

DRAFT PROPOSAL FOR AMENDMENT TO THE IWCM STRATEGY PLAN REQUIREMENT

INTRODUCTION

A number of issues have been raised by local water utilities regarding the integrated water cycle management process since it became a requirement under the Government's Best Practice Management of Water Supply and Sewerage Guidelines in May 2004. In particular, concerns have been raised about:

- the lack of flexibility in the current process
 - one size fits all approach
 - high costs
 - limited initial ownership by local water utilities;
- resource difficulties;
- timeframes; and
- limited recognition of prior studies.

The Government has addressed some of these concerns to date:

- by requiring the establishment of a Project Reference Group with community representation to engender local ownership of both the integrated water cycle management process and solution;
- local water utilities can obtain funding assistance for undertaking the integrated water cycle management process from the Country Towns Water Supply and Sewerage Program;
- the Department of Energy, Utilities and Sustainability provides advisory services, templates and business decision tools and models;
- approval is being sought for an extension of the integrated water cycle management timeframe; and
- relevant data in prior studies is able to be included in the integrated water cycle management process.

The Department of Energy, Utilities and Sustainability recently completed a review of the integrated water cycle management process and this paper outlines a more versatile process to address the flexibility concerns.

SUMMARY OF PROPOSAL

Changed requirements for the strategic plan component of the integrated water cycle management process are proposed. Full scenario development and detailed system assessment will not be required where:

- only few or minor issues are identified;
- the adoption of simple solutions such as leak reduction programs, metering upgrades and demand management addresses the issue(s); and

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- there is no need for major water supply, sewerage and stormwater works within the next 10 years.

It is expected that the new process will significantly reduce the costs of conducting an integrated water cycle management study and reduce the time taken to complete the strategic plan.

DISCUSSION

The integrated water cycle management process consists of three steps;

1. issue identification;
2. solution development; and
3. long term monitoring to confirm issues are addressed.

Steps 1 and 2 form the basis of the integrated water cycle management study and are identified as the *Evaluation Study* and the *Strategy Plan*.

The *Evaluation Study* identifies the issues confronting the local water utility that may impact on its water supply, sewerage system and stormwater system reliability, safety, operating costs and service affordability. There is no scope for reducing the requirements of this step. However, more guidance is provided in the Appendix to this document to assist local water utilities complete this step.

The *Strategy Plan* identifies the options to address the issues identified in the *Evaluation Study*. The level of complexity of the solution is generally a function of the seriousness of the issue. Clearly, full option development is not warranted where the issue is of a minor nature in terms of impact and scale. Consequently, the current requirements of the Strategy Plan can be made more flexible to reduce the complexity (and cost) of the integrated water cycle management process for many local water utilities.

The proposed requirements for the *Strategy Plan* are detailed in the Appendix.

NEXT STEPS

Following review of the proposal by the Local Government Association, Shires Association and the Water Directorate, the contents of the appendix to this document (with any agreed amendments) will be placed on the Department of Energy, Utilities and Sustainability's website.

FEEDBACK

Comments on this paper can be sent to George Freeman, email address: George.freeman@deus.nsw.gov.au

Alternatively, George may be contacted on (02) 8281 7341.

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APPENDIX

PROPOSED AMENDMENT TO THE IWCM PROCESS

The revised IWCM process consists of two steps.

- Step 1 Evaluation Study
- Step 2 Strategy Plan
 - Simplified (no major capital works within 10 years or no scenario development required)
 - Detailed (major capital works within 10 years or a need to develop and evaluate scenarios is required).

Step 1 – The Evaluation Study

Similar to the previous Concept Study phase but more guidance is provided.

Catchment

Brief description of the catchment or catchments within which the LWU operates (draws water from and discharges water to). This should include a description of:

- The principal landscape characteristics (soils and vegetation);
- Climate (rainfall, temperature, evaporation, droughts and floods);
- Land uses;
- Main population centres;
- The main catchment water uses (licence holders);
- Identification of sensitive areas (eg wetlands);
- Regional catchment impacts and plans (resources including water; development including population and industry); and
- Identification of major industries within the local area (eg tertiary industry such as tourism, secondary industry or primary industry such as dairy farming, fisheries, beef or sheep grazing) and their economic value.

Example issues include:

- Land degradation (salinity, soil erosion, acidic soils and deforestation);
- Pollution sources (agriculture and industries); and
- Issues covered in the relevant Catchment Action Plan(s).

Other issues should also be identified and included as appropriate.

Although some of the catchment industries may not be part of the urban environment, they may be competing for the same water resource, may also provide significant employment to the local community and may allow the opportunity for replacement of industrial water extraction with use of treated urban effluent.

Water Resources

An understanding of all water resources available for urban or human use will help identify and describe related issues and potential options. This will include:

- Identification of water resources (rivers, groundwater and ocean);
- Identification of the quantity of water of each source (rivers, groundwater ocean);
- Identification of the water quality of each source;
- Seasonal and annual variations in flows;
- Identification of other water users, including environmental flows, and their water demand (where known);
- Identification of water sharing plan requirements; and
- Potential impacts of climate change.

Example issues include:

- Water quality (associated impacts on drinking water quality and the impacts of wastewater discharges);
- River flow allocations (seasonal and annual over-allocation of resources); and
- Impacts of water sharing plans (changes extraction rules).

Urban Environment

An understanding of the local community and water supply infrastructure will assist in identifying future water supply requirements.

A number of parameters are common all water service (water supply, sewerage and stormwater services) assessment. These include:

- Urban area size;
- Topography;
- Current population;
- Population growth predictions;
- Tourism population numbers;
- Age demographics and future predictions;
- Housing Stocks (houses and units);
- Growth predictions in housing stock (infill and new development areas);
- Changes in occupancy rates (movement from holiday homes to permanent place of residence);
- Average number of people per tenement;
- Number of commercial buildings; and
- Number of industries (identification of major industries).

A description of these factors must be included as the data will be utilised throughout the process.

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Urban Water Supply

A brief description of all existing urban water supply systems. Identification of the urban water supply infrastructure, including:

- Extraction licences;
- Water sources;
- The current secure yield of the water supply system and when it was last determined;
- Treatment processes;
- Condition of assets;
- Number of service reservoirs;
- Number of pumping stations; and
- Length of distribution pipelines.

Also include information on existing rainwater tanks, any greywater use and council policies related to these two areas.

An analysis of past and present water service demand (historical demand analysis) should be undertaken to determine the peak day and climatically corrected demand to determine any trends or errors in the available data. In this section there should be an outline of water supply demand from the current population, including a breakdown based on sector analysis (houses, units, commercial, government, industries and unaccounted for water).

Future water demand needs should be estimated based on the identified population growth and housing stock predictions. Water demands should be calculated against the different types of users (sector analysis) and current demands by those users. There should also be an analysis of the ability of the current infrastructure to meet future needs, including supply, treatment and distribution.

The status of the LWU's other five Best-Practice Management documents should be listed:

- Strategic Business Plan and Financial Plan (including Asset Management Plan, ie. Capital Works Plan identifying works for each of growth, improved levels of service and renewals, an Operational Plan and a Maintenance Plan, as well as a Plan implementation strategy);
- Pricing (including Developer Charges, Liquid Trade Waste Policy and Approvals)
- Water conservation (Demand Management Plan and implementation strategy);
- Drought Management Plan and regular review; and
- Annual Performance Reporting.

Review or preparation of some of these documents may be required on completion of the IWCM Strategy.

Any urban water supply issues should be briefly identified, for example:

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- Unusual water demand patterns (high level or wide seasonal variation – due to tourism);
- Supply shortfall (spatially or temporally);
- Raw or drinking water quality (failures);
- Customer complaints;
- Operational concerns;
- Occupational Health, Safety and Rehabilitation (OHS&R) issues;
- Asset management (including proposed program for the renewal of major infrastructure): and
- Current OMA cost/property (Operation, Maintenance and Administration) and Typical Residential Bill (TRB).

Sewerage Scheme

A brief description of the urban sewerage system including:

- Population served;
- The current treatment processes;
- Condition of infrastructure;
- Treatment plant capacity and annual volumes treated
- Wet and dry weather flows; and
- Occurrences of sewer chokes and overflows.

An outline of the current effluent management strategy should be included covering:

- Description of discharge licence conditions;
- The quality of the effluent (compliance with discharge licences);
- Disposal pathway (urban use, agriculture or receiving water discharge);
- Identification of current recycling markets and annual volumes; and
- Any pollution reduction programs (PRPs) in place.

A description of the inputs to the sewerage system should be outlined including a listing of the category 3 trade waste discharges (>20kL/day) and discharges of industrial waste. Any sewerage system issues should be briefly identified.

Example of types of issue:

- Effluent quality and quantity;
- Operational problems;
- OHS&R issues;
- Asset management (specifications of major assets and proposed program for the renewal of major infrastructure);
- Customer complaints;
- Water quality issues at receiving waters;
- Licence failures;
- Pending Pollution Reduction Programs (PRPs);
- Unsewered towns and villages, including population and number of unserved urban properties (excluding vacant lots); including a report on current service levels and their impact; and

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- Current OMA cost/property (Operation, Maintenance and Administration) and Typical Residential Bill (TRB).

Stormwater System

Description of the system and a summary of the findings of the Stormwater Management Plan. Any stormwater system issues should be briefly identified.

Example issues include:

- Stormwater quality and quantity;
- Flooding;
- OHS&R issues;
- Public safety;
- Operational concerns;
- Asset Management (including proposed program for the renewal of major infrastructure);
- System and pollution trap maintenance costs;
- Pollution sources;
- Customer complaints; and
- Current OMA cost/property (Operation, Maintenance and Administration) and Typical Residential Bill (TRB).

Other issues, as appropriate, should also be identified and included. Potential areas that could be utilised for stormwater harvesting (storage and reuse areas) should also be described. New development areas where Water Sensitive Urban Design principles could be implemented to reduce stormwater impacts from the development should be included and assessed.

Collate Issues and Data Gaps

A list of areas where information described above is not available (data gaps) should be created. These data gaps should be addressed prior to the next IWCM Strategy review (6 years).

Document all catchment, water, urban and legislative targets and objectives. Include:

- Water Quality and Environmental Flow Objectives;
- Catchment Action Plans;
- Council Strategic Business Plans;
- Council's last annual 'Review of Performance' and its annual 2-page TBL Performance Reports;
- NSW Best-Practice Management Guidelines, 2006;
- Relevant legislation (including ADWG (2004));
- Customer level of service agreements;
- ANZECC (2000) guidelines; and
- DEC licensing performance monitoring.

Use these targets and objectives to list all the obligations required of the LWU. Other obligations may include legal contracts (eg supply of chemicals, sale of

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biosolids or treated effluent, acceptance of trade waste). Compare the data outlined in Sections 6.1.1 to 6.1.6 with these targets and objectives to identify issues based on non-compliances.

The result should be a list of all of the catchment, water resource and urban (water supply, sewage, stormwater) existing issues impacting on how the LWU undertakes its business.

Review recent strategies

Review recent strategies and management plans to determine current or planned actions to address any of the identified existing issues. This can include capital works or any strategies being prepared or implemented.

Triple Bottom Line criteria

The process of short listing feasible solution to identified issues and the comparison of scenarios should be undertaken using social, environmental and economic considerations. This approach is formally identified as triple bottom line (TBL). The Project Reference Group (PRG) should identify which TBL criteria it will use to undertake this role.

Develop potential options to address issues

Prepare a list of all feasible options to address all identified issues. Consider the results of effluent and stormwater forecasting as potential alternative water sources and any recent strategies and management plans produced by council, as they may address some existing issues.

DEUS encourages compliance with all requirements within the Best-Practice Management Guidelines (BPM Guidelines). DEUS also strongly encourages adoption of best practice pricing (user pays and cost recovery) and demand management (water conservation) by all LWUs. DEUS Demand Side Management Decision Support System (DSS) software should be used to analyse the impact on demand of different demand management options.

Where data inadequacies are identified, the LWU should put in place processes to collect the data so it can be used during the next review (6 years).

Triple Bottom Line analysis of options

Once all issues are identified and agreed by the PRG, the list of feasible solutions to these issues is developed. This list is presented to the PRG to confirm which are not considered to be locally suitable. The TBL criteria developed by the PRG are used to remove any options in the list which do not satisfy the TBL criteria. The remaining options can then be used to develop bundled solutions which are called scenarios.

Consultation

A PRG should be formed and used throughout the IWCM planning process. It is up to the LWU to determine the make-up of the PRG and the most appropriate time to consult with it. The PRG must conduct a thorough and transparent consultation process which includes all relevant stakeholders.

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There must be sufficient consultation with regulators to ensure all issues are appropriately covered and the short listed options are acceptable to the Government. This may be undertaken by using a separate Regulators Group if considered beneficial. The reasons for such decisions should always be presented to the PRG.

Step 2: Strategy Plan

The role of the Strategy Plan is to clearly describe the method of solving the issues identified by the Evaluation Study. It can be a simple or detailed process depending on the local circumstances. The following gives more detail.

Simplified Strategy

The simplified approach is used where the LWU believes that the issues found can be resolved without the need for major capital works within the next 10 years or where there are not significant alternatives which need scenario development. The use of this Strategy requires DEUS concurrence. It should show how the issues identified by the study can be solved through:

- Improved application of the six DEUS Best-Practice Management criteria;
- Improved data collection and use;
- Community and user education;
- Better asset management; and/or
- Effective water conservation.

Regular (6 yearly) monitoring, review and adjustment of the Strategy in line with changes, future legislation, water sharing plans, etc, is required. The draft Strategy is to be reviewed by the PRG, DEUS, relevant stakeholders and Government regulators. Actions are to be included in council's Strategic Business Plans.

Detailed Strategy

LWUs will need to pursue a detailed Strategy when:

- There are major capital works necessary within 10 years; and/or
- There are several options with different levels of integration; and/or
- Detailed investigations are necessary.

DEUS should be consulted to confirm the process if the LWU intends to undertake a detailed Strategy to provide appropriate assistance.

Scenario development

Scenarios are "packages"¹ of options which are bundled together to solve the identified issues using integration across all three water services where appropriate. They include three main types:

- Business as usual;
- Traditional solutions; and
- Integrated solutions.

¹ See a full definition of scenarios at the end of the Appendix (page 12).

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Three (3) integrated solutions are developed with an increasing level of integration across all issues and the three (3) urban water services (water supply, sewerage and stormwater). All scenarios should address the issues identified by the IWCM process. The aim of developing scenarios is to enable a comparison of different ways of solving the issues. Comparison of the solutions using the triple bottom line (TBL) criteria developed at Step 1 is used to determine the most appropriate strategy for the LWU to pursue. This can be any of the five scenarios developed.

Analysis of scenarios

Analysis requires some preliminary information about the proposed capital infrastructure. This includes the cost for each scenario, based on a summation of indicative costs for each item. Outcomes to be considered capital, operating and maintenance costs. Proposed timeframes will be important to determine the net present value (NPV) and typical residential bill (TRB) for each scenario. The social, environmental and economic comparison can then take place.

TBL evaluation

Compare the five (5) scenarios utilising the TBL criteria identified and preliminary information gathered on them. It is recommended that the assessment be prepared by council or its consultant and the evaluation process be undertaken by the PRG to demonstrate accountability across all stakeholders and ensure the process is transparent.

Community consultation

Public exhibition and community workshops on the process and the preferred scenario are then required. It is recommended that an independent facilitator be engaged to run the community consultation. The implications of the preferred scenario need to be explained to the community. How the community's values and wishes were considered by involving the PRG and by using the TBL evaluation process would also be explained during the community consultation.

Develop IWCM Strategy report

The Strategy Report only needs to be a short document outlining the main findings of the process and the preferred strategy. Other reports such as the computer modelling and bulk raw data can be attached as appendices. The report must include actions to be implemented, monitoring to be undertaken and recommendations on areas to be addressed during the six yearly review. The draft Strategy report is to be assessed by the LWU, DEUS and relevant regulators. When the Strategy report is finalised, it should be presented to council for adoption and incorporation into the LWU's Strategic Business Plans.

Definition of Scenarios

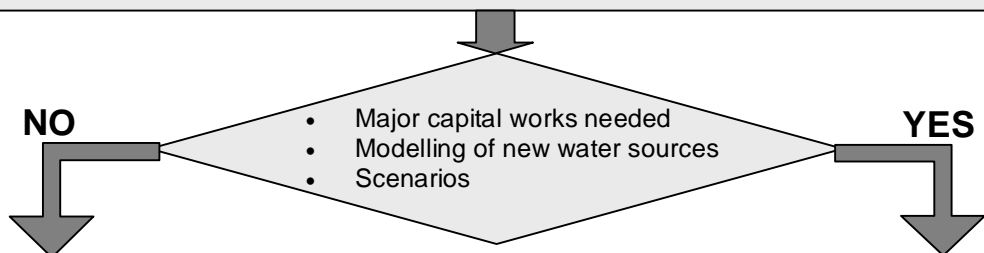
- Business as Usual (base case or do nothing new – simply continue what is being done now, which may solve some of the identified issues. It looks at all the existing issues – those issues which exist right now - and indicates which will be solved by application of the existing processes the LWU is undertaking. Examples of some existing processes are; a new pricing structure, commitment to build new infrastructure and an education program. These current activities must be “irreversible” to be considered existing. When the Business as Usual scenario solves an existing issue, the issue no longer is required to be included in the Traditional or Integrated scenarios.);
- Traditional scenario (is the process of solving the issues the Business as Usual strategy will not solve. This is done by solving each issue when it become a problem. No evaluation of the wider efficiency of solving the issue in partnership with other known issues in an integrated way across all water supply, sewerage and stormwater services); and
- Integrated scenarios (is the process of solving the remaining issues² by looking for greater efficiency and sustainability through integration across water services when a solution is being considered for any singular issue. This approach takes advantage of using solutions which solve more than one issue).

² “solving the remaining issues” refers to the issues that the Business as Usual case does not solve. These are the same issues that the Traditional Scenario is also solving. It is not those issues left after the Traditional Scenario is undertaken.

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Step 1: The Evaluation Study

- Gather existing background information and data;
 - catchment
 - water resource
 - urban.
- Confirm catchment failures and link to urban water service activities (impacts out and in)
- List LWU obligations;
 - legislative (confirm with Govt agencies)
 - licence (confirm with consent authorities)
 - levels of service (customers)
 - legal (contractual)
 - best practice
 - SBP (community, asset, OH&S)
 - Pricing / charges/ trade waste
 - Demand Management (Water Conservation) Plan
 - Drought Management Plan
 - Performance reporting.
- Historical demand analysis (include climate correction).
- Population (customer) forecast to 30 years.
- Water cycle forecasts (needs and generation);
 - water supply
 - sewerage (effluent)
 - stormwater.
- Identify real issues by auditing catchment issues against urban water activities, and information and data against LWU obligations. (*Sign off by DEUS is needed at this point.*)
- Identify data and information gaps relating to obligation confirmation.
- PRG meeting 1-form PRG & discuss IWCM process, PRG role and confirm any other obligations (particularly levels of service) and IWCM related issues.
- Develop long list of technically feasible options to issues and preliminary costs – focus on demand, drought and asset management, community education, pricing, best practice, data management, water losses both real and apparent (UFW) and simple rebate options, initially.
- PRG meeting 2 – coarse screen long list to short list (TBL) to produce a short list of more suitable options and develop selection criteria related to issues and options.
- Develop draft IWCM strategy, including all best practice options, monitoring and evaluation.
- Community consultation.



- Step 2: Simplified Strategy Plan**
- 30 year asset management plan and costs. (Detailed costs for first 10 years and best estimate of costs for remaining 20 years)
 - Implementation process for non built solutions (best practice, education, etc)
 - Sign off from DEUS.
 - IWCM Strategy included in SBP. (Only want appvd doc in SBP).
 - Collect required data.
 - Monitor and review Strategy in 6 years.

- Step 2: Detailed Strategy Plan**
- 30 year asset renewal plan, water conservation strategy and capital works plan. (Full detailed assessment of costs.)
 - Develop scenarios (bundled options);
 - Supply analysis
 - Distribution analysis
 - Costs and TRB impact.
 - PRG meeting 3 – discuss preferred scenario.
 - Draft IWCM Strategy.
 - Community consultation (+ DEUS & consent authorities).
 - Final IWCM Strategy.
 - Sign off by DEUS.
 - IWCM Strategy included in SBP.
 - Monitor and review Strategy in 6 years.