24th Feb 2010

Standing Committee National Resource Management (Climate Change)
Parliament House
Macquarie Street
Sydney
NSW 2000

Dear Water Management (Inquiry) Members,

I submit the following in relation to

a) The likely impact of climate change on the availability of water resources under different climatic scenarios;
b) Approaches to the management of water resources by all water users including provision for environmental flows; and
c) Best practice in water conservation and management.

SUMMARY

Although not endeavoring to respond directly to the committees question on water and climate change I hope to present to the committee the variety of organisations and educational areas that are involved.

This is important to the committee when making recommendation and informing 'industry" as to your determinations.

In summary there are many organizations, training perspectives, people who hold qualifications and organisations who perceive that they have representation for the use of water in NSW.

As the committee makes their final proposals, consideration should be made in relation:

1. To the various educational, unprofessional and professional perspectives that water management in a climate change environment encompass.
2. The current (and not yet published) industry assessment in relation to water use and savings
3. Funding further research into the strategic effective (not efficient) use of water.

My particular concern is water use in the urban / peri horticultural industries.

Perspectives for Discussion

When discussing water in NSW (in relation to climate change) the following perspectives maybe of use:

Water Types?

Who Uses Water?

Who manages water?

Member organisations involve with water?

Water Use Education?

Water Use Research?

Recent Federal Water Funding

Water Types?

Water types relates to two perspectives:

a. Water sourced for use
b. Water management (See Below)

Water is currently sourced from:

a. Rainfall – direct use
b. Rainfall – catchment: into storage such as dams, tanks or into soil/geological profiles
c. Dam water – water is stored in dams and pipe to the end use requirement.
d. Bore Water – water is pumped from underground and either used directly or to storage
e. Effluent – wastes (or recycling) (eg organic matter from a variety of sources, human, pigs, cows, processing, etc) is removed and water treated to be useable.
f. Desalinisation – Water is sourced from ponds, pools, oceans, etc with high or unaccepted levels of many, or a "SALT" eg Iron, which are removed for the required use.
g. Runoff harvesting – More commonly know in urban environments as storm water harvesting, or in rural areas I will refer to this as rainfall harvesting either into dams or into the soil eg Keyline method.

Other methods, terms or language can be used to describe these sources of water.

Water is managed at all levels of the Australian community by law (Federal, State, Statuary Body, Council), requirements (water type or quality required), and practice (commercial or domestic) or the hands on use. In some cases water is used (ie required), but not managed (not monitored).

Who Uses Water?

Not surprising, everyone uses water. The major uses of water are monitored by the NSW office of water. They state that 70% of water in NSW is used for irrigated purposes. See:

http://www.water.nsw.gov.au/Water-Management/Water-availability/Water-use-in-NSW/default.aspx

Sydney Water, the licensee of water distribution for the Sydney / Shoalhaven area does not provide water use data by group on their web site.

Who manages water?

Water is managed at all levels in the community (government, statuary bodies, private organisations and private people).

The degree it is managed depends upon what their objectives are.

Ie Sydney water manages the infrastructure and supply to the Sydney / Shoalhaven area. Whist a park manager manages the water applied to keep plants / turf alive.

The level of regulation or reporting of water use is a voluntary, although Federal guidelines are available for water use there is little supporting evidence of use.

See
http://www.ephc.gov.au/taxonomy/term/39

Member organisations involve with water?

Some member Organisations who have in their interest water use/ management are:

AWA Australian Water Association
http://www.awa.asn.au//AM/Template.cfm?Section=Home1&WebsiteKey=2afdcba7-9faa-4ce8-98f3-584320286b49

AGCSA Australia Golf Course Superintendent Association
http://www.agcsa.com.au/

ASSSI Australian Soil Science Society Inc
http://www.asssi.asn.au/

Engineers Australia
http://www.engineersaustralia.org.au/

IAL Irrigation Australia Limited
http://www.irrigation.org.au/index.cfm?/about-ial

International Centre of Excellence in Water Resources Management ICE WaRM
http://www.icewarm.com.au/index.php

IECA Erosion Control Association
http://www.austieca.com.au/

Master Plumbers Association of NSW
http://www.masterplumbers.com.au/

New South Wales Bowling Greenkeepers Association
http://www.nswbga.com.au/

NSWGCSA NSW Golf Course Superintendents Association
http://www.agcsa.com.au/state_associations/nsw

Sports Turf Association in NSW
http://www.sportsturf.asn.au/nsw_home.html

Stormwater Industry Association Inc
http://www.stormwater.asn.au/

Water Directorate
http://www.waterdirectorate.asn.au/more_information.html

WSAA Water Services Association of Australia
https://www.wsaa.asn.au/Pages/default.aspx

This is NOT a comprehensive list, but does provide some insight into different organisations who may "lay a claim" to "water use" and therefore conservation and management.

Some other organizations would include Government and grower organsations not mentioned here.

Water Use Education?

Education within Australia is regulated by the Australian Government (http://www.aqf.edu.au/) under the AQF program (Australian Quality Framework). (http://www.australia.gov.au/topics/education-and-training/vocational-education-and-training).

Although the AQF acknowledges three levels of education, I would comment that there are four levels (groups) of water education related to water conservation and management.

1/ School Sector (Not discussed here)
2/ VET sector
3/ University sector
4/ Private or member organisation providing courses or conferences on water.

It should be noted that water conservation and management education is taught across many industries with sometimes;

Industry sector conflict
Repetitive
Not "this" industry relative information
Legislative control
Popular Media input
Excessive cost to organisations vs operational cost.
Or Conflicting results

VET Sector.

The VET sector is administer within NSW by VETAB (- NSW Vocational Educational and Training Accreditation Board - http://www.vetab.nsw.gov.au/) and over seen by NTIS (National Training Information Service - http://www.ntis.gov.au/)

The VET sector in mostly involved in training people in the "How to" do a task, whilst attempting to under the AQF (Australian Quality Framework level 6, 7 and 8)

NTIS issue training packages to training organisations to be used nationally.
Some training Packages related to water use and conservation are not limited to:

RTE03	Rural Production Training Package
RTD02	Conservation And Land Management Training Package
RTF03	Amenity Horticulture
CPC08	Construction, Plumbing and Services Integrated Framework
NWP07	Water Training Package
SRC04	Community Recreation Industry Training Package
MNQ03	Extractive Industries Training Package
THC04	Caravan Industry Training Package
PRM04	Asset Maintenance Training Package
LGA04	Local Government Training Package

A number of "levels" of training are covered from level 1/2 (like this, do that under supervision), Diploma / Advanced Diploma ("Breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures." From RTF03) to
Vocational Graduate Certificates / Diplomas

Level one to four AQF level requirements for education are set by the national training package whilst, the Diploma, Advance Diploma, Vocational graduate certificate and

Vocational graduate diploma are apparently set like Universities - set by the requirements of peer review, relevance of professional bodies and employer groups.

It should be noted that at Level one to four:

- Other training package have subjects in Water conservation eg SFI04.
- RTE03, RTF03 and RTD02 will combined and be superseded by AHC10 Agriculture, Horticulture and Conservation Training Package sometime soon.
- As 70% of water use in NSW is used in irrigation, AHC10 provide qualifications in Irrigation (trades - farming, urban horticulture) and CPC08 provide qualification in plumbing covering irrigation but from a construction perspective.
- Diploma level education generally concentrates on one small aspect of an industry i.e. it might be water use but not soils.

At advanced levels:

Depending upon which sector or employment group you are teaching too, would depend upon which employer and professional association you might consult with to determine learning out comes.

The University Sector

The University Sector, under VET provides education set by the requirements of peer review, relevance of professional bodies and employer groups.

Water use (management and conservation) in relation to climate change is not a degree course currently taught. Although different parts of this topic are taught at different Institutions (or the same institution) in difference bodies such as Department of Agriculture, Department of Engineering, Department of Environmental Science, Department of Law, etc.

Universities also under take research (as some government departments do).The funding to research proposals is dependent upon the mood swings of the assessing bodies. There are a number funding bodies one of which is the Horticultural Australia Limited (HAL).

HAL collect a levy from “Farming” or “Grower” organisations which the federal government matches dollar for dollar. HAL DOES NOT collect research levies from golf courses, bowling green, parklands nor football fields as these are not “farming enterprises”.

Documents on HAL research for Turf are listed in appendix A. it should be noted that some research on turf / water relations have been done over the years. Although limited. Most research relating to turf water use is based on overseas (particularly American) research.

Although there is some research within Australia on water use and climate change a further investment into local (catchment) issues should be considered.

Other Sector Education

A number of private and industry organisations provide short courses, seminars or conferences on water use.

The Monitoring of the organisations listed above would give the committee some scope of the array available, of which in most cases cost is an important consideration when attending for most people.

Recent Water efficient and climate change funding

Recent federal government funding is slowly progressing its way into the Sydney, Hawkesbury / Nepean Areas enhance water savings. These projects run by NSW Industry and Investment (NSW Agriculture) (for Farms) and Sydney Water (For council sports fields)
.
Both organisations have subcontracted out the water assessment, but by different methods:

1/ I and I (NSW AG) have subcontracted to persons who are qualified to a level by the Irrigation Association Limited.

2/ Sydney Water went to tender which was awarded to one organisation. Their assessment is to be done to the requirements of the ILEP document or Best Management Guidelines for Sports Field (currently unpublished) commissioned by Sydney Water.

Both organisation (I and I / Sydney Water), are at the beginning of their assessment. It would be prudent of the committee to maintain updates of progress through government channels to determine levels of effectiveness of these programs including obtaining a copy of the Best Management Guidelines for Sports Fields.

Ending

I thank the committee for the opportunity to make representation.

Yours faithfully

David McKechnie GradDipAgSci(Syd) CIAg

Appendix 1 HAL Turf Funding

TU00001 - Water use studies and implications for management of subtropical C4 turfgrasses in dryland and irrigated urban open space

TU00005 - Identification and distribution of ectotrophic root infecting fungi on golf turf in Queensland

TU00006 - Turfgrass Association of Australia (ACT Incorporated) Perennial Rye, Seeded Couch and Tall Fescue evaluation Trials

TU00007 - Development of nutrient management systems for the Western Australian turf industry

TU00010 - Cost effective strategies for the control of iron deficiency in turf

TU00011 - Chemical phytotoxicity testing facility for warm-season turfgrasses

TU002 - Evaluation of new & existing turfgrass growth management products

TU003 - Assessment of phytotoxicity potential of new & existing pesticides & soil ameliorants

TU007 - Standardisation of lab techniques to aid field diagnosis of turfgrass problems

TU008 - Classification, storage & retrieval of Australian turf information

TU010 - Formation & classification of national ref collection of cultivars & ecotypes of couchgrass

TU01001 - The collection and evaluation of bentgrass and couchgrass ecotypes in old, established putting greens

TU01004 - National workshops for turf green construction

TU01005 - Australian turfgrass evaluation program (AUSTEP) - Tall fescue

TU01007 - Scoping study to performance test Australian Football League turfgrass surfaces

TU012 - Dev of ecologically based management procedures for controlling the invasion of bent grass by couch

TU02001 - Assessment of the Uniformity of Automatic Golf Green Irrigation Systems

TU02002 - National turf producers conference and exposition, April 2003

TU02005 - Amenity grasses for salt-affected parkland in coastal Australia

TU02006 - Evaluation of a soil moisture sensor to reduce water and nutrient leaching in turf

TU02007 - Best management practices for sustainable and safe playing surface of Australian Football League sports fields

TU02008 - Publication of research articles in Australian Turfgrass Management Magazine

TU04001 - Kikuyu Turf Research Project

TU04010 - National Turf Producers Conference 2005

TU04013 - TU04008 - Adaptation and management of Australian buffalograss cultivars for shade and water conservation

TU05002 - Publication of research articles in Australian Turfgrass Management Magazine

TU05004 - 22nd Australian Turfgrass Conference, Brisbane July 2006

TU05007 - Turf Conference

TU06001 - Evaluation of selected bentgrass ecotypes for salinity tolerance and sod production

TU06003 - A Life-cycle approach to the control of Poa annua in bentgrass putting greens

TU06004 - Economic Analysis of the Australian Turfgrass Industry

TU06007 - 23rd Australian Turfgrass Conference and Trade Exhibition, Climatic Conditions of the Modern Era - Cairns July 2007

TU06017 - Industry Development Manager for the Australian Turf Industry

TU06019 - Best Use Modelling for Sustainable Australian Sports Field Surfaces

TU06T - Study of the turf information system at Michigan State University

TU07007 - Australian Racecourse Managers Conference, Melbourne, August 2007

TU07019 - Turf Producers Australia National Conference, April 2008

TU07027 - Developing an Environmental Management System (EMS) for the Turf Farming Industry - Stage 1

TU07029 - Golf Course Superintendents Association of America Education Conference and Study Tour

TU07035 - Developing Web-Based Turf Stream Courses at Undergraduate Level

TU07037 - TGAA ACT 2008 Seminar

TU08003 - Australian Turfgrass Conference

TU08015 - Turf Industry Development Needs Assessment

TU08029 - Turf Producers Conference

TU08031 - Racecourse Managers National Conference, August 2008

TU08034 - Quantifying Surfactant Interaction Effects on Soil Moisture and Turf Quality

TU08037 - North American Golf Course Superintendents Associations Management Study Tour

TU08047 - Turf Capacity Building 09

TU09004 - Australian Turfgrass Conference

TU09012 - TGAA ACT 2009 Seminar

TU09014 - Roving sustainablility workshops

TU09023 - WA Turf Alliance Seminar and Forum 2009

TU110 - National turfgrass evaluation trial

TU112 - Comparison of natural turf and synthetic bowling greens

TU201 - Nematode types and levels in bowling greens in Victoria

TU202 - Bentgrass maintenance for putting greens

TU203 - Sand amendments for turf construction

TU209 - Investigation randomly orientated interlocking mesh elements/sand rootzone system for bowling greens

TU210 - 7th International Turfgrass Research Conference - Attendance and Presentation of Paper

TU211 - Establishment and seed production requirements of Microlaena stipoides for turf and amenity purposes

TU304 - Endophytes in Turfgrass

TU604 - Improving the efficiency of African black beetle control in turf - a preliminary evaluation

TU96001 - Preliminary survey of water quality in water bodies on NSW golf courses

TU96002 - Reducing water use by turf grasses in a Mediterranean environment: evaluation of diverse species (cont'd TU602)

TU96006 - Nematode management in turf using chemical alternatives (cont'd TU606)

TU96007 - Low input fairway grass trials (cont'd TU607)

TU97002 - Optimising African black beetle control in turf

TU99009 - Tall grass & weed management in public open space

TU99010 - Use of organic stimulants and biological control agents in turf maintenance