

# COMMUNITY WATER FORUM

## SUSTAINABILITY OF THE GNANGARA MOUND

### SUMMARY OF OUTCOMES

City Of Wanneroo – Banksia Room  
Wednesday, September 25, 1.00 – 8.30 pm



Office of  
Water Regulation



Water and Rivers  
Commission



## EXECUTIVE SUMMARY

### Context

In the light of declining water levels in the Gngangara Mound, its importance to biological diversity, water supply and timber production, and the current drought induced problems with water supply, a Community Water Forum involving over 100 participants was held at Wanneroo on 25 September 2002.

The aim of the forum was:

- To raise community and stakeholder awareness of the issues facing Gngangara Mound (environmental, economic and social) and challenges for management.
- To improve 'ownership' of the problems facing Gngangara Mound by the community.
- To obtain input from the community on the issue of sustainability of the Mound, both its definition and the actions considered necessary in order to achieve sustainability in the future.
- To provide advice to decision makers (via the upcoming Premier's Water Symposium and Section 46 process) on what the community considers are Mound values, what sustainability of the Mound is and what actions are necessary to achieve it.

### Outcomes

The outcomes of the forum were:

- An improved understanding of community values associated with the Mound.
- Improved understanding of community views in regard to sustainable management of the Mound.
- Community input to the Premier's Water Symposium in early October and the Section 46 process.

### Format

In the afternoon and evening sessions, presentations were made by guest speakers on the 'sustainability of Gngangara Mound'.

A final workshop and plenary session generated:

- the key issues;
- values for the Mound; and
- the ways forward.

## Key Issues

The top six issues were:

	Votes
➤ The need for a whole Government approach to planning	47
➤ The need for more research on the hydrology of the Mound	41
➤ The need to increase water use efficiency	25
➤ The effects of population and growth	22
➤ The need for better education and understanding	21
➤ Water pricing	20

## Values for the Mound

The top six values were:

➤ Environmental values	42
➤ Caves and their fauna	37
➤ Groundwater quality	15
➤ Equity for users	14
➤ Water Balance	14
➤ Balance of land uses	12

## Ways Forward

The top six initiatives were:

➤ Water recycling and re-use	55
➤ Increase knowledge about the Mound	30
➤ Education and awareness	23
➤ Improve water use efficiency	23
➤ Increase the price of water	23
➤ Planning for multiple objectives	21

## ISSUES IN DETAIL

Participants developed and prioritised the following issues:

### Key issues

Votes

#### The need for a whole of Government approach to planning

- |   |    |
|---|----|
| • Holistic approach to planning and environment   | 16 |
| • Need better integration of Government decision making at the highest level – instead of the current approach of portfolio and agency-specific decision-making | 14 |
| • Whole of Government co-ordination   | 7  |
| • Better communication and integration across Departments, Local Government, etc (better land use planning required)  | 4  |
| • Greater integration of the different departments, agents and communities  | 4  |
| • Sustainable planning for the development of the region (whole of Government)  | 2  |

*Issue Total:* 

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 47

#### The need for more research on the hydrology of the Mound

- |  |    |
|--|----|
| • Understanding the resource and how much water can be drawn, from the technical point of view, without affecting the values | 19 |
| • Lack of intensive research on the inter-connectivity of the deep and shallow aquifers                                      | 10 |
| • Research on deep aquifers (Yarragadee and Leederville) and effect of that draw down  | 8  |
| • Engineering solutions to optimise access to groundwater (minimise effects on superficial aquifer)                          | 3  |

• Clarify the relative contributions of causes to groundwater decline	1
• Better understanding of hydrology	-
• How much water is there?	-
<i>Issue Total:</i>	41

**The need to increase water use efficiency**

• Water use efficiency	10
• Water conservation:	7
– Efficient use of water	
– Everyone should attempt to use less	
– Equity	
• “Water sure” our future through supply; usage; recycling; and education	3
• Investigate waste water re-use and storm water run-off (infiltration)	3
• Clean groundwater – stop wasting rainwater	2
• Do we want plants to eat or to water domestic lawns? (change the water use culture in domestic gardens to less water use)	-
<i>Issue Total:</i>	25

**The effects of population and growth**

• Population stabilisation (ecological footprint); attract people to where the water is, eg: increase the population in the North (Argyle water supply)	10
• Planning Perth’s future growth (how do we allow for future resource use, balanced against protecting all values?)	7

• Demand use is a combination of population growth and per person usage	3
• Decentralisation	2
• Future UWPCA boundaries, future land uses	-
<i>Issue Total:</i>	22

### The need for better education and understanding

• Better education, better understanding of the groundwater systems (too much misinformation)	7
• Lack of community understanding of water issues	6
• Changing perceptions and determining environmental values in a drying climate	4
• Investigating:	3
– Waste water reuse	
– Storm water run off – infiltration	
• Changing peoples' expectations and therefore water demand	1
<i>Issue Total:</i>	21

### Water Pricing

• Water pricing	20
– user pays and beneficiary compensates	
– including maintenance of environment	
<i>Issue Total:</i>	20

### Protection of the environment and biodiversity

• Protection of biodiversity	6
• Natural environment protected	4
• Catchment management and protection	3



• Undo what we have done wrong (environmental damage), fix it	2
• More research into our biodiversity and effects of the groundwater extraction	1
• Environmental water provisions	1
• Protection of caves fauna and the process of cave formation	1
• Threatened flora, fauna and ecological communities	-
• Set key environmental criteria	-
• Protection of ecosystem structure	-
• Environmental value?	-
– what is it?	
– is it changing?	
<i>Issue Total:</i>	18

### Protecting water quality

• Water quality protection	11
• Maintain and develop steps to prevent pollution of the Mound	4
<i>Issue Total:</i>	15

### Using other water supply sources

• Maximise other water resources for supply, rather than groundwater	9
• Need a new supply of water, such as desalination (ie: do not rely on groundwater)	6
<i>Issue Total:</i>	15

### Removal of the pines and revegetation of the plantations

• Accelerate the removal of pines from the Mound	7
• Revegetation after pine removal	5
• Clearing of <u>Pinjar</u> Pines may be “too little too late”	1
• End use of monoculture (pines) needs to be planned now	-
• How much do the pines impact on the Mound? (not using the CDFM method)	-
• Effect of pine removal on hydrology and surrounding ecology; effect on microclimate	-
<i>Issue Total:</i>	13

### Establishing long term sustainability of the Mound

• Restore ‘mound’ levels so they are sufficient to meet environmental criteria	6
• Long term sustainability at no expense to the environment	2
• Robustness of strategies (not relying on the Mound for “drought reserve”)	1
• Sustainability and protection of the groundwater resources	1
• Long term management of the Mound and land	-
<i>Issue Total:</i>	10

### Balancing competing demands for water

• Sustainable water use (without environmental damage)	2
• Balance use of water, social and economic factors (triple bottom line)	2
• Balance competing demands; don’t exceed resource limits (how do you define and achieve the balance?)	1

• Mechanisms for sustainability	1
• Conflict between water extraction from the Mound and its impact on environmental values	1
• Fresh food production	1
• Cost benefits:	-
– how much are the Pines worth?	
– how much is horticulture worth?	
– how much is water supply worth?	
– how much is the aesthetic value of environment worth?	
• Equity of opinion	-
<i>Issue Total:</i>	8

**Controls and regulations**

• No more land drainage	3
• Independent assessments of the whole procedure	2
• Reduce inappropriate use of water	1
• Firm controls on use	1
• Rules for water sharing between public and private	-
<i>Issue Total:</i>	7

## VALUES IN DETAIL

Participants identified and prioritised the following values:

Values	<u>Votes</u>
<b>Environmental Values</b>	
• Environmental values; the bottom line is to protect ecosystems and biodiversity (“we have no right to cause the extinction of another species”)	22
• Perth’s biodiversity	9
• The ecology <ul style="list-style-type: none"> <li>- ecosystem services</li> <li>- biodiversity conservation values</li> </ul>	8
• Maintaining the quality of the environment	2
• Natural environment – the overall goal is balance	1
• Aesthetic environmental value	-
• Respect of the land	-
<i>Issue Total:</i>	42

### Caves and their fauna

• Ensure the protection of cave streams and Mound springs	11
• Caves, karst areas	9
• Unique flora, fauna, Mound springs, cave fauna, etc	9
• Caves and their fauna	8
<i>Issue Total:</i>	37

### Groundwater quality

• Protection of water quality of the Mound	8
• Maintaining the quality of the groundwater resource	6
• Quality of groundwater (acid sulphate soils)	1
<i>Issue Total:</i>	15

### Equity for users

• Equity for the range of users	13
• Mutual understanding and respect of each other and each others' needs	1
<i>Issue Total:</i>	14

### Water Balance

• Water balance, creeks and wetlands, must have an equal right to water as well as people	6
• Solve the problem of water in the dams	5
– Pump out of creeks in winter, store unharnessed water in dames, less draw on the Mound	
• Maintaining the biodiversity and the standard of living inhabitants	2
• Higher groundwater levels	1
• Source of fresh groundwater (low cost) in perpetuity	-
<i>Issue Total:</i>	14

### Balance of land uses

• Agreed balance of land uses and social mix that can be sustainably used (for horticulture, social and environmental)	12
• Recognition of the viable and sustainable occupations of the people	-
• Continued urbanisation: continued growth area leading to higher density (disputed)	-
<i>Issue Total:</i>	12

### Public Water Supply

• Recognition of the value of public water supply and horticulture	5
• This area is providing 60% of Perth's water production	3
• Balancing conflicting interests of private and public needs	3
<i>Issue Total:</i>	11

### Environmental repair

• Revegetation with native vegetation (remove pines)	5
• Use for future generations	2
• Levy for protection and repair of the environment (suggested to be through Water Corporation fees)	-
• "Hydrogeological parks" around key areas and catchment areas, within P1 areas	-
<i>Issue Total:</i>	7

### Agricultural production

• Retain good land for agricultural production on the Mound	4
• Agricultural production	3
• Commercial value of farming	-

• Landholders	-
– Appropriate rating	
– allowing appropriate subdivisions	
– compensation? (large rates but not enough water for irrigated agriculture)	
	<i>Issue Total:</i> <u>7</u>

### Recreation

• Recreation and natural settings (eg: Regional Parks)	3
• Recreation values over estate	2
• Ongoing use of the forest plantation as a resource for the Perth metropolitan area (social, environment and recreational)	2
• Recreation	-
	<i>Issue Total:</i> <u>7</u>

### Existing ecosystems

• Wetlands (Northern)	2
• Groundwater dependant vegetaion	2
• Tuart community	1
• Banksia woodland	1
• Native seed collection	-
	<i>Issue Total:</i> <u>6</u>

### Complexity

• Appreciation of the complexity of water management issues	5
	<i>Issue Total:</i> <u>5</u>

### Water use efficiency

• Whole of Perth to better manage water use	3
• People should collect rainwater for their own use	1
<i>Issue Total:</i>	<hr/> 4

### Sustainability

• Sustainability of energy and resources	1
• Carbon store, green belt, air freshener, aesthetic values	1
<i>Issue Total:</i>	<hr/> 2

### Social values

• Recognise that the water is a community value	2
• Economic and social value of water, eg: everyday use, gardens, quality of life	-
• Economic and social values	-
<i>Issue Total:</i>	<hr/> 2

### Cultural values

• Cultural values	1
• Heritage and cultural values of the use of land	-
<i>Issue Total:</i>	<hr/> 1

### Timber Values

• Plantation resources should not be totally sacrificed	-
• Commercial timber value	-
<i>Issue Total:</i>	<hr/> -

## WAYS FORWARD IN DETAIL

Participants developed and prioritised the following ways forward:

<b>Ways Forward</b>	<u>Votes</u>
<b>Water recycling and re-use</b>	
• Water recycling and re-use	16
• Waste water re-use (100 gl) and water saving strategies	6
• Dual 'grey water' system for metropolitan area	6
• Recycling of grey water and use of rainwater tanks.	5
• Urban water efficiency <ul style="list-style-type: none"> <li>– Shade</li> <li>– ban front lawns</li> <li>– no strawberries</li> </ul>	4
• Use Beenyup Waste Water Treatment Plant water for irrigated agriculture	3
• Develop and implement a water re-use plan as a matter of urgency	3
• Water sensitive urban design	3
• Water recycling and effluent treatment (re-use - compost)	3
• More subsidies for white goods manufacturers and consumers to provide water efficiency	2
• Gardens in urban environment that are more suited to our climate	2
• Increase the recharge of aquifers, from stormwater drainage in urban areas	1
• Shower heads, half flush toilets.	1
<i>Issue Total:</i>	55

### Increase knowledge about the Mound

• More funds for effective research into water resources, etc	12
• Improvement in the knowledge of the Mound	6
• PRAMS needs to be developed so that it is more accurate, more flexible and provides more knowledge	6
• Agreement (?) on causes of water level decline (proportion in different areas)	3
• Learn from other places (all our problems occur elsewhere in the world)	3
<i>Issue Total:</i>	30

### Education and awareness

• Education about the Mound and water use	4
• All people to accept responsibility for their water use and efficiency	4
• Sharing of the knowledge of the Mound with the community	3
• Water users need education that their water use habits are causing major problems.	3
• Education	3
• Incentives for community involvement on Mound sustainability	2
• Improve water conservation practices through public education and provision of financial incentives	2
• Educate the community to use less water	2
• Maintaining public awareness	-
• An education system to maintain the quality of “own bores” users and groundwater dependant users	-
<i>Issue Total:</i>	23

**Improve water use efficiency**

• Increase water use efficiency (all sectors)	10
• More efficient use of water at domestic, farm and industrial levels	10
• NASA:	2
– 100% recyclable water	
– 100 day system	
– use new technology	
• Incentive use for polyculture, permaculture and holistic production systems	1
• Improve irrigation efficiency of all water used	-
<i>Issue Total:</i>	<hr/> 23

**Increase the price of water**

• Jack up the price over a set usage (user pays for excess usage)	12
• Remove water rates and sewerage charge and implement metered user pays (if you use more, you pay more)	4
• Increase the price of water (overcome the political apprehension to increasing the price of water)	4
• Water pricing: user pays/beneficiary compensated	3
<i>Issue Total:</i>	<hr/> 23

**Planning for multiple objectives**

• Need an optimum plan for nature conservation, water production <u>and</u> wood production goals (ie: LVL log supply) rather than just focusing on LVL log supply. That is an optimum plan for land and water resources for multiple objectives	6
• Totally new population policy, numbers and distribution	6
• Agree on what is meant by sustainability and what we are aiming to achieve	5
• Good long term planning and a common vision for the future	3

• Develop a sustainable State Development Plan in a holistic approach	1
• Planning to control pollution (land use process)	-
<i>Issue Total:</i>	21

### Accelerate the removal of the pines

• In the area specific to Pinjar Pines, bring forward clearing and heavy thinning of pine plantation (ie less than 11m <sup>2</sup> /ha); Pinjar pines need to be cleared ahead of Gngara Plantation.	11
• Pine plantations in saline areas of the State	2
• Thin Pines earlier and thin more of them	2
• Enhance recharge by removing the pines	2
• Pines cut down and rehabilitation now!!!	-
<i>Issue Total:</i>	17

### Co-operation between Government agencies

• Co-operation between planning authorities regarding water use	10
• Improve inter-agency information sharing and communication (committee?)	4
• Co-ordinated Government agencies	2
<i>Issue Total:</i>	16

### Determine trade-offs for competing interests

• Recognising competing interests within the current drying climate	4
• Need to determine the trade-offs (economic, environmental, social values) of different options	2
• Immediate action on revising sustainable yields	2

• Understanding and re-defining environmental values	2
• Re-evaluate sustainable yield and environmental water requirements	2
• Less reliance on Gngangara Mound water for public water supply	-
• Re-evaluate CDFM at basic principles which should give a different impact statement	-
• Stay with environmental criteria	-
• Determination and certainty about future land uses	-
<i>Issue Total:</i>	12

**Reallocate funding**

• Funding for the implementation of the CALM Park	5
• Use of profits from the Water Corporation, Forest Products LVL plant put into water protection initiatives	5
• Get the Water Corporation to invest in the Gngangara Park	1
• Levy on water users, to spend money on remedial projects and innovative water shortage remedies	-
<i>Total:</i>	11

**Take the pressure off Gngangara Mound**

• Development of new water sources so that the Mound is not the “drought reserve”	7
• Harness spillage to oceans from aquifers, without allowing salt water infiltration	2
• Use confined aquifers to manage the impact on the superficial aquifer	1

• Develop new water sources outside the Mound	-
• Desalination infrastructure	-
• Development of new sources of water supply	-
<i>Issue Total:</i>	10

**Improved monitoring**

• Incidental reporting of environmental impacts to become a significant indicator for decision making	4
• Greater monitoring of water levels, fauna and flora	3
• Improve and reassess the validity of data from the monitoring bores	2
• Monitor and possibly regulate private bores	1
• Greatly improve the monitoring and metering of private bores and Local Government Authority bores	-
• Integrating data collection for the wetlands: soil, vegetation, water	-
<i>Issue Total:</i>	10

**Make good decisions**

• Improve political decision making!!!	4
• No rash decisions now!	3
• Political willpower to make the hard decisions	2
• Action not talk fest	-
<i>Issue Total:</i>	9

### Improve and control land use and development

• Zoning to residential R30 or more (smaller lots, less water use)	3
• Water Catchment areas:	2
- private land owners need to be bought out if they cannot use their land for production (PI) areas	
- sensible compensation	
• Planning (eg: increase housing density) and greater regulation on development (eg: demonstration that the water is available)	1
• Ensure higher density housing in Perth (this increases recharge and will be more sustainable)	1
• Alternative superannuation options for market gardeners (eg: no further sub-division of good agricultural land)	-
• Changing land uses	-
• Better housing developments – not so much clearing, better water efficiency usage in houses	-
• Statutory provisions, regulations and penalties for misuse or pollution	-
• Land use development control	-
<i>Issue Total:</i>	7

### Protect the caves systems

• Agencies to work together to develop supplementary water supply for the caves systems	5
<i>Issue Total:</i>	5

**Burning for recharge**

- Improve recharge through a burning regime that includes the needle bed (will need community support) 2
- Issue Total:* 2

**Clarify responsibilities**

- Water Corporation – separate the responsibilities of water saving and water selling. -
  - Take Water Corporation out of the decision – making regarding water allocation -
- Issue Total* -