation stage, so the options for upgrading the facility may change.

State Water is able to demonstrate that it has considered short term measures as well as the longer term options. Both type of options are canvassed and eventually State Water work towards coming up with the best possible option to suit all the stakeholders.

All the proposed capex work reviewed has a project plan. The project plans have a programme of investigations, approvals, design and construction. The project plans outline the tasks and who the responsible persons are for those tasks. Also, it is noted that a significant portion of the work will be contracted out.

Project Delivery: The proposed upgrading options at these dams have been extensively discussed with community groups, which is a requirement of the NSW DSC. PB Associates acknowledges that the consultation process requires a significant amount of professional resources and projects can take considerable time to complete. State Water is encouraged to provide a clear assessment of project lead times in its project plans. This directly affects the achievement of expenditures determined by IPART. Significant under-expenditure is likely to be viewed negatively by Price Regulator leading to queries concerning the authority's ability to deliver and the quality of annual forecast estimates being made and requested. PB Associates notes that State Water is currently considering different options for implementing these projects.

PB Associates recommend that a risk based estimate on delivery time and subsequent expenditure rates be made and cost forecasts adjusted.

Long term forecast: For Capex estimates from 2010/11, a large margin of error is to be expected, particularly for the latter half of the planning horizon to 2035. The programme will roll forward progressively and State Water should aim to develop precise estimates 5 year out by the time the next pricing review is to be undertaken. In the meantime, the projections of Capex provide all stakeholders with a basis for future budgeting. No other tool is available for this purpose.

State Water's submission and TAMP would benefit from outlining some information relating to:

Cost estimates: The effort required to closely assess costs of the various projects is high given their complexity. It would be helpful if cost documents

show the most up to date project cost estimates. PB Associates found that not all project documents were up to date.

Staging of works: Questions have been raised by PB Associates as to whether the programme delivery is optimal? (i.e. recognising lead times, site issues, community/stakeholder issues, contractor demand, expectation of input prices, contingencies etc).

Timing and project delivery: Under-expenditure in pricing periods can also give reasons for concern. There is no historical information to demonstrate that State Water has delivered projects on time and on budget. PB Associates has not formed a view as to whether State Water has adequate resources (technical and financial) to undertake the capital programme within the timeframe indicated and notes that State Water has had its Project Delivery Systems reviewed by independent advisors. A consideration of the timing and sequence and use of available contracting resource for undertaking the upgrading works should be available.

Opportunistic aspects: Where issues other than dam safety are being undertaken at the same time as the major work, these should be subjected to separate testing for prudence and efficiency" (e.g. works being done for water quality in downstream release reasons or efficiency in operations delivery, improved SCADA or remote operations, etc).

An updated TAMP should be prepared to match the expenditure forecasts.

5.1.4 Major periodic maintenance (MPM)

Expenditure related to MPM represents 16% of the capital forecast for the regulatory period and relates to the major remedial works undertaken on structures, which under the capitalisation rules are capitalised. The MPM works amount to approximately \$50 million of expenditure over the next 5 years.

While EXPLAN can be used to ascertain what these works are, and the validity of undertaking such work is not questioned, PB Associates is unable to assess the justification for the timing and the estimates of these as no evidence is given for the options analysis under the life cycle optimization procedures stated as being used in the TAMP2004.

5.1.5 Fish passage ways

State Water proposes a 5 year expenditure of some \$36 million on fish passage ways which are works designed to incorporate facilities that will deliver improved quality of water downstream of dams to improve fish habitat downstream of the dam.

Examples of upcoming fishway projects identified within the current IPART submission include:

- Lake Cargelligo Weir – Lachlan Valley – estimated cost over next 3 financial years is \$3.5 million.
- Gulpa Creek Regulator – Murray Valley – costs are not available.

- Weeta Weir – Namoi Valley – estimated cost is \$3.3 million during 2005/6 to 2007/8.

State Water provided additional information on the fish passage way policies and legislation which is driving the response by State Water (Ref: “FP Policy & Legislation for PB”). No information was available to PB Associates on what constitutes the remaining new works planned over the next 5 years and accuracy of these expenditure forecasts.

PB Associates is satisfied that the need to develop and undertake works is prudent and that planning process appears sound. However, on the basis of the information provided and given there are uncertainties in the outcomes, PB Associates expects that the timing and nature of works will change over time, which will impact on the expenditure forecast. Examples of these include:

- the most appropriate fishway for the site;
- prioritization process whereby high priority sites in terms of providing fish passage are identified within each valley;
- the application trade-off policy such that if an upgrade is occurring on a low priority site (e.g. on a third order ephemeral stream) rather than build a fishway there, an alternative high priority site within the same valley is chosen for the fishway. This policy is aimed at ensuring most cost-effective improvement for native fish populations in each valley;
- the continual improvement and improved efficiency of new fishway designs following the outcomes of the mandated 2 years of post construction monitoring required under the MoU between State Water and the Fisheries Monitoring Protocol;
- State Water’s regional Customer Service Managers are responsible for implementation of the above programme and advised that the timing of the works is flexible and is being driven by the timing of major maintenance at weirs, and as such if the maintenance work is postponed then other related work also gets postponed, and
- according to State Water, the operational regime of their large structures such as weirs is changing significantly.

It is however, not clear how this uncertainty affects the cost and timing of carrying out the proposed works. It is also not clear how work related to the fishways is audited. That is in terms of the timeliness to complete the work and the overall budget monitoring of that work.

PB Associates concludes that State Water’s response to the fish passage way obligation is prudent but based on the present information we are unable to conclude that magnitude and the timing of the proposed Capex for new fish way works is appropriate.

5.1.6 Cold Water Pollution Mitigation (CWP)

The CWP has a substantial history of Government sponsored works and investigation going back nearly 10 years. In August 2004 the Government accepted a CWP Strategy.

Upon Corporatisation, State Water became a member of the CWP Interagency Group established by Cabinet minute to address the issue. A brief historical background of development of cold water pollution mitigation policy and the legislative processes that took place in past few years is outlined below.

In late 2005 the NSW Government introduced changes to the Water Management Act proposing cold water pollution mitigation works and their operation be enforced via water management works approvals or under Part 3A of the Environmental Planning and Assessment Act. State Water provided additional supporting documents regarding these obligations.

The cold water mitigation strategy is a significant cost driver for the State Water's Capex budget, for next five years (\$12 million) and in the longer term up to next twenty years.

State Water has responded to this obligation by providing for these works in its planning of safety and structure upgrades at its deficient dams.

State Water advised that the engineering works to obtain water from various levels within the storage are not significant in terms of the overall upgrading cost. However, it is understood that it takes considerable time and resources to develop an appropriate solution.

PB Associates acknowledges that the expenditure on modifications to meet this obligation is prudent in the light of the Governments decisions and policy. PB Associates is unable to state whether the works are efficient and adequately estimated and timed as there is no detailed information provided to us for assessment.

5.1.7 Other Capex

There are numerous projects summarized under several other Capex product areas which are planned to be expended within the Valleys and Murray Darling Basin Commission (MDBC) and Dumeresq Barwon Border Rivers Commission (DBBRC) areas. The total amounts to approximately 24% of the total forecast expenditure.

PB Associates is unable to assess whether these are prudent or efficient due to the numerous projects and the lack of evidence on the need or basis of estimates.

PB Associates suggests that State Water should provide further commentary on the basis of this proposed \$78 million spend.

5.1.8 Conclusions and Recommendations

Valley Works:

PB Associates recommends that the Valley based capital works forecast programme be established at a trend level based on recent expenditures, the current state of planning for the major items and the potential risks in delivering to the programme.

State Water is embarking on an ambitious programme with expenditure substantially above historic capital works levels. Table 8.2 in the submission provides a 5 year summary of expenditure totalling over \$320 million spread across user and government shared works.

The programme is largely driven by several major items being:

- dam safety upgrades
- enhanced major preventative maintenance (MPM) of structures which have a need for major remedial works; and
- environmental compliance works (cold water releases and fish passage way works).

The first two comprise nearly 70% of the total overall valley works up until 2010/11 and including the MDBC and DBBRC requirements, while the last adds another 20% to the 5 year total.

PB Associates has considered the following for each of the major expenditure areas:

- state of planning for the works; for example whether options are still being considered, whether estimates are still to be confirmed and whether decisions after consultation are still required;
- the spread of works and State Water's capability to deliver given past programme scope, and
- the degree of evidence of timing of the proposed works.

Table 5-3 provides a recommended Capital expenditure programme for Valleys (regulated streams) over the price period. Comments are given as to the basis for changes from that forecast by State Water.

Table 5-3 Recommended Capital expenditure programme for the Price Period (2005\$ million)

Valley Works Product	Price period						Comments
	2006/07 \$ million	2007/08 \$ million	2008/09 \$ million	2009/10 \$ million	2010/11 \$ million		
3110	2.530	2.189	2.441	2.189	2.189	2.189	Capitalised asset planning averaged 5% of Valley works over the price period in State Water's submission. This has been applied to the recommend allocation.
	1.174	1.762	1.863	1.782	2.570	2.570	
3160	0.337	0.245	0.274	0.253			Minor expenditures unchanged
	0.337	0.245	0.274	0.253			
3520/5	11.053	36.530	34.560	29.515	49.782		Reviewed on basis of projects assessed in section 5.1. Refer to table below for details
3525	0.355	0.500	0.500	0.520	0.520	0.520	
	10.770	25.385	30.810	29.435	44.150		
3530	7.449	4.428	3.817	3.908	5.533	5.533	Left unchanged. PB Associates accepts that there is a substantial need to update deteriorated structures
	7.449	4.428	3.817	3.908	5.533	5.533	
3540	1.809	3.693	3.412	3.268	2.037	2.037	Reduced to a baseline level. Expenditures are somewhat discretionary and State Water has not demonstrated stakeholder need or efficiency savings where works involve new control systems
	1.800	1.800	1.800	1.800	1.800	1.800	
4210	0.416	0.400	0.530	0.010	0.002	0.002	Minor compliance works. No change in forecast
	0.416	0.400	0.530	0.010	0.002	0.002	

Valley Works		Price period					Comments
		2006/07 \$ million	2007/08 \$ million	2008/09 \$ million	2009/10 \$ million	2010/11 \$ million	
6310	Fish passage works	2.955	3.124	0.282		0.165	Most works are still proposals. L. Cargelligo and Weeta Weir constructed in early years.
	<i>Recommendation</i>	2.955	3.124	0.282			
6320	Cold Water	0.250	0.615	1,040	7,720	2.325	Reduced programme in line with uncertainties and deferrals in dams programme. (Some cold water works are opportunistic with Dams upgrades)
	<i>Recommendation</i>	0.250	0.615	0.540	1.000	1.000	
	TOTAL	27.154	51.724	46.856	47.383	62.553	4 yr Price Period Total:\$173 million
	<i>Recommendation</i>	25.151	37.759	39.916	38.188	55.055	4 yr Price Period Total:\$142 million
	<i>Delivery adjustment</i>	-2.641	-1.592	-1.086	-0.697	-0.417	Applied to works other than dam safety works and reducing from 20% to 5% over the price period. Excludes asset planning
	Overall Valley Works Recommendation	22.5	36.2	38.8	37.5	54.6	

Table 5-4 Specific recommended programme for Dam Safety Compliance (2005 \$million)

3520/3525	Dam safety		Price period \$ million								Total all yrs	Comment
	pre Jun05	Budget 2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Price period				
Keepit (Namoi)	9.358	1.233	6.97	23.5	21.45	18.6			70.52	81.111	Expenditure delayed. Works. not only dam safety but also opportunistic works	
Recommended	9.358	1.233	6.97	12	18	18	12.5		54.97	81.094		
Chaffey (Peel)	5.726	0.915	1	3.5	6	6.5			17	23.641	Has other factors beside dam safety	
Recommended	5.726	0.915	1	3.5	5	4	2.5		13.5	23.141		
Wyangala (Lachlan)		0.71	0.52	0.805	1.52	1.755	20.095		4.6	73.831	Timelines and cost will vary	
Recommended		0.71	0.52	0.805	1.52	1.755	10		4.6	73.831		
Burrundong (Macquarie)		0.6	0.42	0.53	1.41	0.56	18.16		2.92	39.975	Is in early stages of development, Expenditure is OK in early years	
Recommended		0.6	0.42	0.53	1.41	0.56	9		2.92	39.975		
Copeton Dam(Gwydir)	1.396		0.97	0.75	1.2	5	10		7.92	19.316	No change	
Recommended			0.97	0.75	1.2	5	10		7.92	19.316		
Blowering Dam (M'bidgee)	0.732		0.89	7.8	3.68	0.12	0.15		12.49	13.372 plus	No change	
Recommended			0.89	7.8	3.68	0.12	0.15		12.49	13.372 plus		
Total Dams programme (modified)		3.458	10.77	25.385	30.81	29.435	44.15		96.4			

Note: The figures shown for Dam safety compliance works proposed by State Water differ slightly from those shown in State Water's Submission and are based on forecast estimates provided by State Water during discussions with PB Associates. These revised forecasts are shown in Appendix A of this report.

NSW Govt obligated works:

It is assumed that MDBC, DBBRC works are pass through costs which are funded by NSW Government. The basis of the timing and hence rates of expenditure for this work is not evident and IPART should demand evidence of the directives given by Government to undertake this work in the time frame proposed..

Fish River:

The basis for capital works for the Fish River is not supported. Presently only the first two years have been documented in the information provided to PB Associates²⁶. PB Associates recommends the expenditure listed in Table 5-5 for the Fish River capital works.

Table 5-5 Recommended Expenditure for Fish River (2005\$ million)

	05/06	06/07	07/08	08/09	09/10	10/11
Proposed	6.196	2.500	1.801	1.325	1.334	1.037
Recommendation	6.196	2.500				

5.1.9 Reconciliation with capital programs share.

Table 5.3 is reconciled with the Capital expenditure programs proposed in State Water's submission using the proposed share allocations between users and Government. This is shown in Table 5.6 and assist with the calculation of Regulatory Asset Base (RAB) or annuities.

Table 5-6 Comparison of Capital expenditure programs

		06/07	07/08	08/09	09/10	10/11	
Valley SWC	1	14,318	13,074	11,381	13,745	11,266	
Recommended	2	11,865	9,150	9,425	10,879	9,834	pro-rata using same apportionment as in Table 8.3 of State Water submission, pending adoption of share proposals in Table 9.2, StateWater Submission
Border DBBRC	3	517	102	100	98	209	
Murray MDBC	4	8,786	8,741	8,672	7,046	7,840	
Subtotals	5	9,303	8,843	8,772	7,144	8,049	
Recommended	6	9,303	8843	8,772	7,144	8,049	
FishR	7	2,500	1,801	1,325	1,334	1,037	
Recommended	8	2,500	-	-	-	-	from Table 5.5 PB Associates report
User total	9	26,121	23,718	21,478	22,223	20,352	from Table 8.3 SWC submission
Recommended	10	23,668	17,993	18,197	18,023	17,883	
Govt State Water	11	12,833	38,649	35,471	33,635	51,287	

²⁶ ..\Doc 21. Capital Works FRWSS Planning.xls.

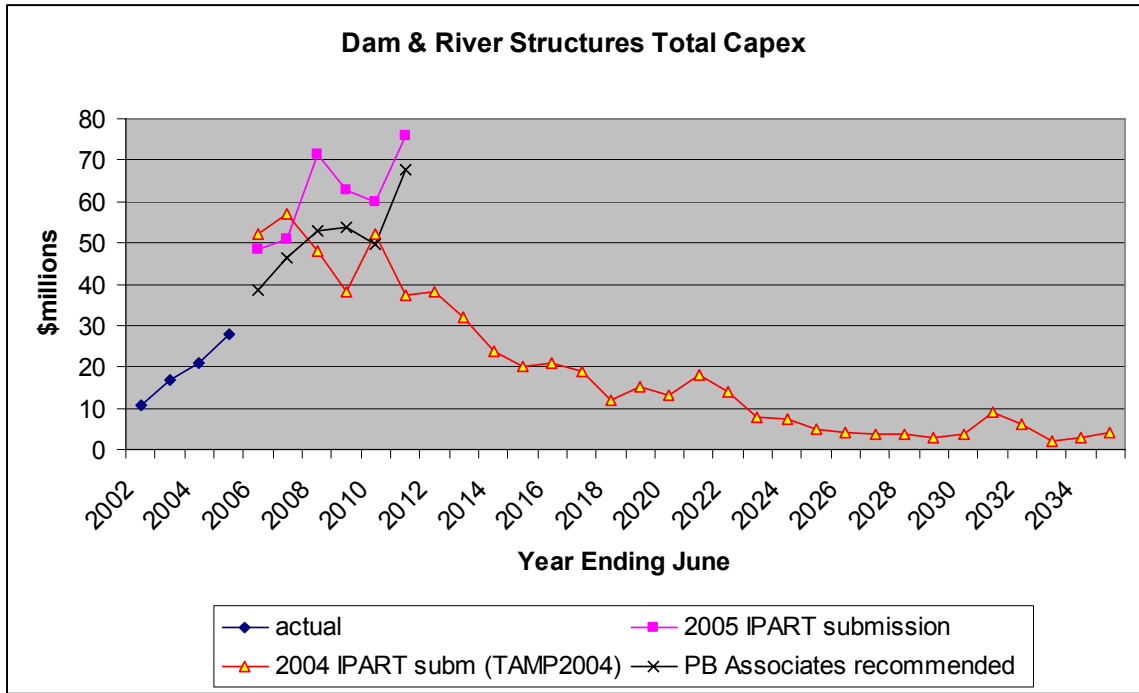
		06/07	07/08	08/09	09/10	10/11	
<i>Recommended</i>	12	10,635	27,050	29,375	26,621	44,766	pro-rata using same apportionment as in Table 8.3 of State Water submission, pending adoption of share proposals in Table 9.2, State Water's Submission
Govt MDBC&DBBRC	13	11,870	8,870	5,766	4,130	4,110	
<i>Recommended</i>	14	11,870	8,870	5,766	4,130	4,110	
Govt share total	15	24,703	47,519	41,237	37,765	55,397	from Table 8.3 State Water's submission
<i>Recommended</i>	16	22,505	35,920	35,141	30,751	48,876	
Total	17	50,824	71,237	62,715	59,988	75,749	from Table 8.3 State Water's submission
<i>Recommended</i>	18	46,173	53,913	53,338	48,774	66,759	
SWC totals (users+ Govt)	19	27,151	51,723	46,852	47,380	62,553	Sum of row 1+11 and matches Table 5.3, section 5.1.3.
<i>Recommended</i>	20	22,500	36,200	38,800	37,500	54,600	Sum of row 2+12 and matches Table 5.3, section 5.1.3.

The final apportionment of shares between Government and users is dependent on adoption of State Water's proposed project cost share by IPART. Also specific re-budgeting of works will be required by State Water as a result of a reduced total Capital expenditure budget. Apart from the dams safety/compliance works, PB Associates has not been able to ascertain the priority of the many relatively minor works covered in the Capital expenditure program code categories spread across the various Valleys.

State Water should be requested to recast the works programs in the light of a budget cut as proposed. This should also apply to the changed expenditure program beyond 20010/11 for the dams program given the proposed modified expenditure during the price period.

The most recent long term cap expenditure program is that proposed in TAMP 2004, (shown in figure 5.1 below). The effect of deferred expenditures due to the recommended PB Associates program requires that the TAMP 2004 based long term forecast be recast.

Figure 5-1 Long term Capital expenditure forecasts



Note: 2005/06 expenditure assumed at 80% budget by PB Associates but not confirmed by State Water.

5.2 FORECAST OPERATING EXPENDITURE

PB Associates has undertaken a review of the forecast Operating expenditure presented in the State Water submission (September 2005). This section presents the findings and recommendations of this review.

5.2.1 Operating expenditure data

The following tables provide summaries State Water's proposed expenditures during the price period for each Valley.

Table 5-7 Operating Expenditure Forecast

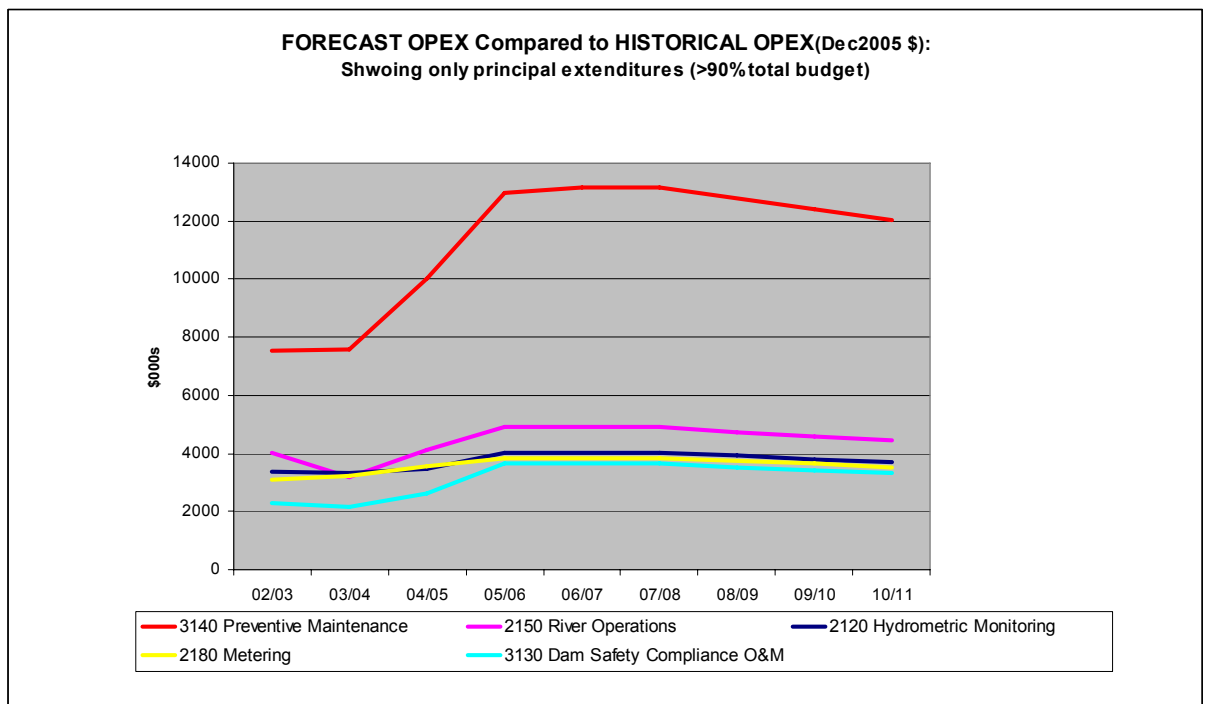
	BUDGET	FORECAST (2005\$ million)				
	2005/06	2006/07	2007/08	2008/09	2009/10	TOTAL
Border Rivers	1.596	1.594	1.594	1.546	1.499	7.8
Gwydir	3.365	3.360	3.360	3.259	3.162	16.5
Namoi	3.913	3.908	3.908	3.791	3.677	19.2
Peel	1.317	1.315	1.315	1.275	1.237	6.5
Macquarie	3.867	4.025	4.025	3.904	3.787	19.6
Lachlan	4.408	4.467	4.467	4.333	4.203	21.9
Murrumbidgee	6.530	6.522	6.522	6.326	6.137	32.0
Murray	2.575	2.571	2.571	2.493	2.419	12.6
North Coast	0.783	0.782	0.782	0.759	0.736	3.8
Hunter	3.879	3.873	3.873	3.757	3.644	19.0
South Coast	0.775	0.774	0.774	0.751	0.729	3.8
Total Regulated	33.008	33.191	33.191	32.194	31.230	162.8
DBRC***		0.551	0.551	0.551	0.551	2.2
MDBC***		9.409	9.696	9.660	9.660	38.4
Fish River***		3.625	3.625	3.517	3.411	14.2
TOTAL	33.008	46.776	47.063	45.922	44.852	217.6
Total Regulated plus Fish River	33.008	36.816	36.816	35.711	34.641	
MDBC-users share		7.661	7.897	7.624	7.624	
MDBC-govt share		1.748	1.799	2.036	2.036	

Proposed Valley Operations expenditure by product for 2006/07 is shown in 8. Five of the product types make up the majority of the expenditure forecasts. Based on this table and similar tables for subsequent years a trend graph has been prepared based on the 5 dominant expenditures type, see 2. As with historic operating expenditure it can be seen that forecast expenditures are smooth for the forecast period but have risen sharply compared with historical levels.

Table 5-8 2006/07 Operating expenditure forecast for products by Valley (\$'000)

Product	Product Name	User Share	Border Rivers		Namoi	Peel	Macquarie			Murray	North Coast		Hunter	South Coast	Total
			Gwydir				Lachlan	M'bidjee	Coast		Coast				
1120	Customer Support	100%	33.3	47.8	37.7	7.0	64.9	66.9	151.2	237.9	2.1	49.4	3.6	701.8	
2120	Hydrometric Monitoring	100%	151.5	487.1	519.6	129.9	584.5	670.0	1,025.1	108.0	28.2	298.8	43.8	4,046.5	
2130	Water Quality Monitoring	100%	127.5	136.6	212.2	141.3	96.8	112.3	247.2	17.5	52.2	233.0	52.6	1,429.2	
2150	River Operations	100%	328.6	474.0	545.4	175.3	515.0	621.5	1,151.9	488.4	82.3	394.0	120.1	4,896.5	
3130	Dam Safety Compliance O&M	100%	178.2	295.2	343.2	229.9	493.2	438.2	675.7	66.9	189.4	583.1	140.8	3,633.8	
3140	Preventive Maintenance	100%	586.3	1,499.7	1,757.9	452.4	1,703.8	1,803.0	2,301.4	755.0	376.3	1,544.4	386.5	13,166.7	
5220	Billing & Receipts	100%	7.7	15.3	18.8	13.4	21.4	19.5	28.0	28.3	3.0	10.7	3.0	169.1	
5250	Insurance	100%	44.8	148.1	122.6	41.6	207.8	155.7	275.1	17.8	44.7	212.7	19.5	1,290.4	
2180	Metering	100%	135.7	256.4	350.9	124.1	337.2	580.1	666.4	850.7	3.9	546.9	4.4	3,856.7	
			1,593.6	3,360.2	3,908.3	1,314.9	4,024.6	4,467.2	6,522.0	2,570.5	782.1	3,873.0	774.3	33,190.7	

Figure 5-2 Trends in historical and forecast operating expenditure by product



The operating expenditure proposed for 2005/06 shows an increase of \$8.9 million compared with the average expenditure over the previous four years, this increase is sustained with a slight decreasing trend in the forecasts for the following years of the regulatory period. Four major activities make up approximately 80% of the operating expenditure forecast, these activities are:

- Hydrometric Services;
- River Operations;
- Dam Safety compliance O&M; and
- Preventative Maintenance.

5.2.2 Prudence of the proposed activities and efficiencies in the proposed operating expenditure budgets

PB Associates has assessed the prudence of the forecast operating expenditure on the basis of the following aspects:

- the Level of Service (LOS) and other compliance targets;
- the degree of achievement of these within the price period (business targets); and
- the component of cost attributed or allocated to achieving these,

The following observations are made.

As discussed in detail earlier in this report in the section on Business Planning and Process, State Water has developed a Critical Success Factors framework for its programmes and products (refer Section 7.7.2, p 77 of the Submission) and also has documented the various drivers. In summary there are seven Critical Success Factors leading to:

- 9 Operating expenditure programmes;
- 6 Capital expenditure programmes; and
- 4 Non IPART or external business programmes.

The programmes each have a range of defined (and coded) products to which the forecast and actual expenditures are now attributed.

State Water has presented evidence that it has established a system which links each of the products to particular business drivers. As described in section 2 these have in turn been categorised under three principal business categories, these being:

- Regulatory Environment;
- Operating Environment; and
- Service Delivery Environment.

Thus, data presented by State Water for this study seems generally consistent with this set-up. It is noted that State Water has recently implemented a new financial system and is to further develop their business accounting systems to integrate this with other tools such as the Project Delivery System (PDS).

Critical Success Factors are presented in the Corporate Plan for 2005/06 - 2006/07 (draft as at September 2005) and objectives or performance targets are provided for each of the two years, while the basis of these targets is not discussed.

The TAMP 2004 considers State Water's asset management performance (p121-124) and defines benchmarks and performance indicators, which have no direct correlation with the critical success factors, programmes, products and Corporate Plan targets mentioned above. There is much discussion about the value of benchmarking and surveys but no hard evidence of how it has driven effectiveness or efficiency gains.

Valley forecasts:

A detailed model of the allocation of proposed 2006/07 expenditure is given in the submitted document 18 "State Water Opex-summary final 06/07". This document lists a wide range of "jobs" obtained from a bottom up collation of proposed expenditures in the region. A critical assessment of the reason for the continuation of these works and/or the level of the effort is not apparent and therefore the prudence of the specific work is queried.

In the light of this business framework, the following comments are made of the forecast Operations expenditure. It is not apparent as to:

- a) What is the basis of the trend expected to occur in the allocations?
- b) What assessment documentation and approvals underlies the allocation?
- c) What component of the budget allocated to each activity is new funding compared with ongoing expenditure on existing (pre 1 July 2004) and expenditure on existing products that have been modified since Corporatisation and the establishment of new obligations?
- d) Whether there has been a business case put together for each of the major activities which, for example, comprise approximately 80% of the total Operations expenditure spend and, account also for 65% of the rise (i.e. the rise is \$8.9 million) in 2005/06 expenditures over the average of the previous 4 years:
 - Hydrometric Services
 - River Operations
 - Dam safety compliance O&M
 - Preventative Maintenance

With respect to point (c) it would be helpful to have a table which elaborates on the deployment of resources to products by Valley, MDBC, DBBRC and Fish Rivers Water Supply Scheme (FRWSS) for the three categories mentioned.

With respect to point (d), The TAMP 2004 clearly refers to the procedures and, in most cases, outcomes of the application of these, to achieve a budget. However it is not apparent how efficiencies are considered and deliverability based on broad business and corporate governance parameters such as Corporate attitude to risk, fundability, human resourcing, outsourcing and contestability of prices, customer willingness to pay and rationalisation of other lesser priorities, etc.

PB Associates is satisfied that State Water has adequately identified its obligations and has listed its activities (products) it considers necessary to meet the obligations. However despite a listing of the allocation of the products to the obligations there is no critical analysis of the basis for the ongoing spread and effort of the activities within the programmes. This is particularly so for long established activity. Linkages to business performance targets with evidence of “sign-off” by the beneficiaries would be an improvement.

Additionally some separation of what is ongoing and what is new in its activity and associated resource allocation would be useful.

Overall PB Associates is not satisfied that there is adequate linkage between the stated programmes, the targets to be achieved and the consequential dollars allocated.

Continuation of Valley Operating expenditure is forecast to generally remain at 2005/06 levels throughout the price period except for a 3% real net savings commencing from 2008/09 and continuing throughout the remainder of the period. The basis of a “steady state “ level in a stated “zero budgeting” environment which is developed “bottom up” (by Valley areas) is not evident. This relates also to the previous point concerning the continuation of ongoing work and the take up of new work. Additionally there is no mention of why the 3% figure has been adopted as the target or how the savings will be achieved.

There could be some argument for an increase in expenditure over the price period given the operating environment and the infrastructure used to provide these services (remote, widely dispersed business serving 6300 licence holders, using

many control structures in an environment where additional responsibility has been added and legacy deficiencies exist in asset condition and safety).

Additionally the TAMP 2004 lists a wide variety of "future actions". The impact of these (dollars and timing) in the submission is not evident.

Overall the case has not been presented sufficiently for PB Associates to conduct an adequate review of the proposed operating expenditures. Supporting results of cost analysis would assist but was not included with the information provided in support of State Water's submission.

PB Associates has assessed the historic operating expenditure and trends by product over the past four years (Figure 5.2) to form the basis for forecasting future operating expenditures. We have excluded any step changes in historic operating expenditures in arriving at the trend line.

PB Associates recommends that the Valley forecast expenditure be set at a reasonable trend level based on progression from historical levels as shown in the following table (Table 5.9):

Table 5-9 Proposed Operations expenditure forecast for Valleys (excludes MDBC, DBBRC, FRWSS)

Code	Key Operations expenditures	2006/07 \$'000	2007/08 \$'000	2008/09 \$'000	2009/10 \$'000	2010/11 \$'000	Comment
3140	Rural water infrastructure maintenance <i>Recommended</i>	13,166	13,166	12,771	12,388	12,016	Increase over past years in recognition of catch up in preventative maintenance. Impacts of increased MPM in Capital expenditure programme will impact on extent of this.
2150	Reg river operations <i>Recommended</i>	4,896	4,896	4,750	4,607	4,469	Flat expenditure proposed with slight increase on past years average to allow for increased working in no irrigation periods
2120	Quantity data collection & archiving <i>Recommended</i>	4,047	4,046	3,926	3,808	3,694	Justification for increases is queried. Recommend flat expenditure slightly up from past years average.
2180	Reg metering <i>Recommended</i>	3,857	3,857	3,741	3,629	3,520	Similar argument to above item
3130	Dam safety emergency plans <i>Recommended</i>	3,634	3,634	3,525	3,419	3,317	Recommend flat expenditure with increase from past years average inline with increased risk management at dams
5250	Public liability and other infrastructure insurance <i>Recommended</i>	1,290	1,290	1,252	1,214	1,178	Trend has been downwards. Figure for 05/06 retained but may change should the insurance markets hardens
	Subtotal for key expenditures as recommended	25,290	25,790	26,290	26,790	27,290	
	Adjusted up for other works (10%)	28,100	28,656	29,212	29,767	30,323	Conservative adjustment given past experience suggest other expenditures are less than 10%
	State Water's Submission proposal	33,191	33,191	32,194	31,230	30,292	
	<i>Recommended</i>	28,100	28,700	29,200	29,800	30,300	

MDBC and DBBRC:

For the work undertaken for MDBC and DBBRC, there is a lack of transparency of these specific operating expenditures with respect to the requirements to be met, who has directed the work be undertaken, and who benefits, and who is paying (although it slats is not within the scope of this present assessment).

For example justification for the expenditure allocated to the Salt Interception Schemes is not given. In particular, PB Associates queries what has been passed on to, or is now required of, the Corporation, or what has previously been defined as obligated works passed to State Water as a result of the corporatisation and take up of its new obligations/responsibilities.

While the general agreements and rules of cost sharing are stated, the Customers and other stakeholders need to be able to judge the application of these on the actual programmes and expenditures being undertaken.

It is stated that MDBC, DBBRC expenditures are a "cost pass through". Transparency is needed to ensure that business resources are appropriately allocated. The Operating expenditure and Capital expenditure tables list allocation for these but the method of allocation of resources is undefined/unsighted.

Similarly "ring fencing" other services provided under contract/agreement by State Water need to be explicitly stated.

Evidence of Negotiated Agreements under the Charter and Service Level Agreements and MoUs between various other Government departments and with respect to performance targets is lacking. The TAMP 2004 states that future actions will include undertaking a 2005 customer service survey, defining agreed LOS with stakeholders in each Valley. The development of a Charter is an achievement. The "flow-on" into costs from any consequential activity involves relating actual time based achievement of specific agreed targets to expenditure supported by cost analysis and sensitivity to rates of achievement of desired service goals. There is no evidence in State Water's submission that this has occurred or supporting evidence of the resultant costs.

The individual products expenditures have not been justified by evidence of cost analysis. The TAMP 2004 refers to business processes for developing these product programmes but fails to show the cost implications or testing of options. (Refer also above for comment on linkages)

In conclusion, there is ample evidence of what is proposed to be expended under programme headings. However PB Associates is unable to assess neither the prudence of the proposed work nor the validity of the resource allocations.

PB Associates recommends that a traceable linkage be shown between cost forecast and business performance targets which should be established by agreement with its stakeholders (users, WAMC and other Departments).

Evidence is required on how State Water will achieve efficiencies and accommodate rising costs.

APPENDIX A
Review of Dam related Project Plans

DAM SAFETY COMPLIANCE REVIEW

State Water’s approach to risk mitigation

The conclusions on the risk exposure for the above mentioned dams is reached in accordance with ANCOLD’s Risk Assessment Guidelines and the plot of F-N values. The ‘F’ represents the cumulative probability of failure and ‘N’ represents total number of lives lost in case of a particular dam breaching. The F-N plot for State Water dams is shown below together with the risk profile for all dams assessed.

The other dams, Blowering, Wyangala, Copeton and Split Rock, plot in the area of the graph classified as ALARP zone (Figure 7.4 in the ANCOLD risk assessment guidelines). The acronym ALARP stands for “as low as reasonably practicable”. The guidelines suggest that, if a dam falls in this area of the risk curve, then the dam owner will implement the risk mitigation measures with a view to reducing the risk as low as reasonably practicable – in terms of the cost of reducing the risk of dam failure and its acceptability by the society.

Figure A-1 State Water dams – F-N Curve: Summary of cumulative probability of failure versus loss of life – Total societal risk

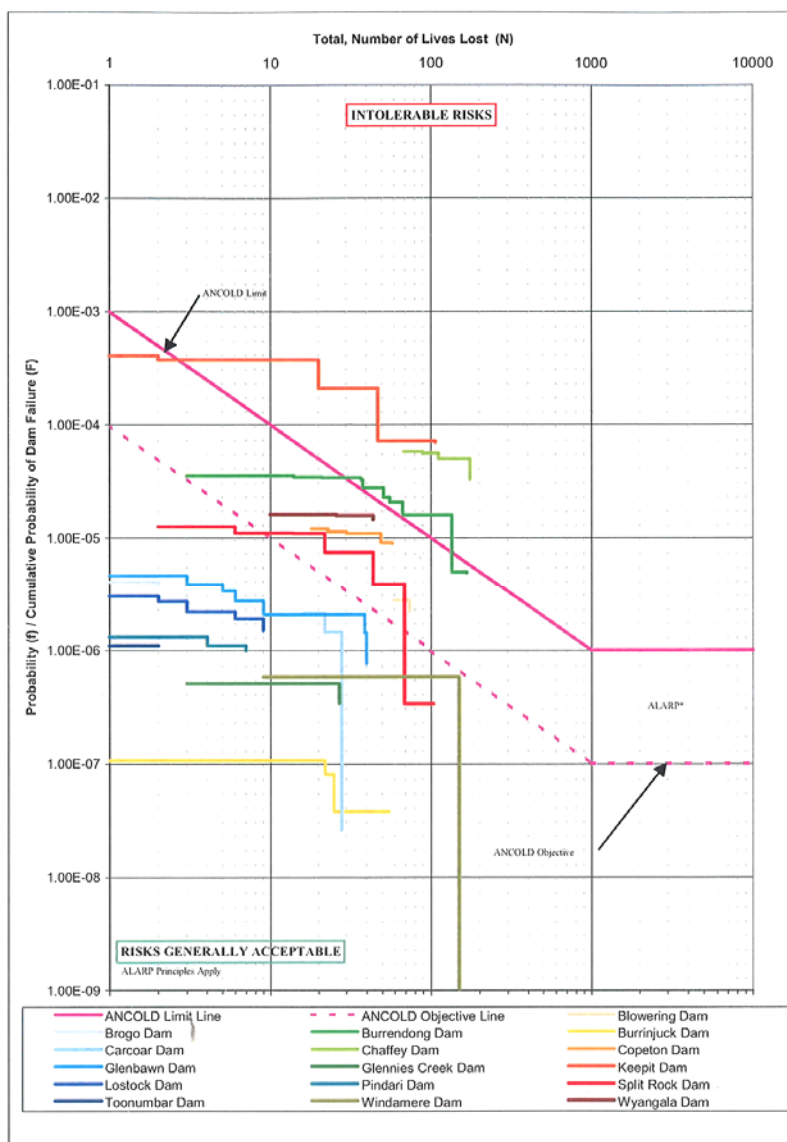
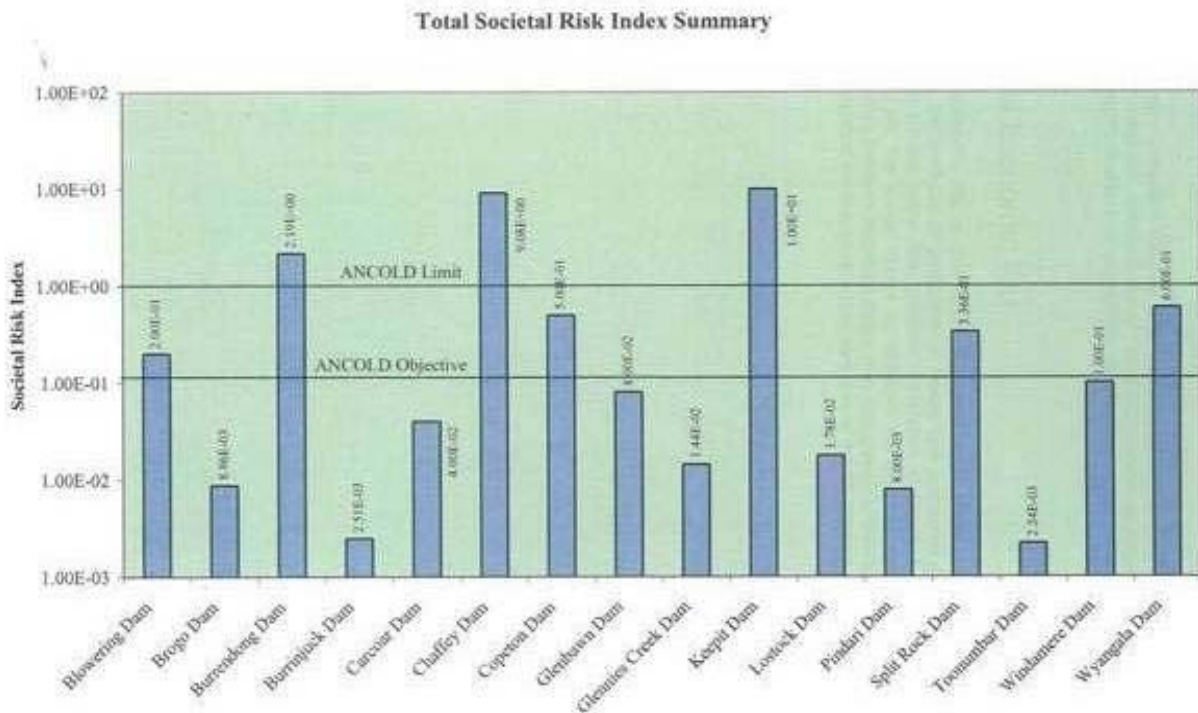


Figure A-2 State Water dams: Summary of total societal risk indices

The approach taken by State Water to respond to the risk assessments is that it will reduce the risk of failure of all their deficient dams; rather than expend a significant amount of funds to minimise the risk of failure of one dam. That is to say, the Capex programme is devised to reduce the risk of deficient dams in stages; until all the dams are in “acceptable” area of the F-N curve. ‘F’ represents the cumulative probability of failure determined by aggregating individual probabilities ‘f’.

It is understood that State Water will need additional professional staff resources to implement the programme of upgrades at the planned rate. The recruitment of these resources is a management issue. The present shortfall is not considered to be a reason to postpone upgrading or defer budgeted Capex.

It is noted that State Water has developed Project Plans for upgrading of each of its deficient dams in line with the above approach. The Project Plans are such that both short and long-term solutions are investigated. The Capex programme includes community consultation from initial stages, up to when the final upgrading options are resolved. Consultation is an ANCOLD guideline requirement where fatalities are expected in the event of dam failure.

Also, in conjunction with dam safety upgrade, environmental improvements such as modifying the intakes to draw water from various depths, and introducing fish passage ways are investigated.

Review of selected Dams compliance works

PB Associates has not been able to review all of the projects within the required time frame of this assignment, but instead undertook a detailed review of Project Plans for the following four dams which are listed within the key outcomes (Table 8.1) in the submission.

1. Keepit Dam (intolerable risk);
2. Chaffey Dam (intolerable risk);
3. Burrendong Dam (intolerable risk); and

4. Wyangala Dam (ALARP).

Summarised details of the specific reviews are included below:

A - 1 Keepit Dam – upgrade project plan

It appears that initial flood studies in 1996 identified that the dam cannot safely pass an extreme flood. Thus, from 1997 onwards up to 2002, more detailed investigations including a risk assessment have been undertaken.

It should be noted that Keepit Dam is the highest priority as far as upgrading is concerned – as result of its insufficient flood handling capability.

From 2001 to 2005, interim upgrading works as well as long term upgrading options have been investigated.

It is noted that, in addition to complying with dam safety requirement, other objectives have been included in the upgrading Keepit Dam. These are environmental improvements and overall sustainable regional development. These objectives are included because of several reasons.

Essentially, State Water considers it to be good practice to “involve” the local community in determining the upgrading options therefore; a community reference panel was set up in the early stages of the investigations.

Further, it appears that State Water is obliged under the Fisheries Management Act, Water Management Act and the Environmental Planning and Assessment Act, to consider water quality improvements and possible regional development benefits.

In case of Keepit Dam the community consultation cost is \$100,000 over five years. By including additional upgrading measures (i.e. other than dam safety upgrades) the overall cost of investigations and the subsequent design will be relatively higher. The higher project costs reflect in the overall increased price of water to State Water’s customers.

The project costs as shown in the Keepit dam project plan are as follows:

FY2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10
1.233 million	6.97 million	23.50 million	21.45 million	18.6 million
Expenditure between 2001 and June 2005 has been \$9.358 million.				
Total projected expenditure will be \$81.191 million – this includes past expenditure, construction of preferred option and the cost of minimising cold water pollution.				

The tasks covered under this expenditure are as follows:

- project management;
- community consultation;
- long-term option evaluation;
- long-term solution approvals and implementation – this includes EIS approvals, and detailed design of upgrading works;
- construction of approved upgrading works and commissioning; and
- cold water mitigation upgrade options.

In case of Keepit Dam, at the early stage of the investigations State Water and the community reference panel had 70 upgrading options to consider; these were

reduced to 4 most feasible options. The most preferred option at this stage is option D3 and the estimated cost of that option is \$70 million and this includes \$3 million for minimising cold water pollution.

The Keepit Dam upgrading includes the following:

- Dam raised by 5.5 metres
- Two additional saddle dams

PB Associates is of the opinion that the activities and tasks outlined in the project plan for Keepit Dam are appropriate for such a dam upgrading project. The cost breakdown of the tasks to be undertaken is also reasonable and carried out and reviewed by appropriate professional consultants.

A - 2 Chaffey Dam – upgrade project plan

The flood studies carried out in the mid 80's identified the flood deficiency at Chaffey Dam. From 1986 to 1994 initial upgrade studies were undertaken including detailed upgrading options and a draft EIS for the upgrade project.

It is noted that a number of assessments continued from the mid 1990's. However, it was not until the risk assessment was completed between 2000 and 2002 that identified Chaffey Dam as the second highest risk dam after Keepit Dam.

It seems that the "urgency" of the matter was lost in departmental changes that were taking place.

State Water Corporation was formed, in its current state, as of July 2004.

Between 2003 and 2004 an issues management plan was developed outlining the following four upgrade objectives:

- dam safety;
- environmental enhancement;
- flood mitigation; and
- sustainable regional development – that is, consider increasing the storage capacity of the dam.

State Water has documented this project in 4 phases. The initial study of mid 1980's was phase 1, followed by safety reviews and developing interim upgrade measures from 2000 to 2004 – phase 2.

Phase 3 was from 2004 to 2006 and this included identifying long term upgrading options and their evaluation. From 2006 onwards to 2009/10, State Water intends to implement phase 4; which includes the approval of the remedial works and their implementation.

The estimated project costs for upgrading of Chaffey Dam are as shown below:

FY2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10
0.915 million	1.0 million	3.50 million	6.00 million	6.50 million
The total expenditure is \$23.641 million – excludes storage augmentation, but includes cold water pollution improvements and \$5.726 million spent since 2001.				

The scope of upgrading works at Chaffey Dam is as follows:

- 1.8 metre high parapet wall on top of the existing upstream wall. This is an interim measure and it increases dam safety against large floods of up to 1:100,000 Annual Exceedence Probability. This work was completed in 2004.
- Sustainable environmental improvements. This will include variable level offtake, a fish passage, better management of algal blooms, and installation of mini-hydropower station.
- Further flood mitigation for extreme events
- Possibly additional storage capacity – from its present 62,000ML to 100,000ML.

The above scope is expected to be achieved with extensive community stakeholder consultation.

Given the high risk profile of this dam, resulting from the detailed risk assessment, State Water has assigned a high priority to upgrade this dam. The priority is reflected in the Capex programme.

The tasks budgeted for each financial year up to 2009-2010 are appropriate for the proposed dam upgrading project. The detailed design is programmed to commence in 2006/07, however this will be subject to approval of the preferred upgrading option. The preferred upgrading option is expected to be decided upon in the next 12 months.

It appears that the matter of increasing the storage capacity of the dam is dependent on requirements of Tamworth Council, Peel River irrigators and other community interest groups reaching an agreement. Further, State Water and the other stakeholders in the project are required to consider a cap on water extraction, as imposed by Murray Darling Basin Commission.

PB Associates is of the opinion that, for this case, the above matters are fairly complex and their resolution will take time and significant resources by State Water. Therefore, it is quite plausible that the estimated timelines and the some of the costs will vary; depending on upgrading option(s) agreed by all the interested parties.

The cost estimates could be more accurate if State Water were to complete the all investigations, get all the stakeholders to agree on one option and complete detailed design. Given that this is not imminent, State Water should adjust its forecast by allowing for a risk based lead time to achieve a decision on the preferred options..

We believe that State Water demonstrated to the Regulator for Dam Safety that it is proactively and with the required diligence pursuing a programmed to reduce the risk of dam failure of its dams. State Water is required to inform the NSW – DSC, by providing regular updates regarding the progress of the upgrading programme.

Under the NSW Dam Safety Act, State Water has a legal responsibility to show that it is undertaking appropriate measures to minimise the risk of dam failure.

Water pricing for the period 2006 – 2009 would not have to account for construction costs incurred in 2010 – 2011. Accordingly, the foregoing table of costs is considered acceptable for pricing purposes.

A - 3 Burrendong Dam – upgrade project plan

Burrendong Dam is the third dam on State Waters upgrade priority list. It “plots” just over the ANCOLD limit line on the F-N curve.

Detailed risk assessment for Burrendong Dam was completed in 2002.

Further investigations as recommended in the risk assessment have commenced and are in a preliminary stage. Environmental studies are in progress to determine improved benefits for the water users and the community. Also, the environmental impacts of the possible upgrading options are being undertaken commencing in 2006.

Similar to other project plans developed by State Water, short term upgrading options will be investigated and implemented. This is with a view to reducing the risk of failure due to extreme flooding.

The project plan includes the cost estimates for the possible upgrading works. However, it is stated that these are indicative estimates only at this stage; the cost estimates will be updated as upgrading options are closer to being adopted by all the stakeholders.

The estimated project cost is as shown below:

FY2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009 to 2013
\$0.600 million	\$0.420 million	\$0.530 million	\$1.410 million	\$37.015 million

If the estimated construction costs are included (FY 2009 to 2013) the total indicative cost to upgrade Burrendong is approximately \$40.0 million.

According to the project plan the upgrade investigations, community consultation, the EIS, and the design approval is programmed to be completed by 2008/09 and the estimated costs as shown above appear appropriate.

However, the cost estimates may vary significantly, depending on the selected upgrading option. Therefore, the upgrade costs up to 2009 are acceptable for water pricing purposes.

For costs after 2009, State Water should aim to develop precise cost estimates closer to time. In the meantime the indicative costs should be used for budgeting purposes and for consideration by all stakeholders.

It is “double edged sword” situation as far as such cost estimation is concerned. The forward estimates, for work in 2012 and beyond, do not appear to be prudent yet, as part of the upgrading of projects which take several years to complete; some estimates have to be provided to the regulating authorities and the treasury.

As mentioned above, water pricing for the period 2006 – 2009 would not have to account for construction costs incurred in 2010 – 2013. Accordingly, the table of costs above for Burrendong Dam is considered acceptable for pricing purposes.

A- 4 Wyangala Dam – upgrade project plan

The project plan for Wyangala Dam is similar to Burrendong Dam.

Flood studies were undertaken in 1998/99 followed by screening level risk assessment in 1999/2000. As part of the State Water dams risk assessment programme, a detailed risk assessment was completed in year 2002.

The risk assessment indicates that Wyangala Dam falls within ALARP zone of the F-N curve. Therefore, State Water intends to put the risk reduction measures in place so that the dam plots below the ANCOLD objective line on the F-N curve.

The scope of upgrading works is outlined in the Wyangala Dam Upgrade Project Plan. State Water's objectives are:

- to reduce the risk of failure and improve the security of dam components under flood, seismic and other relevant loading conditions. These works will make the dam compliant with ANCOLD and NSW DSC;
- to comply with the fallback criteria of the ANCOLD Guidelines. This criterion requires that the spillway be upgraded to safely pass a probable maximum flood while providing suitable freeboard above the maximum flood level. This fallback position provides the quickest and largest risk reduction;
- to improve quality of water released from the dam; and
- to reduce the risk of human error in operating the dam's infrastructure.

FY2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009 to 2013
\$0.710 million	\$0.520 million	\$0.805 million	\$1.520 million	\$70.276 million

The project plan indicates that between 2004 and 2008, investigations regarding the possible upgrading options, an EIS for the preferred option, community consultation, and investigation to improve the water quality of discharged water will be undertaken.

The detail design work and works construction is programmed to commence in 2008/09 and 2010/11 respectively. The total cost of the upgrade works varies between \$127 million to \$198 million. The costs are indicative at this stage; and more accurate costs will not be estimated prior to option evaluation and the community consultation.

Like the project plans for Keepit, Chaffey, and Burrendong, the cost estimates up to 2008/09 are considered appropriate; in that they include costs for various investigations. These investigations and stakeholder consultation will firm up the upgrading options. Therefore, the estimated costs for 2009/10 onwards should be used as a basis for future budgeting for all the stakeholders and as such these should not be included in the bulk water pricing.

There are several stakeholders with interests in this project and as a result PB Associates believes that State Water should develop more precise cost estimates 5 years out by the time the next pricing review is to be undertaken, so that IPART can include those costs as part of State Water's next submission.