WA Water Symposium

Parliament House

7 - 9 October 2002

Volume 1

Summary of Outcomes

Foreword

The Water Symposium conducted at Parliament House, Perth, from October 7-9, 2002, and the series of 19 community forums in Perth and major regional centres that preceded it, were unique and important events in the management of water resources in Western Australia.

For the first time, a strong community voice was heard in relation to water planning issues that go to the heart of our lives, and of the state's development: How should we develop our precious water resources in a sustainable way – now, and for a long time into the future - and how can we use our water supplies with a high degree of efficiency so that those resources are conserved, and the need to develop new sources may be delayed?

A long period of dry weather and drought that has affected large areas of Western Australia has graphically demonstrated that we are vulnerable to climate change, and must become much smarter in the way we develop and use our water supplies while protecting our environment.

The many people who participated in the forums and the Symposium showed a high level of concern for these issues and enthusiastically discussed and debated a wide range of ideas and proposals. These deliberations were refined in the final session of the Symposium to 22 major recommendations. These, along with a record of the many conclusions and proposals that emerged, will be considered as part of future water planning in our state.

It is appropriate that the Symposium was held in the Legislative Assembly, the peak peoples' chamber of debate and the choice of venue demonstrated the importance given to this event by the State Government. I thank the Government and the staff of Parliament House for making this possible.

I also thank all the presenters and participants in the forums and the Symposium, as well as the hard working organisers and facilitators. I believe the results of our collective efforts will serve Western Australia well in moving towards a sustainable water future.

Professor Wally Cox
Symposium Chair

Contents

THE WAY FORWARD

We, the Symposium Delegates recognising the importance of action for our natural environment, quality of life and economic development, consider that:

- Our water resources are precious and need to be managed so as to maintain our natural environment, maintain and enhance our quality of life and support broad scale economic development;

- Climate change and natural variation is reducing rainfall compared to our long and short term average and that this will reduce resource availability;

- Water resource allocation should reflect the full range of environmental, social, cultural and economic values;

- Water resource allocation should incorporate the Precautionary Principle[1] and water resources should be managed flexibly to accommodate future climate change;

- Sustainability principles and processes should be applied to water allocation although it is recognised that further work is required on how it can be put into practice;

- Application of the sustainability principles should be through a sustainability assessment framework;

- Sustainability assessment requires public participation, transparency and openness in decision making;

- Sustainability assessment needs to be holistic and integrate land use and water resource issues;

- In planning for the management of WA's water resources, we need to have an integrated approach that includes the comparison of options for supply and demand management in accordance with the sustainability principles;

- With responsibility for supply and demand shared amongst different agencies there is concern that the State Water Strategy would not fully integrate supply and demand considerations;

- The roles and responsibilities of state agencies in the production of strategic water plans needs review;

- Local Government has a unique capacity to provide leadership in water conservation and water resource management;

[1] Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

- Land use planning and water resource planning should be conducted at a local, regional and whole of state level and incorporate environmental, social and economic values at each planning level;

- While the Water Corporation has plans for the future supplies of Perth each new source should be subject to sustainability assessment ;

- It is recognised that there needs to be a basic allocation of water for basic health needs in parallel with other measures to improve water use efficiency;

- Domestic water tariffs should be restructured to reduce fixed charges and increase volume charges to provide greater incentive for efficient water use. Any net increase in income to be utilised for a demand management program;

- Pricing for all consumptive uses should be based on recovering full economic, social and environmental cost of service provision;

- Social and regional equity issues should be addressed by way of direct support from general government funds and a review of community service obligations may be required following adjustments to prices and tariff structures;

- Water resource management charges should be applied to all water users who benefit commercially from water use in the State and revenue raised dedicated to water resource research, planning and management;

- Demand projections for the Integrated Water Supply Scheme (IWSS) show a continued growth as a result of growth in domestic consumption as a result of population increases with smaller increases in industry and other uses;

- Demand projections and their basis, should be reviewed regularly;

- There should be a debate about the sustainable population for the greater Perth region;

- A water conservation strategy is needed to better match supply and demand;

- Domestic consumption in the IWSS needs to be reduced by more than 10% to at least 155kL / person/year by 2020. Comparable targets should be set for, and in consultation with, other water use sectors;

- The Water Conservation Strategy should incorporate the following high priority components: -
    - continued application of 2 days per week sprinkler use but extended to all users including bores;
    - re-use of waste water;
    - increase research and promotion of use of greywater;
    - program for widespread adoption of water sensitive urban design including retrofit to existing suburbs with a view to implementing changes to legally enforceable planning policy;
    - strategies to increase domestic / industry / agriculture water use efficiency; and
    - stormwater re-use;

- There was broad support for incentives for water efficiency programs;

- Pilot studies into water efficient appliances and water sensitive urban design should, where information is not available, precede a detailed education program;

- Wastewater re-use was a potential substitute for new source development however the 20% re-use target by 2012 was considered too low;

- There was broad support for a continuation of the current domestic restriction regime indefinitely. In setting restrictions, regional conditions must be considered;

- Regulation in relation to water efficient appliances should only be considered after detailed pilot studies to assess value to the community;

- Community education programs be continued or commenced in the areas of climate change, sustainability principles and processes and water conservation applicable to domestic, industry and agricultural (irrigation) use;

- The State's capacity to undertake detailed water resource planning and management is constrained by lack of knowledge of aquifer behaviour, particularly in response to climate change, and resources for further investigation and management of the State's water resources; and

- Substantial knowledge gaps also exist particularly in the area of wastewater re-use technology and processes and water use efficiency;

- There be a Minister for Water Resources within the Government with clear responsibility for water resources management, separate from responsibility for the government enterprises;

- We call for bipartisan support for sustainable water resources management.

RECOMMENDATIONS

We, the delegates, propose that Government implement the following recommendations:

1. The sustainability principles and processes incorporating the triple bottom line be applied to water resource allocation and planning.

2. Additional financial resources be provided for water resource monitoring, planning and management including investigations of the behaviour of aquifers and catchments and their response to climate change and environmental water requirements.

3. Water allocation and water resource management flexibility is required to accommodate future climate change.

4. In planning for the management of WA's water resources, the State Water Strategy should be based on an integrated approach that includes the comparison of options for supply and demand management in accordance with sustainability principles.

5. A consumption target lower than 155KL/person/year be set for the Integrated Water Supply Scheme and that comparable targets be set for other water use sectors in consultation with users.

6. A program for the widespread adoption of water sensitive urban design, including retrofit to existing suburbs, be conducted with a view to implementing changes to legally enforceable planning policy.

7. Continue the current restriction regime for residential users and consider regional conditions in setting restrictions.

8. Undertake additional research into greywater re-use within the urban environment.

9. Undertake an enhanced water efficiency program for the domestic / industrial / agricultural sectors.

10. Introduce an incentive package as part of an integrated approach to enhance water use efficiency.

11. A target greater than 20% by 2012 be set for wastewater re-use.

12. Where public funding leads to efficiency gains, the water saved should be reallocated in accordance with sustainability principles. (Public funding is taxpayer funded, and does not include water utility funding)

13. In recognising that a basic allocation of water needs to be available for basic health, and in parallel with other measures to improve water use efficiency, it is recommended that:

    a. prices for water services be based on the full environmental, social and economic cost,

    b. domestic tariffs be restructured to reduce fixed charges and increase volume charges,

    c. social and regional equity be addressed by way of direct support from general government funds, and

    d. that there be a review of community service obligations as a result of any issues arising out of (a) and (b).

14. Water resource management charges be applied to all water users who benefit commercially from water use in the State and revenue raised dedicated to water resource research, planning and management.

15. Investigate the option of aquifer recharge and re-use of treated wastewater.

16. A research fund be established to fund additional research in a number of areas including aquifer behaviour, wastewater re-use technology and processes, water use efficiency and environmental impact, etc.

17. A review of accountability and structures for ongoing strategic water resource planning should be conducted.

18. Community education in the areas of climate change, sustainability principles and processes and water conservation applicable to domestic, industry and agricultural (irrigation) use be enhanced.

19. Local Government should provide a local leadership role in water conservation and water resources management.

20. State Government agencies to assist Local Government to develop water management strategies as part of a whole-of-government approach.

21. A Minister for Water Resources should be appointed with clear responsibility for water resource management and separate from responsibility for government enterprises.

22. That delegates be provided with copies of the Symposium Report and the State Water Strategy on its release.

We, the delegates, thank the Premier and the Government for this opportunity to provide input and guidance into the State Water Strategy and call on the Government to provide leadership for a strong community focus on demand management and the implementation of the sustainability framework.

PROFESSOR WALLY COX (CHAIR)
ON BEHALF OF THE DELEGATES.

SUMMARY OF BREAK OUT SESSIONS

1.0 DAY 1 – 7 OCTOBER 2002

1.1 Break Out Session 1 – Climate Change

1.1.1 Conclusions – Share

1. Climate Change is happening and there is a link to water resources. There is uncertainty about how significant the impact will be.
2. It is a Global issue but we all have a role to play.
3. Little evidence to demonstrate an integrated response to Climate Change.
4. Insufficient information and education provided to the broad community on issues of climate, water resources etc.
5. One group identified hat changes are occurring to agricultural practices as a result of climate change and should be supported and encouraged. This was discussed by other groups.

1.1.2 Conclusions – Additional Issues

1. People question the sustainability of doubling the population in Metro Perth by 2050.
2. We need to use our existing resources more effectively and efficiently.
3. There were differing views as to the extent to which Australia should support Kyoto.

1.1.3 Recommendations – Broad Support

1. There needs to be an increase in resources for research and development to improve our understanding of the linkage between climate change and our ground and surface waters;
2. Specific research to refine our understanding of both variability and climate change;
3. We need to be more efficient in all water use sectors;
4. Be more aggressive in our reuse of water (tougher targets);
5. Establish an integrated and accountable structure for strategic Water Planning;
6. Strategic Planning to reflect sustainability principles (social economic, environment);
7. Strategic Planning needs to consider and present a range of scenarios;
8. Whole of Government approach with one Minister responsible;
9. Establish a broad based community education program to encourage changed behaviours in response to climate change; and
10. Need additional research on effects of climate change on groundwater resources.

1.1.4 Information Needs

1. Issues surrounding use of grey water and how it is used overseas.
2. Groundwater sustainability.

1.2 Break Out Session 2 – Societal value systems for water resources in WA

1.2.1 Conclusions

1. Water resource planning should incorporate consideration of community stakeholders economic, social and environmental values – noting that values change over time.
2. Water is a precious resource is under-valued.
3. The community/stakeholders needs to be involved in the planning process from inception.
4. Water resource pricing is seen as an important and complex issue.

1.2.2 Recommendations

1. Broad based community education program to encourage informed community response to the sustainability issues confronting the state in water use and management.
2. Investigate the use of incentives and regulatory tools to influence the values that are held leading to behavioural changes in water management to achieve greatest benefit for least cost.
3. Pricing to reflect social, environmental and economic considerations.
4. Establish a decision making framework that includes community stakeholders in the process of water management.
5. Community wishes to see clear evidence that the Government is implementing programs that are framed on sustainability principles.
6. A commitment to the auditing of industry.

2.0 DAY 2 – 8 OCTOBER 2002

2.1 Break Out Session 3 – Sustainable abstraction of water

2.1.1 Conclusions

1. Sustainability approach with relation to water has been applied in the past and processes need to evolve and improve i.e. build on our experiences and take into account uncertainties and climate change;
2. Group supports the principles of sustainability and of process, and the application to specific areas requires further work but the delegates had a desire to see evidence of successful application;
3. Sustainability assessment provides opportunity for public participation, transparency, openness in decision making; and
4. There is insufficient information on aquifers and additional resources required for water resource management and the implementation of the sustainability principles and process.

2.1.2 Recommendations

1. There is a need for increased community education on sustainability processes to ensure informed debate and stakeholder confidence;
2. Water Allocation processes need to be flexible to respond to climate change whilst also providing certainty to water users;
3. Sustainability assessment need to be holistic and integrated into the decision making processes including institutional cooperation; and
4. Additional resources to be allocated for the understanding of aquifer behaviour and the management of the States water resources.

2.1.3 Information Needs

1. Clarify how current water allocations might differ under sustainability framework.

Issue

- Differing philosophical approaches to water allocation
    - Environment first then social and economic or
    - Environment, social and economic equal.

2.2 Break Out Session 4 – supplying water and meeting demand

2.2.1 Conclusions

1. Land use planning and water resource management planning (particularly the water allocation process for inter regional transfers) be conducted on a state level, regional level and local level; and
2. Diverse views – 3 groups believed the pipeline issue was not a source of future supply. 2 groups wanted additional information

2.2.2 Recommendations

1. Need for a holistic demand and supply strategy with an emphasis on the demand side;
2. A target lower than 155 ?? per person per year be set for the Integrated Water Supply System and that comparable targets be set for other water use sectors;
3. Need for a more aggressive approach to demand management. Specifics to be determined in breakout session on Day 3;
4. Every new source development including desalination be the subject of sustainability assessment and comparative analysis to enable selection of the most sustainable outcome; and
5. Agencies responsible for Land Use Planning and WR Planning should work together more closely

2.2.3 Information Needs

1. Need to see relative assessment for Pipeline and Desalination;
2. Better information on sustainable yield and demand projections;
3. Move information on the impacts of aquifer recharge using treated wastewater;
4. Information on current efficiencies in irrigated agriculture;
5. Is hyper saline water use sustainable and what are recharge rates; and
6. Projects that will help us achieve 20% reuse?

3.0 DAY 3 – 9 OCTOBER 2002

3.1 Break Out Session 5 – Water efficiency, price and regulation

Water Efficiency Options:

Need for integrated supply/demand approach

1. Community support for the draft Water Conservation Strategy including:

- Integrated approach must apply to all water use sectors.
  - Continued application of two days week sprinkler regime to be extended to all users including bores.
  - Reuse of wastewater but with stretched target.
  - Increased research and promotion of groundwater.
  - Programs to promote water sensitive urban design including retrofit to existing suburbs
  - Strategies to increase domestic/industrial/agricultural water use efficiencies.

2. Broad support for incentives for water efficiency programs

3. Support for detailed pilot studies in a broad suite of water efficiency programs and WSUD

4. Support for best practice water efficiency in irrigated agriculture/horticulture and mining

5. Delegates believed there was a need for more specific educational programs e.g. individual marketing and identification/support for local champions.

Price as a method of regulating demand:

1. Support for a shift in tariff structure (i.e. mix between fixed and variable charges).

2. Any net increase in revenues need to be seen to be transparent in its use for water efficiency outcomes.

3. Broad support for a resource management charge.

Regulation:

1. Delegates supported a continuation of the current restrictions regime indefinitely (to include all residential sectors).

2. In setting restrictions, regional conditions must be considered.

3. Consider regulation in relation to water efficient appliances and WSUD only after detailed pilot studies to assess value to the community.

4. Where regulations are in place they need to be simple and enforced.

5. Support for clarification of the roles of the various agencies vis Water Corporation, Water and Rivers, Planning. Conflict of interest for Water Corporation in water conservation .

GROUP ONE OUTCOMES

4.0 GROUP ONE - DAY ONE

4.1 Break Out Session One – Climate Change

4.1.1 Summary of discussions:

Conclusions

1. Less rainfall in SW
2. Higher temperatures
3. Less run-off
4. Long term inevitability
5. Managing emissions causing climate change as well as the impact.
6. Integrated planning processes must take into account – social, environ, economic and equity issues.
7. Insufficient attempt at education initiatives.
8. Maintain a balanced view (optimism).
9. Global issue – but we should play a part.

Recommendations

1. Integrated approach – TBL sustainability.
2. Water efficiency to and demand.
3. Increase water supply.
4. Greater resources for research:
   - link rainfall and groundwater recharge
   - hydrology and climate models short term
   - short term prediction on climate (e.g. QLD)
5. Ratify KYOTO
   - explore beyond KYOTO
   - explore export opportunities
6. Education (positive)
   - Broad Community
   - Educational System
7. Advice from Government Agencies needs to reflect new climate realities.

Further Information

1. 'Beyond Kyoto'
2. What's happening at regional level

4.1.2 Flipcharts

- Not ignore long term continuing dry.
- Inevitable H2O reduction
- Water efficiency
- Multi facetted social & environmental impacts
- Integration of processes
- Won't change overnight relation between rainfall and groundwater recharge greater resources into solution. Short term solutions link hydrology & climate models.
- A reality
- Ratify KYOTO on to other emission control mechanisms

4.2 Break Out Session 2 – Societal values of water resources in WA

4.2.1 Summary of discussions:

Conclusions

1. All facets of life but don't trade fatal flaws;
2. Integrate economic, social and environmental – win – win – win;
3. Values need to be agreed by stakeholders;
4. Recognise differences between stakeholders; and
5. Some feel that environment gets first call on resource.

Recommendations

1. Need to involve major stakeholders in consultation at early stage;
2. Water Taskforce not representative – needs to be more inclusive. With 10 October 2002 establish broadly representative water resources body;
3. Develop a better model for integrating social, economic and environmental values;
4. True and fair pricing model needs rapid adoption
    - Social equity; and
    - Not a disincentive.

Note – Globally / Nationally Lots of Work being done on sustainability

4.2.2 Flipcharts

- Eco system first – rest follows
- Criteria to balance requirements
    - water efficiency a priority
    - lifestyle maintenance but flexibility
    - how to enhance
    - uses of H2O & criteria to get balance.
- Involved in conservation manner respect points of view. Govt ag/com 1 size doesn't fit all different view-points.
- Important to all facets of life
    - not only one aspect – social/cultural etc.
- H2O undervalued – increase cost with rising value
    - responsible for our usage
    - impacts
- Pricing

    - concessions but no waste
    - who owns?
- Get all interests represented and freedom of choice – but sustainable
- Agreed value for environment, social and economic aspects.
- Economics
    - critical for social good
    - least cost for environmental good
    - cheapest way may be best.
- Integrate agreed values not trigger any fatal flaws – must get an acceptable solution on all parameters.

5.0 GROUP ONE - DAY TWO

5.1 Break Out Session 3 – Sustainable abstraction of water

5.1.1 Summary of discussions:

Conclusions

1. Process needs to be more sophisticated as resources become fully allocated;
2. Knowledge base and resources appear to be light in Waters and Rivers to cover allocation complexity;
3. Inadequacy of integration of Sustainability Policy across Government and Legislative Framework (ERA); and
4. Sustainability Assessment provides opportunity for public participation, transparency and openness in decision making.

Recommendations

1. Sustainability assessment methodologies need to simple
2. Public needs to hear good news stories for triple bottom line success
3. Sustainability assessments need to be integrated into decision making regulatory authority and legislative framework
4. Enshrine sustainability principles
5. All delegates to be provided with relevant Act and Regulation and flowchart

Further Information

1. Clarify how current water allocations might differ under sustainable framework
2. Please describe environmental assessment process that led to Gnangara mound decisions and how 546 changed
3. Which Acts affect water resource management

5.1.2 Flipcharts

- Not properly resourced. WRC – allocation & how much H2O.
- Councils - more pro-active
    - H2O Al – good into behind transparency
    - lacking funding
    - black market in trading – legalised
    - opposition to changes – inevitable
- Not professional / lobbying not incl 'ad hoc'
- Newman principles – OK
    - process?
- Need for integrated planning all hand in hand
- Local Government involvement. Development methodologies for triple bottom line.
- Affordability should work if done properly.
- There are economic benefits
- Costs don't burn people – but not free
- Higher cost failure
- Incorporate environmental etc (social) transparency through entire process
- WRC – final say – subject to EPA environ H2O decisions
- Social decon – inadequate transparency
- Different in approach becoming more sophisticated. Triple bottom line but transparent / industry and quality engagement. Social and economic. Existing ownership of rights and how move forward.
- OWR – how its work fits in equity issues any regulator must look at all areas (social equity etc).
- Proposal inadequate if looking at anything other than economic components.
    - Unsure of legal obligation of decision making process
    - each delegate development – appropriate acts to help understanding.
- Make sure sustainable objective in legal framework.
- More information on relevant acts.
- Not much explanation on opportunities.

5.2 Break Out Session 4 – supplying water and meeting demand

5.2.1 Summary of discussions:

Recommendations

1. Pipeline is not economically feasible – environmentally - socially
2. Retain two Ministers, but review process

Issues without consensus

1. Planning regulations on greywater and sensitive urban design
2. Sprinkler bans
   - Education
   - Incentives
   - To be fully implemented before pricing
3. Don't distort pricing for specific sectors
4. Concern on economic environment balance of values
5. Cost drivers need to be taken into consideration
6. Water Corporation Act needs to be modified to be more holistic
7. Determine allocation for health and welfare of individuals "Water for Health"
8. Legislate reform to sub-division process

Conclusions

1. We **can** reduce consumption of scheme water
2. We need to also look at urban areas outside Perth, particularly mining and agricultural areas

Further Information:

1. On impact of domestic bores
2. Bores versus rainwater tanks
3. Technology options on desalination different sustainability impacts – incorporation power options.
4. Sustainable yields on Yarragadee aquifers and monitoring impact on long term usage
5. Identify state agreement acts that impact on sustainability of water resources
6. Moratorium on dams (public water source)

5.2.2 Flipcharts

- Water Corporation – make profit – not always best process – soc/env.
- Opportunity to save H2O through int. approach – incl incentives/heads / w.m.
- Eng infrastructure – ens problem. Comm problem better (non eng).
- Lack of knowledge of Yarragadee.
- Not enough respect problems ahead? Not sustainable.
- Regulator required to monitor all aspects of H2O provision management.
- Cons. concerns focussed on mining / agriculture – are growing.
- Emphasis on H2O resource there are opportunities.
- R/O not best desalination method. Thermal – better?
- More info on forest management – more data-thinning regime etc.
- Reduce cons. – yes. 50% on garden/lawns possible.

- Work with industries involved – water eff. focus.
- Rural and regional emphasis
- Current use – yes
  - gardens – again work with industries, alternative lawn types
- Maintain 2 day sprinkler arrangements.
- Local Govt – less H2O intensive rec. facility.
- Rethink recreation areas – urban - more bush.
- Increase in price – social/economic views in H2O (greywater) stormwater
- More wastewater processing
- More info. sust. analysis of desalination – but good – different types of processes.
- More info – bores/rainwater tanks
- 1 or 2 Ministers – review the legislation re H2O, but . . . . 1 or 2 Ministers.
- Are we substituting bores for scheme? – Is this a problem if its true.
- Salt H2O intrusion – Mosman Park – Cottesloe.
- Ineff. In H2O use in urban areas – red.
- H2O use for other uses – rural/environment – all impacted.
- Pricing- H2O for life – very cheap. Cheap for basic needs – beyond that – what?
- Expect to treat wastewater – could be inferior
- Who pays – users or beneficiaries?
- Planning of subdivision
  - cond for H2O
  - efficiency – H20
  - saving devices
  - hard wires
- Planning Corp role – how much H2O effective? Build in early on.
- H2O agencies recommending role. Should that be a decision-making role?
- Irrigation – sprinkler type and sprinkler time
  - major savings in system possible.
- Red. cons. irrigation and mining comp. as well.
- W/leader in H2O effective. 1st step in demand management. Effective strategies in past. Education campaigns and incentives. This done before price increases.
- Good pricing -> mechanism do this.
- Higher consumers first – but lower down.
- Adequate concessions.
- Utility relief – State funded – pensioner applications for help etc – 1 off assistance.
- Information on successes – moratorium on dams – can't fill them – why build?
- Greywater rainwater more discussions.
- Kimberley pipeline – out
- Desalination – more discussion.
- More discussion between Ministers
  - Govt enterprises Minister
  - Environmental Minister

6.0 GROUP ONE - DAY THREE

6.1 Break Out Session 5 – Water efficiency, price and regulation

6.1.1 Summary of discussions:

Water efficiency options

Recommendations

1. "Low hanging fruit"
2. Big impact projects
3. Education / Communication / Incentives } Melbourne
   Regulation / Retrofitting } Experience
4. Encourage household / families to monitor daily use.
5. Increase greywater and wastewater re-use.
6. Via education promote local plant use, reduce lawn size, alternative plants etc.
7. Projects to work with agriculture/horticulture (e.g. irrigation systems) and mining in Regional WA.
8. Carry out field days highlighting best practice – e.g. forestry, vineyards, dams, market gardens.
9. Investment in native plant industry.
10. Funded program for independent review of mining use.
11. Work with farmers to develop strategies.
12. Identify local credible local champions.
13. State undertake audits for LGAs water use.
14. Aim for nil ocean discharge.

Further Information

1. How do community members enforce parts of Act?

Pricing:

Recommendations

1. Increase percentage of bills influenced by use (variability) and reduce fixed charge.
2. Must be in parallel with demand management systems.
3. Explore options/promotion for community bores.
4. Incorporate water efficiency incentives e.g. 5% bill goes to pool for incentives investment.
5. Water and energy utilities resourcing/supporting efficiency of resource.
6. Be aware of equity issues (must be sustainable).
7. Explore pricing between 3 sources of water (scheme/bore/reused).
8. Flow meter instead of licensing.
9. Stop conflict of interest of Water Corporation by legislation amendment – very clear license.
10. Long-term decision-making on advanced recycling schemes.
11. Pricing parity controls on large buildings.

Further Information

1. Where is money coming from and how is it disposed from Water Corporation?

Regulation:

Recommendations

1. Local Government to track bores.
2. Monitor bore installation / usage impacts via water table level.
3. WSUD mandatory in planning (strong debate and dissent).
4. Regulate to develop property rights in water and create markets as a means to encourage water efficiency (strong debate and dissent).
5. Regulation should factor in external ties e.g. environmental costs ->fairness.
6. Public participation in subdivision planning processes.
7. Third parties able to take civic and enforcement proceedings.
8. Water & Rivers Commission and Water Corporation to publish prosecution policies.
9. Regulate to remove commerciality and conflict of interest of the Water Corporation -> sustainable overall goals (some strong dissent).
10. No total sprinkler bans.
11. Permanent 2-day restrictions.
12. Objects of Act amended to include sustainability.
13. Ensure technical advice keeps pace in State and Local Planning.
14. Need to include outside of SW of WA.
15. Trial 2 pilots of water sensitive urban design and publicise results.

Further Information

1. Up to date technical / best practice information on water sensitive urban design / planning / best recycling / reuse.

6.1.2 Flipcharts

Group 1 did not produce flip charts on Day 3. The summary of discussions, recommendations and further information from Break Out Session 5 are represented in the Summary of Discussions above

GROUP TWO OUTCOMES

7.0 GROUP TWO - DAY ONE

7.1 Break Out Session One – Climate Change

7.1.1 Summary of discussions:

Conclusions / Consensus

1. Climate change occurring
    - natural variability
    - greenhouse
2. Therefore Rainfall decreasing
3. Rising population impact
4. Strategies need to be implemented now with a view to the long term.
5. What we have we need to use effectively and efficiently.
6. Changes are occurring to agricultural practices and should be supported and accelerated.

Recommendations

1. Education program for everyone.
2. Tough decisions to be made.
    - need independent DMA
    - one Water Resources Minister
    - no quick fix – long term strategies
    - bipartisan approach
3. Set higher target for water re-use (than 20%)
4. Increase in research and development.
5. Need to look at what's happening in other states and arid countries.

Flipcharts

- Sustainability of ground water? Knowledge needed about recharge
  - environmental effects
- Strategies to reduce greenhouse gases
  - industrial domestic . . . . .
- State Government strategy to be finalised urgently.
- We have a water distribution challenge in WA.
- Mix of "sources" needed to provide supply into future.
- Re-use target should be higher than 20% in 10 years.
- Greywater use – lets get serious about using it (look at draft guidelines).
- Adapt behaviour about how we use water. "We may have been living outside our means".
- We must adapt to climate change now.
- Use water efficiently first – then new sources.
- Tough decisions need to be made. How to do this when relying on Politicians
  - need independent DMA
  - one Water Resource Minister
  - no quick fix – long term strategies
  - bipartisan approach
- Rising water tables in country
  - desalination of this is a source water locally & energy.
- More people – more water needed – must pay for it.
- More national approach to water problems across Australia.
  - sharing information.
- State planning to look at getting people to where the water is.
- Link desalination in country to population shift.
- Lots of effort needed in education to understand issue.
- More support to climate research.
- Resources in Government lacking for "Waterwise on the Farm" program and other WUE initiatives.
- Better Govt integration in water related development projects.

7.2 Break Out Session 2 – Societal values of water resources in WA

7.2.1 Summary of discussions:

Conclusions / Consensus

1. To rethink how we think about water;
2. We undervalue water to human society and to the environment;
3. Water pricing is a key issue; and
4. There is not one single solution in terms of strategy.

Recommendations

1. We need sustainability assessments across whole area of supply and use;
2. Should be incentive based. Change should be managed through a range of incentives and regulations:
    - Going native
    - Local
    - Grey water
    - Rainwater
3. Auditing of industry – more rigorous monitoring of water efficiency;
4. New pricing system – the income from which to implement State Water Strategy; and
5. Education and recognition of good practice.

Information Needs

1. What is the true cost of water:
    - Service Provision
    - Resource Management
2. Quality of Water:
    - Catchment Areas
    - Heavy Industry Pollution

7.2.2 Flipcharts

- Aboriginal vs European view of water.
- Water has a cultural value.
- Difficulty? in changing behaviour with water.
- Eliminate word “wastewater”.
- Water isn’t the problem – it’s the way we think about it – Geoff Syme.
- Not one solution to problem.
- Gardening/Fauna – very important waterwise gardens can help biodiversity – grow locals.
- Incentives for alternative water supplies should be considered.
- Water is undervalued – there is a price (appropriate) but we have not reached it.
- Price is only for water services – does not include water management.
- Incentive based practice is better than regulation.
- Price for urban water above the basic 150kl could be more steeply ramped.
- Pricing – understanding.
- New approach to pricing? Funds go to water management – not to general revenue.

8.0 GROUP TWO - DAY TWO

8.1 Break Out Session 3 – Sustainable abstraction of water

8.1.1 Summary of discussions:

Consensus

1. For water allocation –
   - Structures are in place to manage crisis – need to be resourced
   - Education of public is in place and effective – build on it

Dissent

1. Two different systems of allocation: Environment first then allocating social and economic or :
2. fluid, dynamic, 3 together environmental, social and economic

Recommendation

1. Education – increased level of public education on water allocation exercises and to increase funding Water and Rivers Commission to achieve this.

Information Needs

1. Trading –
   - will it help sustainability
   - What will it achieve in reality
   - Current eqs costing
   - More basic information on resources needed

8.1.2 Flipcharts

- Is it working? Water Corporation would say no, others may say yes, Fact that not over-allocated suggests yes;
- Small increment changes is tve / adaptation;
- Sustainability Strategy suggests we have come a long way – level of Government commitment is exciting;
- Question of water allocation is too general – runoff has dropped quickly – some areas may now be over allocated – pressure on GROUNDWATER. Not enough information on resources to make assessment;
- Information on trading required. How will it help sustainability? Information required;
- How good will trading be – need other mechanisms when limit is reached?;
- Trading decisions ad planning processes need to include social / environment / economic objectives;
- Trading may result in accumulation of rights;
- Environment flows need to be sorted out before we reach limits and know economic / social cost of Environmental Water Provisions. Also costs of not having Environmental Water Provisions – opportunity costs;
- Managing risks up to full allocation in drying envision, is important;

- Environmental Water Provisions must be adjusted for climate adjustments – one view;
- Fundamental thinking not clear on application of sustainability;
- Environmental Water Provisions must be adopted for droughts;
- Water users are concerned about reducing water – this will pressure current decisions – 'luxury' items will need to drop off – what are luxury items;
- More information on process and cost analysis required – opportunity costs;
- Pricing / changes will be a big issue – water is undervalued now;
- Concern that self interest will become focus when pressure comes on;
- In a drying climate preserving current environment cant be achieved and Environmental Water Provisions will need to be adjusted down;
- Water pricing, including environment costs etc will be important, Differences of opinion on this;
- Pressure of Waters and Rivers Commission to release more GROUNDWATER at Perth is a good example of these pressures;
- Who is ultimately responsible for investigation, resource assessment etc – Waters and Rivers Commission?;
- Community groups need more information in order to make decisions; and
- Community support for decisions on sustainability critical – when stop allocating.

Brief Summary

- Framework in place for making sustainable outcomes – mechanisms available to keep improving current approach;
- Uncertainty as to preferred approach a) Environment then Social / Economic; b) Environment / Social/ Economic at once.

Recommendation

- Increase the funding for the water allocation planning in the State to enable implementation;
- Increase the level of public education on water allocation issues. Increase funding of Waters and Rivers Commission to achieve this;
- Structures are in place to manage the waters crisis properly; and
- Build on mechanisms already in place by water agencies to educate public;
- Is the "First in First Served" approach the best way?

8.2 Break Out Session 4 – supplying water and meeting demand

8.2.1 Summary of discussions:

Consensus

1. Need a holistic approach to examination of new supply strategies (sustainability assessment framework).
2. Desalination plant should be considered in this context.
3. Majority view that no further consideration of Kimberley pipeline (others require further information – options for Eastern States connection).
4. Should target maximum reuse of water (more than 20%).
   - co-locate treatment plants near industry to encourage this.
5. More information required on greywater and capture/treatment of stormwater (including incentives).
6. Water needs higher profile in Government (eg Minister for Water Resources).
7. Increased independent for Water Resources Commission from Water Corporation (financial) – Water Resources Commission is the manager, Water Corporation is the service provider.
8. Improve catchment management processes – with due consideration of environment.
9. Examine options for raising competition in water supply (some dissent).
10. Investigate desalination for rural inland areas.
11. Development of SW Yaragadee has potential for SW/Great Southern and should be priority (some dissent).

8.2.2 Flipcharts

- Pipeline is dead – fair amount of consensus.
- More info;
- Less agreement on status of desalination option still on the table – more info – dual purpose (Consensus);
- Investigate desalination rural inland areas (Consensus);
- Higher target for target reuse less than 20%;
- Target is maximise reuse (Consensus);
- Incentives for Greywater (Consensus);
- Co-locate treatment, industry to encourage reuse (Consensus);
- Minister for water needs higher profile (Consensus);
- Waters and Rivers Commission needs greater financial independence from Water Corporation. Shift in dividing line so Water Corporation becomes more of a service provider and Waters and Rivers Commission more of manager assessor of resources;
- Present situation Institutional arrangements are not bad and are improving (Consensus);
- More information on greywater and how it can be treated and used (Consensus);
- Capture stormwater (Consensus);
- Inconsistency of Government responsibilities for Water Corporation vs Busselton / Bunbury Water Board;
- Establish Minister for Water Resources;
- Establish Minister for Water Resources (Consensus);
- Continue 2 day sprinkler restrictions (Consensus);

- Some members thought desalination pipeline presentations were one sided. Need more information especially on environmental impacts;
- Need sustainability assessment comparison for all proposed new sources. Not enough information today for this (Consensus);
- Kimberley Pipeline – share costs with South Australia (?) Will Eastern States pressure for its use? (Dissent);
- Use pro and against debate for key issues in Symposium (Consensus); and
- Feasibility Study for decentralising water reuse to local government level / regional level – more information needed.

Recommendations

- No Kimberley Pipeline;
- Recognise catchments are not yielding expected inflow for current rainfall and recommend investment processes that improve inflow with due consideration to the environment be examined (Consensus);
- In considering new major capital investment, consideration of strategies must be holistic and balanced (Consensus);
- Examine options e.g. competition in water suppliers (i.e. competition to Water Corp) some disagreement (Dissent); and
- Development of South West Yarragadee is preferential to desalination a) maximises existing infrastructure, b) beneficial to great southern and south west communities (Dissent);

9.0 GROUP TWO - DAY THREE

9.1 Break Out Session 5 – Water efficiency, price and regulation

9.1.1 Summary of discussions:

Water efficiency options

Principles to apply:

1. Any efficiency method that is less than the cost of <u>new</u> supply options is a high priority – we need to change our thinking.
2. Storm water -> ocean – re-use treat as a resource not a problem (REVIEW)
3. Water sensitive urban design (MANDATORY)
   - town planning schemes
   - feasibility study
   - support 10 step plan but funding queries
4. Shift of Capital Development Funds to conservation and demand reduction. (REVIEW)
5. Building regulations – strategies (REVIEW REGULATORY)
6. Retro-fitting (EDUCATION & INCENTIVES)
7. 2 day / week sprinklers and bores <- soil moisture sensors (MANDATORY REGULATIONS)
   - councils
8. Irrigated agricultural efficiencies in infrastructure (INVESTMENT)
9. Grey water – determine approach (REVIEW OF HEALTH IMPLICATIONS)
10. Rain water tank subsidies (LOW-MEDIUM PRIORITY)
11. All appliances – H2O (INCLUDED IN ALL CODES
    - Hot water appliances
12. AAAA ratings (NATIONAL AGREEMENT - REGULATORY)
13. Education of all service providers
14. Check list for water efficiency (VOLUNTARY)
    - Houses
    - schools
15. Recognition – awards for water efficiency (INCENTIVE)
16. Water pressure figure reduce – meter (REGULATORY)
17. Education for turf industry xeri scaping (EDUCATION)
18. Parallel plumbing systems (new development) (REGULATORY)
19. Waste water – maximise reuse / quality (REGULATORY)
20. Reclaimed water used more in agriculture irrigation (INCENTIVE)
21. More funding for water wise on the farm.
22. Rural water efficiencies.

Pricing

1. Not enough time to discuss fully.
2. Pricing could be used to fund incentives.
3. No consensus on used of pricing for scheme water demand management.
4. But general agreement of need for some form of contribution from water users to fund cost of resource management.
5. The public will more likely . . . . . .

9.1.2 Flipcharts

Highest Priority - statement

Any efficiency and/or conservation measure reducing the cost of new supply option should be implemented as 1st priority.

- Support of WSUD – H
- mandate it – H
- H2O industry provides to shift some $ capital to conservation and demand reduction strategies – H
- Introduce retrofitting programs for in-house water use efficiency – H
- Permanent introduction of 2 days per week including bores and soil moisture technology – H
- Invest in irrigation / agriculture water use efficiency.
- Groundwater reuse in new development – M
- Insulation of hold water appliances – M
- Compliance of Councils parks and gardens with 2 day restrictions – M
- Rainwater tanks – M
- Stormwater to ocean (losses) can anything be done? – H
- National system of water use efficiency ratings (AAA) – M

WSUD subpoints

- Incorporate into town planning schemes.
- Feasibility study
- Support for 10 point plan with some reservations on funding.
- Need for incentives for retro-fitting.
- Household appliances water use efficiency in building codes.
- Education of service providers
- Scoring system to rate houses for water use efficiency
- market info
- checklist
- schools system
- Recognition of awards to water use efficiency.
- In line pressure reducers.
- Education for xeri scaping (dry gardens) work with turf and nursery industry.
- Divergent views on rainwater tanks.

- Greywater tanks – H
- Global review of greywater health issues – reality vs perception vs ongoing benefits.
- All new houses to have parallel plumbing for greywater.
- Water Saving Urban Design - good principle, mandatory for new sub-divisions.
- Maximum wastewater reuse – quality for purpose.
- Stormwater management fit for location.
- Reclaimed water for irrigation.
- Funding for Waterwise on farms.
- Rural stormwater applications.

GROUP THREE OUTCOMES

10.0 GROUP THREE - DAY ONE

10.1 Break Out Session One – Climate Change

10.1.1 Summary of discussions:

Conclusions

1. Agree that climate is having and will have an impact – so need to plan for it through a systems approach.
2. Believe there is a lack of community understanding and awareness of climate change issues as they impact on water supply.
3. Concern over lack of integrated structure and accountable structure for strategic planning.
4. Concerns around sustainability planning particularly in relation to sustainable population growth and economic growth.
5. Concerns over lack of information of scientific understanding of ground and surface water – in relation to climate.

Recommendations

1. Targeted community awareness
2. Continue to support scientific research to refine our understanding of both variability and climate change.
3. Continue to research the implications of climate change more generally.
4. Sustainability assessment across water decision-making incorporating triple bottom-line and climate change.
5. All levels of gut need to work together to achieve sustainability (whole of gut).
6. Planning must be systems based i.e. consider the climate change -> changes in land and water use and changes to catchments.
7. Need an integrated and accountable structure for strategic water planning – who will write next “Perth’s Water Future”?

10.1.2 Flipcharts

- Concern over lack of information with regard to groundwater.
- Uncertainties with regard to surface water.
- There appears to be an impact – need to plan for it.
- Impact upon agriculture and biodiversity.
- Population growth (doubling) – what will economy be based on?
- What is growth
  - Expansion
  - Improvement
- Lack clear structure strategic resource planning.

Action

- Raise information and awareness to the community (personally meaningful)
  - focus on school
- Direct science to separate variability from climate change.
- Review how Departments do planning – need to have better integration between departments
  - whole of Government.
- Local Government involvement essential.
- Climate change – catchment change – water use change.
- Clear structure for strategic water planning
  - participative decision making
  - information available
- Integrate impact of climate change into sustainability assessment.

More Information

- Clarification CFC Ozone vs greenhouse -> impact
- Clarify
  - climate change Australian position
    vs
  - Aus position with regard to KYOTO agreement.
- All levels of Government need to work together to achieve sustainability (whole of Government approach).
- Planning must be systems-based. i.e. climate change will lead to changes in water and land use and changes in the catchments where water is harvested.
- An integrated and accountable structure needed for strategic water planning (where will the next "Planning Perth's Water Future" come from).

10.2 Break Out Session 2 – Societal value systems for water resources in WA

10.2.1 Summary of discussions

Conclusions

1. Need to consider Triple Bottom Line;
2. Achieve sustainability;
3. Influence community values and behaviour, listen to and accommodate community values;
4. Agree that price is a mechanism that needs to be considered – one mechanism amongst others; and
5. Community involved in decision making for future direction.

Recommendations

1. Price to reflect social, environmental and economic factors;
2. Education needed to work in concert with price to achieve changes in values – an informed community response;
3. Incentives as opposed to subsidy;
4. Facilitate framework that encourages effective options to be included;
5. Focus on efficient way to achieve savings based on current attitudes / beliefs – greatest benefit for least cost; and
6. Scope to educate: same lifestyle, less water.

Information

1. Salinity / land clearing; and
2. Government Policy not farmer caused problem.

10.2.2 Flipcharts

Conclusions

- Society / Environment / Economy – No wasting water.
- Mining
  - must be sustainable (for licence)
  - consider economic benefits of mining
- Env) Balance lifestyle without impacting on water source.
- Need to consider TBL – all values.
- How to bring people with us
  - we are affecting lives/values
  - these will change over time
  - convince people these are not detrimental to them.
- Some good, some bad options
  - surface dams -> community issues.
- Property and water rights
  - compensation for changes.
- Salinity / land clearing
  - seen as a farmer-caused problem but was a result of gut feeling.
- Need to consider using price as a part of management
  - needs community involvement to 'cost' social and environmental values.
- Subsidies linked to drivers to conserve.
- Water is not valued by each of us.

Recommendations

- Price to reflect social, environmental and economic factors.
- Education needed to work in concert with price to achieve changes in values – informed community response.
- Facilitate framework that encourages effective options to be included.
- Need to focus on most efficient way to achieve savings based on current attitudes/beliefs -> greatest benefit for least cost.
- There is a lot of scope to educate to have same lifestyle with less water.

11.0 GROUP THREE - DAY TWO

11.1 Break Out Session 3 – Sustainable abstraction of water

11.1.1 Summary of discussions:

Conclusions

1. Sustainability approach with respect to water has been applied in the past and processes need to evolve and improve i.e build on our experience and take into account uncertainties and climate change
2. Group supports the principles of sustainability and of process, and the application to specific areas requires further work.

Recommendations

1. Remove barriers to implementation of sustainability across Government including institutional reform
2. Ensure precautionary principle is a priority, taking account of the uncertainties of climate change
3. Ensure able to adapt allocation if total resource declines – capacity sharing – percentage allocation taking into account priorities of use
4. Principles for sustainability and processes need adequate support by executive Government and resourcing to allow their implementation.

11.1.2 Flipcharts

- More advice to community, state of allocation processes / assessment in area;
- Suggest % allocation taking into account priorities;
- Sustainability concepts used in the past;
- more community consultation required;
- support approach but needs to be implemented;
- resourcing adequately agencies to make it happen;
- climate change to be properly managed;
- manage risks;
- account for population increase in allocation;
- issues re transferring water to Perth.

Conclusions

- Sustainability approach applied in the past but processes need to be evolved and improved – build on our experience and take into account uncertainties and climate change; and
- Group supports the principles for sustainability and process, but application to specific areas requires further work.

Recommendations:

- Remove barriers to implementation of sustainability across Government, including Institutional Reform;

- Ensure precautionary principles is a priority taking into account uncertainties of climate change;
- Ability to adjust allocation (%) if total available resource declined. (Capacity sharing - % allocation taking into account priorities of use); and
- Principles for sustainability and process need adequate support by Executive Government and resourcing to allow their implementation.

11.2 Break Out Session 4 – supplying water and meeting demand

11.2.1 Summary of discussions

Recommendations – Demand

1. Develop demand incentives;
2. Mandatory Water Sensitive Urban Design; and
3. Statement of Planning Policy as tool to reduce demand

Recommendations – Supply

1. Provide opportunities for the establishment of new suppliers: regional communities;
2. Research use of treated wastewater in aquifer for recovery;
3. Consider options for re-use of stormwater;
4. Consider Triple Bottom Line in dam construction and additional groundwater use;
5. Consider specifically social issues with relation to south west dams.

Conclusions – Demand

1. Challenge growth of population / water consumption increase;
2. Examine land planning options to lower demand; and
3. Information and education.

Conclusions – Supply

1. Kimberley pipeline is dead;
2. Desalination needs further work and to be considered from integrated resource planning. Concern with location proposed;
3. Wastewater is under utilised – targets should be raised above projected 20% by 2010; and
4. Generally felt that garden bores should be licenced / charged

11.2.2 Flipcharts

Conclusions – Demand

- The Group questions population growth assumptions and that demand must increase;
- Examine land planning options to lower demand; and
- Information and education.

Conclusions – Supply

- Kimberley pipeline is dead;
- Concern with forest thinning;
- Desalination needs further work and to be considered from integrated resource planning approach;
- Concern with location proposed; and
- Wastewater is an under utilized resource – believe targets could be raised beyond 20% by 2010.

Recommendations – Demand

- Develop demand incentives;
- Mandatory water sensitive urban design;
- Meter garden bores;
- Statement of Planning Policy as tool to lower demand;

Recommendations – Supply

- Provide opportunities for establishment of new suppliers: regional communities;
- Research use of treated wastewater in aquifer recovery;
- Consider options re-use stormwater;
- Consider TBLO in dam construction and additional groundwater use; and
- Specifically social with relation to South West Dams.

12.0 GROUP THREE - DAY THREE

12.1 Break Out Session 5 – Water efficiency, price and regulation

12.1.1 Summary of discussions:

Water efficiency options

Conclusions

1. Need to address irrigation / agriculture use as well as residential.
2. Cheaper to reduce and re-use rather than new sources

Recommendations

1. Incentives for people to change
   - home / urban
   - Rural – catchment planning
     - principles of bio regional management planning
2. Uniform restrictions for scheme and bores (domestic)
- applied with education / balance / encouragement
3. State Planning Policy -Apply water sensitive urban design for
   - new developments
   - redevelopments
   - retro-fitting
4. Need package of strategies not just one to address re-use.
5. Perth re-use must rise. Set targets at >20% in 10 years
6. Re-use water provides articulated recharge opportunity
   - aggressive targets
   - research and development
   - assurance health and environment
7. Increase re-use within buildings.
8. Include Local Government – must work closely.
9. Reticulation
   - research use } increase effectiveness
   - educate }
10. Retrofitting for a range of areas e.g. showers/economical bores.
11. Address/ decreasing leakage.

Concern: Not heard from State Planning Department? – More information please.

Pricing:

Conclusions

1. Price is one component in package of demand management – less effective for wealthy.
2. Price rise needs to be explained – transparency of where $ goes.
3. Water Resources Management Fee should be linked to usage.

Recommendations

1. Some price for self supply where that impacts common supply.
2. Increase in prices should not disadvantage low income groups.
3. Price needs to cover
   - increasing level of management
   - research and development into further water efficiency and savings in water sensitive urban design.
4. Decrease fixed component } ---------→ needs to include cost
5. Increase variable component } of service provision
   new price

Information Needs

1. How much does water **really** cost?
   - Infrastructure
   - Environmental
   - Delivery

Regulation

Conclusions

1. Regulations are one part of whole package
2. Broad-based community support for water restrictions including private bore owners.

Recommendations

1. Review of existing regulations – effectiveness / efficiency
2. Restrictions should be across the board and regionally specific and relate to quality of life.
3. Regulations and restrictions are part of whole package.
4. Research and Development to keep up to date with trade offs that people are prepared to make with lifestyle.
5. Regulate for water efficient appliances.

THANK YOU FROM GROUP 3

"Á mind is like a parachute – much better used when OPENED!!"

12.1.2 Flipcharts

Topic 1

1. Need to address irrigation as well as residential use.
2. Cheaper to reduce and reuse rather than new sources.

Conclusion

1. Perth needs to get its act together.
2. Artificial recharge – aggressive targets and research.

Topic 2 – Pricing

1. (a) Price not effective in regulating demand for wealthy people.
   (b) Price probably effective in regulating demand for disadvantaged.

Topic 3 – Regulations and Restrictions

1. Restrictions are effective
2. Need more public education about restrictions.
3. Bore owners should be subject to same restrictions as non-bore owners.
4. Regulate for water efficient appliances by 2015.

Pricing

- Price is part of package of Demand Management.
  - costs needs to incorporate the increasing level of management / research required.
- Price should not disadvantage low income groups.
- Water Resource Management charge should be a component of price -> scheme; and water in general -> water licence.
- Fixed component reduce, but visible component increase.
- How much water actually cost –
  - Infrastructure
  - Environment
  - delivery
- Current water restrictions to stay on permanent basis.
- Restrictions and regulations coupled with education are part of the same package.
- Research to keep up to date knowledge of people's trade-offs W.R.T. lifestyle requirements.

Regulations / Restrictions

- Role of regulation as a part of a whole package (e.g. mandate for WSUD).
- Broad community support for metro based restrictions of water use. Further restrictions will need to be properly explained.
- Appraisal of existing regulations for effectiveness/efficiency.
- In the metro area restrictions need to be across the board.
- Restrictions need to be regionally specific and relate to regional quality of life.

Pricing

- Current pricing tariffs does not lead to understanding of effective pricing.
- Increasing pricing linked to profit leads to community animosity.
- Increasing pricing is not a stand alone option. Education is essential.
- Increasing pricing must be transparent.
- Support/provide incentives to developers/planners for the implementation of WSUD features in subdivision/development proposals.
- Consideration of incentives for low income households.

GROUP FOUR OUTCOMES

13.0 GROUP FOUR - DAY ONE

13.1 Break Out Session One – Climate Change

13.1.1 Summary of discussions:

Conclusions:

3. Link between climate change and water resource is uncertain.
4. The big picture – not isolated issues
5. Think outside the box
6. Need short term and long term strategies

Recommendations:

7. Acknowledge the evidence of climate change, take action now and show leadership.
8. Government to get together and fund (aquifer) research and technological solutions.
9. Industry and Government to manage demand not just supply including irrigation.
10. Educate the community with this information.

Information needed:

11. How aquifers work long term and land use practices impact on them.
12. Scenario models of lifestyle, planning, community . . . . implications.

13.1.2 Flipcharts

Conclusions

- Link between climate change and the resulting water resource is uncertain.
- Climate change and water are not isolated issues, it is the big picture.
- We have to think outside the box.
- Strategies for both short term and long term goals.
- Rethink broad acre irrigation and industry use redevelop a better practice.

Recommendations

- Acknowledge the evidence of climate change and take action -take leadership.
- Research now and also take action now.
- Federal and State Govt to fund aquifer research/modelling.
- Collect the right information to make predictions/models.
- Govts get together to find out the technological solutions
- Educate the community with this information.
- Industry and Govt to manage the demand as opposed to just the supply

Other information

- How aquifers work long term and how our land use practices are impacting on them
- Scenario models for what the life style/planning/community implications are.

13.2 Break Out Session 2 – Societal value systems for water resources in WA

13.2.1 Summary of discussions:

Conclusions

1. Water is essential for all our needs;
2. One water provider for the State doesn't give the best framework for competition / innovation;
3. Recognition of the complexity of putting a value on water:
    - Environmental
    - Social values are personal
    - Value depends on location
    - Economics
    - Problems with measuring and assessing value
    - Domestic agriculture and industrial;

13. Insufficient drive to innovate and use water efficiently; and
14. At end of voluntary compliance?

Recommendations

1. Government to be more strongly towards Triple Bottom Line;
2. Clear implementation of WSUB;
3. Education strategy to include Triple Bottom Line issues;
4. Focus education on utilitarian and indifferent people; and
5. Consultation with aboriginal community to be undertaken.

Information

1. Agriculture and industry water use information; and
2. Value of water to be determined.

13.2.2 Flipcharts

- Water essential for all our needs.
- Aware of true cost.
- Water – different thing to different people – need to take account of different values.
- Impossible to put $ value on water.
- Can't put price on environment.
- Needs of environment, economy and community in competition. Becomes more intense when resource is short.
- Not many want rainwater tanks! Could they be subsidised?
- Health problems associated with rainwater tanks.
- Tanks 'playing at the edges' – not addressing key issue.
- Need to value water so can be allocated for different uses – economical, social, environmental, mining.
- No I.D. of cost of water taken out of environment. We are taking away and polluting.
  - What is our impact? – quantify.
  - What is cost of loss to environment?
- Meter and pay for wastewater.
- Value of what we lose in environment is personal issue. Economics just one way; what are values of water to us?
- Most people have made changes in water use – room for more. Re-use has potential.
- Domestically we're tinkering around the edges – Industry? Agriculture?
- Need to recognise deficiencies – looking at water in value-added capacity. How to decide what crops to grow – cotton and rice are big users – how to work out values?
- Water use agriculture vs urban will be a big issue.
- Need an across-board method of putting value on water.
- Nothing driving people to innovate- to use water effectively. Need to encourage people/industry. (Its starting to happen)
- Industry/Agriculture will work out values. But domestic water has different values to individually – can't put on $ value.
- Whatever water costs – consumer will pay (in the end). We all wear the cost.
- Need to get most cost-effective use of water (eg growing carrots).

14.0 GROUP FOUR - DAY TWO

14.1 Break Out Session 3 – Sustainable abstraction of water

14.1.1 Summary of discussions:

Key Issues

1. Allocation process is not well understood
2. Decisions about sustainability are value-laden. How are values established and defined
3. Water allocations are precise and scientific
4. Much room for conflict, debate, litigation … in reconciling their concepts
5. Sustainability provides good support and fundamental principle to current system, but is based on a requirement for good information
6. Main deficiency is knowledge
7. More resources dedicated to improving our knowledge of our water sources –
    - How aquifers behave?
    - What are the yields?
    - How do yields change?

Information

1. Water trading – how does it work?

14.1.2 Flipcharts

- Allocation process not well understood (commercial users: first come, first served);
- How well are values worked out? Need to be well defined;
- Should be clear on resources and what you stand to lose – problem on Gnangara Mound. Our measure of sustainability is failing;
- We don't know what is sustained naturally in the new environment. Sustainability wont be constant;
- Link between land use planning and water allocation;
- We are close to sustainable limit. What happens when we get there?;
- How confident are we about our position – re the limit?
- Are definitions of water rights good enough for trading?;
- We need to enhance monitoring as we get close to limit;
- How does quality fit into allocation?;

New approach to Sustainability

- A key is having enough information to judge. (Not enough on biodiversity) *Determine balance;*
- Is allocation of rural water to urban areas sustainable?;
- New approach to sustainability is a bold new direction (better than we had) *Consensus agreement;*
- Reservations about legal requirements (sustainability – being put into legislation) *Sustainable approach is a good support to the current allocation system);*
- Need policy, not legislation;
- Policy of competition (Water Corporation) doesn't work;
- Sustainability is 3 elements that can be measured individually;
- What is the impact of including in legislation of sustainability?;
- 3 elements need to be in 1 system (integrated) for approval;
- Needs to be open for public comment;
- Allocation is still scientific stuff. Needs public input;
- We need to be wary that water trading and market forces will provide answers;
- Main deficiency is knowledge of aquifers / recharge; and
- We are at best on 1995 research – little being done

Issues

- Allocation process not well understood;
- Decisions about sustainability are value – laden. How are values established and defined;
  - Water Allocations are precise and scientific.
- Too much room for conflict, debate, litigation etc in reconciling these concepts;
- Sustainability provides good support and fundamental principle to current system, but is based on a requirement for **good** information.
- Main deficiency is knowledge.

Recommendation

- More resources dedicated to improving our knowledge of our water sources:
  - How aquifers behave;
  - What are the yields;
  - How do yields change?

14.2 Break Out 4 – supplying water and meeting demand

14.2.1 Summary of discussions:

Key Issues

1. Desalination – needs further investigation
   - Social implications
   - Greenhouse
   - Location
2. Holistic, integrated approach with emphasis on reduction in use and increased efficiency by W&RC and new 'super' Minister
3. Reduce per capita consumption
   - Incentives, price signals, regulation, education, water tanks, less lawns, water saving devices, urban and house design, irrigation, reticulation

Recommendations

1. No pipeline
2. Debate – need to focus on demand reduction
3. Encourage public/private partnerships for new sources
4. No more dams
5. Irrigate according to soil moisture demand by low cost monitoring – (available)
6. Local government to take a role in water paving initiatives with support and expertise from State Government.

Information

1. What is the sustainable population for Perth

14.2.2 Flipcharts

Conclusions

- New sources shouldn't come at the expense of efficiency.
- Yes reduce per capita consumption, no choice.
  - (scheme water) domestic reduction.
  - Efficiency increased in other sectors.
- Yes
  - Domestic external water use
    - grey water, re-use, rainwater tanks, less lawns, native gardens.
  - Domestic internal
    - water saving appliances
  - Local Council
    - parks, gardens, native gardens
  - Professional advice and assistance from State to upgrade reticulation systems and public utilities
    - toilets, showers etc.

- No Dams especially on Fitzroy River
  - Desalination – potential way forward, especially with renewable energy sources.
  - Pipeline, too many negative effects
    - Greenhouse
    - Environment
    - economic
  - Holistic, integrated approach with emphasis on reduction in use i.e. increased efficiency before source development.

- Take the pipeline off the agenda.
- Further the development of desalination
  - doesn't diminish existing source.
  - not climate variable
  - Greenhouse issue resolution challenge.
- Set realistic objectives for water conservation and let the agencies get on with it.
- Senior Ministerial responsibility for water matters and review structure of the industry (competitive model doesn't work).
- Water saving idea – monitor soil moister and control reticulation systems. Existing technology, low cost.
- Per Capita use can be reduced
  - for households
  - for industry
  - with follow-up and incentive.
- Re-use as anew resource – needs more development.
- Stormwater reuse – aquifer recharge, high priority.
- Regional development is a response to water shortages in Perth, including industry location.
- Damming procedures to incorporate full environmental assessment e.g. proper management. Opposition to any more dams.
- Change tariff structure. Reduce fixed and increase volume rates
  - take care of low income earners
  - greater penalty for excess etc.
- Desalination – social and environmental costs are important and need to be addressed!
- Kimberley Pipeline – NO GO!
- Groundwater development has environmental impacts that are constantly overlooked e.g. special threatened.
- Education to change mindset on ALL environmental impacts/issues.
- How many people can the Perth (metro) environment sustain?

- Debate still too heavily weighted on supply – new source development. Insufficient Government and Agency and industry engagement with demand reduction.
  - water saving devices, new industry & technology processes.
- No Pipeline.
- Desalination
  - technically feasible
  - relatively expensive
  - question Perth location – Pilbara, Goldfields?
  - public private partnership
  - integrate with Collie energy generation.

- Must focus on per capita consumption
  - water wise pilot in Kalgoorlie
  - home design
  - urban design
  - garden design &
  - garden reticulation design
- Consumption
  - Incentives
  - price signals
  - regulation
  - education

15.0 GROUP FOUR - DAY THREE

15.1 Break Out Session 5 – Water efficiency, price and regulation

15.1.1 Summary of discussions:

Water efficiency options

1. Water sensitive urban design include regulating domestic pressure
2. Increase target for wastewater re-use.
3. Appliances
   - Toilets
   - Showers
   - front loading washing machines
   - drip feed irrigation / reticulation
4. Looking more rigorously at non-domestic sector.

Pricing

1. Yes to a resource charge – but it needs to be used to manage to resource.
2. Reduce fixed rate and increase consumption rate for high users.

Regulation

1. Yes – across all sectors and include bore users.
2. Use regulation as an incentive for utilities.

15.1.2 Flipcharts

Questions:

- Which of the water efficiency elements are high priority in the strategy?
- Pricing issues generally and specifically
  i. Domestic water users
  ii. Concept of a water resource charge in addition to water delivery cost.

Should we use regulations and restrictions in managing water supply?

Q1 Wastewater Re-use – higher than 20% in 10 years.

- Water Sensitive Urban Design – especially for new developments (using 10 step plan)
  -> needs to be implemented by WRC, DPI and Local Governments.
- Greywater and rainwater – incentives for domestic users.
- Water efficient HH appliances
  – incentives for uptake e.g. Waterwise

! Important to take immediate action but encourage new ideas (include public!)

Education

- Inform

- give options

Pricing

i.
- Management fee for private bores
- Restriction on private bores in areas that are showing impacts.
- Increase prices for high water users.

ii.
- water resource charge -> to go directly to WRC for research or management in addition to current funding.

iii. Yes! Little choice!
- Restrictions on private bore water use same as scheme water -> easier to police.
- Policing and enforcement needed.
- Combine with education!

***1. Research** into demand management initiatives applicable to our location.*
- Water sensitive urban design adopt the plan.
- Treated wastewater as recharge of aquifer.
- Re-use of water.
- External use.
- Internal appliances.
- Non-domestic use efficiency.
- Incentives.

2. Pricing – Domestic
- Sliding block preferred.
- Price increase at upper levels
- WRC – charge – providing with conditions

3. Restrictions
- 2 days a week
- bores

  Regulation as incentives for agencies to invest in efficiency and re-use.

Efficiency Elements
- Fixed appliances including toilets, showers
- Land use planning and urban design
- Water sensitive urban design -> strong moves to ensure implementation
- Reducing scheme water pressure, maximum pressure at houses
- Stronger investigation of reducing demand in industry
- Licence conditions on all water allocations with efficiency requirements.

Pricing Issues
- Reduce fixed charge and increase consumption charges.
- Higher consumption increases for consumption above targets.
- Water resource charge supported, but only if used only to go back into improving efficiency and demand reduction e.g. trust fund (not through consolidated revenue)

Regulations and Restrictions

- Regulation applying to Water Corporation and consumer res.
- Regulation through planning schemes.
- Restriction and regulation of uncontrolled uses.

1. Priorities

- Wastewater Reuse
- Aim at far >>70% for aquifer recharge.
- Subsidy for front loader washing machines.
- Phase out top loaders.
- Irrigate and reticulate according to soil moisture, demand, particularly big users.

2. Pricing

- Agree with water resource charge as long as funds are directed towards management and study of the resources to improve estimates of sustainability.
  -> Funding to Water and Rivers Commission to re-establish monitoring network.

3. Regulations and Restrictions

- Continue with sensible domestic water restrictions.
- Regulation practices for irrigation and industrial water to continue.

GROUP FIVE OUTCOMES

16.0 GROUP FIVE - DAY ONE

16.1 Break Out Session One – Climate Change

16.1.1 Summary of discussions:

Considerations

1. R&D urgency
2. Integrate holistic Strategic Planning
3. Local Government – education and community communication
4. L/T community involvement
5. Resourcing
6. South West is a National Issue
    - biodiversity hot spot
    - impact of climate
    - extreme threat

Recommendations

1. R&D – increase Ground Water & Surface Water – response to climate change.
2. Increase Monitoring stations to enable to validate models.
3. Integrate planning to cover land resource and energy use in decision making/is done strategically and collectively.
4. Considering variations in scientific data (CSIRO etc) Recommend Government make explicit which scenario (climatic) planning is being used and what alternative cost is used for other scenarios so the Government can be flexible in its approach.
5. Local Government take on "City for Climate Protection" initiative to educate and communicate and help community involvement.
6. This group recognises the resourcing required for recommendations.

16.1.2 Flipcharts

- R&D Relationship between rainfall and groundwater resources
    - needs increased research into background hydrology first.
    - raise monitoring to help correlate models.
- Inadequacy of planning approach – decisions on water and land use planning made separately – integrate
    - State
    - Regional &
    - Local plans
- Integration at State Government level and Regional (resource) level .
- Encourage Local Government to take up City's for Climate Protection.
- Water resource planning should be based on current or worse case climate scenarios.
- Urgency to recognise the needs of research.
- Ongoing education
    - community based involvement
    - Local Govt ->become involved in "Cities for Climate Change" program.

16.2 Break Out Session 2 – Societal value systems for water resources in WA

16.2.1 Summary of discussions

Conclusions / Considerations

- Education may be required to push beyond the "pain barrier"
- Incentives in addition to financial should be considered – education etc
- Respect and value water
- Value water as a State resource
- Water is a different resource
- Water is a fundamental resource for life
- Broad value of society that clean water is our right (society and environment)
- Expectations of service, quality at a reasonable price

Recommendations

- Education – Water Corporation's "Waterwise" program and expand
- To implement COAG recommendations for pricing and costing to include full costing of environmental and social aspects
- Determine methodologies to incorporate various values within water related areas

Information Needs

- Review national / international experience in the area of applying environmental values in economic analysis.

16.2.2 Flipcharts

- Water is a State resource.
- Water is different to other resources – different to gold, oil etc & economics should reflect this.
- More dams = more dead rivers.
- Reduced water use should not reduce lifestyle -> why do we need lush gardens in such a dry climate.
- Water is a gift and should not be taken for granted -> some discretionary use.
- Water should be respected and used wisely.
- Value water as a source of life
  - Availability
  - purity
- Secure access – reasonable value and reasonable price.
- Water is a source of great biodiversity and enriches our lives.
- Many people do not value water until it runs out – it is expected!
- Ownership issue and social / cultural attachment to water resource (metro/country).
- Water is viewed as 'free'. We need to educate on the value of water and look to ways to place a value on the environment.
- Integrated catchment management to improve knowledge and reduce ongoing impacts. Triple bottom line philosophy.
- Society expects that water will be provided and at a low cost.
- Society and environment have a right to clean water.

17.0 GROUP FIVE - DAY TWO

17.1 Break Out Session 3 – Sustainable abstraction of water

17.1.1 Summary of discussions:

1. Trading policy – sleeper or dormant allocations can be taken back – when will WRC policy on how to deal with this be released.
2. Water and Rivers are under resourced – adequate resource to balance allocation in a suitable and timely manner.
3. Meter bores (all)
4. Decision making (e.g. Canning) redress the imbalance in making any future decisions, any sustainability of historical imbalances need to be redressed.
5. Sea water us not part of allocation decisions.
6. Current decision making is now good, however need to review allocation process of multiple sites and extractions form holistic region.
7. Need holistic approach to review land use and water allocations to ensure sustainable outcomes. Approach needs to address all water users and make assessments against triple bottom line.
8. License extractions
9. Water allocation has triple bottom line but ewe have not seen a demonstration of this.
10. Discussion of short and long term licensing allocation and the flexibility within allocation and the flexibility within allocation to recognise climate, however need to ensure appropriate certainty for industry and agriculture

17.1.2 Flipcharts

- Lack of resources for water resource (funds and people) management – user pays system with all bores metered
- What is included in the "cake" and will that change to include stormwater, treated wastewater etc
- Allocation of decision making
- Trading policy – "Sleeper" or dormant allocations can be taken back however no mechanism (policy) exists to enable this – it is important that water flows to its most valuable use.
- Ministerial conditions do not exit on many river systems and rivers such as the Canning system are outside such decision processes.
- Reviews need to take into consideration any sustainability in-balances from historic decisions need to be corrected in future decisions.
- Desalination – seawater is currently not part of the cake.
- Allocation process works well in theory however stresses in the environment would suggest that this is not working perfectly. The impacts and stresses need to be considered at a regional level.
- Need holistic approach to review land use and water allocations to ensure sustainable outcomes – approach needs to address all water users and make assessments against the triple bottom line.
- Concern over lack of regulation for seawater desalination.
- Allocations based on climate outcomes – can be flexible.
- Licenses should only receive water allocations only after proving efficient use.
- Industry and agriculture need certainty in allocations.

17.2 Break Out 4 – supplying water and meeting demand

17.2.1 Summary of discussions

Considerations

1. Wanted a variation/perspectives on energy/gas emissions from presentations. Alternative view pipeline and desalination.
2. Recognise Irrigation Co-op have a resource and operating licence.
3. Demand management statistics – demand projection higher than population growth – WHY?
4. How do private providers get their ideas into the planning processes (Griffin Coal).
5. 20% commitment water re-use.
6. Water Corporation's plan – is it flexible enough to deal with worst-case scenarios?
7. Strong emphasis for Demand Management to reduce per capital consumption – group felt it should be higher.
8. Change Management for considering Demand Management takes years.
9. New Project Sources – want to explore Demand Management as a saving.

Recommendations

1. Reinvestigate target reduction per capita usage of 155kl in the light of achievements of summer 2001/02.
2. Set equitable consumption targets for all sectors.
3. Integrated strategy to include both demand management and new source options. Demand Management be given priority and whole strategy assessed using a triple bottom line approach.
4. Require specific projects(list) to achieve the 20% proposed re-use figure.

New Information

1. Need to see opposing views for pipeline and desalination.
2. Need better information on sustainable yield and Demand Projection.
3. Need information for current efficiencies in irrigated agriculture.
4. Hypersaline water use- is this sustainable, what is known about recharge rates?

17.2.2 Flipcharts

- What difference to future Water Corporation planning will the State Sustainability Strategy have?
- What is the efficiency of irrigated agriculture?
- Water from Ord not Fitzroy – used to green the inland.
- Irrigation management undertaken by co-ops no Government.
- Demand for water in metro area is forecast to grow quicker than population - focus should be on demand management.
- Waroona irrigators allocation = 50% - Collie is at 100%
- Options for improving Wellington Dam salinity levels need to be considered. This will free up improved quality water for potable supply.
- Salt mitigation management as a priority in the Collie area to improve Wellington water quality.
- What is the difference in cost between desalination of seawater vs brackish water? More information required.
- How can private organisations put forward options and possibilities for new water allocations?
- Need research into what are the sustainable yields taking into consideration climate change. Need to challenge current figures.
- Use of hyper saline water – is this usage sustainable? Consideration of new or alternate sources needs to be made.
- What is known of recharge processes of shallow paleo-channels?
- Need to include options for reuse in source development.
- Need a strategy that includes bot new source options and demand management alternatives.
- Are current demand projections and supply initiatives adequate to ensure water the future?
- Targets for demand could be per capita or total volume or water use.
- Reinvestigate 155 target in light of achievement in summer of 2001/02.
- Need water efficiency targets for all other sectors not just domestic/scheme use.
- Take into account known methods of water conservation that are currently not being used in Perth.
- Provide information on specific projects for implementation of wastewater reuse, greywater etc.
- Total management plan that covers all water options i.e. new large source, reuse, greywater etc.
- Water Corporation look seriously at prioritising and implementing demand management approach.
- We have control of source issues but should look to pursue demand management options to reduce the need to build new source.
- Use integrated resource management approach in the development of all new source options.

18.0 GROUP FIVE - DAY THREE

18.1 Break Out Session 5 – Water efficiency, price and regulation

18.1.1 Summary of discussions:

Water efficiency options

Considerations

1. Whole State
2. All sectors
3. Not all information available.
4. One strategy that includes management of supply and demand.
5. A suite of approaches required for effective demand management.

Recommendations

1. Mining licenses – should be whole industry standards linked to license conditions.
2. Agriculture aim to increase irrigation distribution efficiency.
3. If industry efficiency improvements are funded by the public then water should be returned to highest community benefit.
4. Urban policies town planning and state planning and housing and building code all be tools for water sensitive urban design.
5. Pilot projects and introduced and trial range of options (shower, taps, gardens etc) record the benefits. Propose a trial of benefits demonstration, education.
6. 2 day restrictions adapt and continue to all.
7. Price increase then revenue.
8. LAS/regional groups leading role in managing storm.

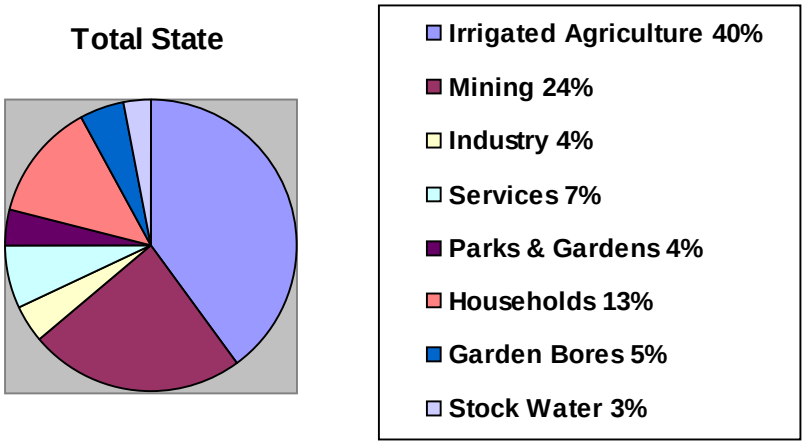
Pricing

1. Price is used to achieve target.
2. To keep long term demand incentive for efficiency improvements alter the target (steadily reduce).
3. The target is per capita but bill is per house – needs consideration.

Regulation

1. Need to be simple and enforced

18.1.2 Flipcharts



- Mining find a way to use wastewater as part of the industry process – particularly for dust suppression etc. OHSW issues alternative sources.
- Possibility of mining water use audits to consider options such as covering stock piles.
- Site variability in terms of consumption and usage.
- Need to consider industry as a whole with targets and efficiency objectives.
- Mining licenses be subject to water conservation principles.
- Better urban water management be included within State Planning Policy.
- Water saving urban design to form part of building code.
- Regional bodies be formed to manage stormwater.
- Local catchment – district committees to reflect local/regional issues – linking Local Governments to improve outcomes.
- Town planning schemes now must take into consideration the 'model scheme text' therefore the model scheme test should be used as a tool for better implementation of water saving urban design.
- Government through Agencies look for ways to assist improved efficiency within agricultural irrigation.
- **Conflicts** – over regional transfers can be relieved by improving efficiency and reducing use in all sectors. Need to improve partnerships between industry/Government.
- If the community invests in increased efficiency (regardless of sector) then water comes back for all users -> if an industry sector makes improvements then the water is available to the individual/industry concerned.
- Trading rules need to best reallocation of water savings.
- Reclaimed water
  - Steering Committee
  - Peak Body
  - needs/wants community representatives.
- Integrate Demand and Supply Strategies. With demand a mix of options needs to be included.
  - Re-use should be a priority within this.
- Research and Development – <u>need more information</u> to
- <u>Options</u> – Regional Background
- Kalgoorlie - $3.5M return $6.5M
  Savings

    - Retro
    - Toilets
    - flow restrictors
    - airconditioner dumps
    - Cost of WC was high
- Reduction in domestic demand
    - Regional basis
    - Pilot program in a Perth suburb as a matter of urgency
    - Household audits with view towards retro-fits etc.
- Determine Results

  After analysis

  Pilot -> Regions } State
  Demonstration }
  Audits }
- Trial Sydney
    - Suburb with control
    - Products
    - Appliances
    - Education
    - Door to door audit.
- Attitudinal
- Not cost prohibitive in WA context.
- Restriction on garden watering – possibility of them being continued.
- Government does not take dividend for 1 year to fund initiatives.
- If price increase is likely then trial could coincide with this and savings offered to participants.
- Needs to be a price increase to fund critical projects