Ref: A3PSubmission-NWICOAGguidelinesJan2010final

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Dear Sonia,

Re: Submission on the Consultation Draft – National Water Initiative Policy Guidelines for Water Planning and Management.

Thank you for the opportunity to make a written submission on the Consultation Draft – National Water Initiative (NWI) Policy Guidelines for Water Planning and Management (Guidelines) released by the Council of Australian Governments (COAG) Working Group.

Australian Plantation Products and Paper Industry Council (A3P) is the national industry association representing the interests of all segments of the plantation-based wood products and paper manufacturing industry. A3P member's employ more than 13,500 people in plantation management, sawmills, panel board, and paper manufacturing plants, mainly in rural and regional areas. Each year A3P members create and sell more than $4 billion of products, produce more than 12 million cubic metres of logs, 3 million cubic metres of sawn timber and more than 2 million tonnes of paper. A list of A3P members and statistics on their operations is available from the A3P website: www.a3p.asn.au.

A3P members include significant land/plantation managers, wood and paper processors. Plantations are an integral part of the water cycle in their immediate environment via water transpiration and filtration. In most environments where they are grown in Australia, the role of plantations in protecting soil and water quality is more significant than any potential water interception impact.

- ***Plantations and Water in Australia***

Concerns about tree water use should be viewed in a historical context (where trees are naturally part of the landscape), and any consideration of water use should encompass all land-uses, and should be based on quality scientific research and information. A significant portion of the 'consumptive pool' now available for irrigation or other water users can be attributed to a reduction in interception as a result of historical deforestation. Increased pasture recharge rates also accounts for the rising water tables/dry-land salinity issues across agricultural landscapes.

When properly planned and managed, plantations can contribute to more sustainable land use in rural areas by providing many environmental, social and economic benefits with little impact on water availability. The challenge is to encourage a national water policy framework (and its dissemination to state, super-regional, and regional water policy and plans) which supports plantation development in areas where there is the most commercial and environmental benefits and understand their impact on water flows and the water cycle. Effective and equitable water management policy should recognise the multiple environmental and productive benefits of appropriate placement of trees in the landscape, including benefits such as soil protection, salinity control, and improvement of water quality.

In the past many stakeholders (scientists, environmentalists, policy managers etc) in the land management debate have urged that trees need to be restored in the landscape, to lower water tables, ameliorate dry-land salinity, reducing soil erosion, replace ground cover nutrients, and improve water quality. Many Government revegetation and plantation programs have been implemented and expanded due to this support and drive.

Recommendation 1: *The COAG Working Group and the Guidelines should acknowledge and incorporate into water management policy the key role plantations' play in providing many environmental, social and economic benefits (within the historical context and other associated policies (plantation development).*

- ***The role of the Guidelines***

One of the key issues with water policy has been the lack of coordination, cohesion and hierarchical policy development at all levels since the National Water Initiative (NWI) was finalised. The many levels of water management, control and regulation around Australia, such as national, state, super-regional and regional processes, are progressing at different rates, reflecting different principles and drivers, and often not consistent with the broader context. This is concerning for A3P as these discordant processes have not been based on sound, repeatable science, general input/output principles and often deviate from the principles outlined in the NWI.

A3P notes the genesis of the Guidelines (on Page 3): *"These policy guidelines were commissioned in 2008 by COAG as part of its three-year work program on water to facilitate the development and implementation of NWI consistent plans, building on experience to date. The guidelines have been developed by officers from the Commonwealth, state and territory water agencies, including the Murray-Darling Basin Authority and the National Water Commission. The guidelines are designed to sit alongside the NWI and provide more detail on water planning aspects. Consistent with the NWI, the policy guidelines are intended to be relevant nationally for all water systems. The guidelines recognise that legislative and administrative arrangements for water resource management differ in each jurisdiction."*

A3P supports in-principle, the development and intent of the Guidelines but notes they need to reflect the spirit and principles of the NWI in order to be equitable and achieve the outcomes that they seek to achieve. If not, then the Guidelines will add to the complexity, confusion and inequity of other processes. Detailed below are areas that the COAG Working Group needs to address in the Guidelines, to better reflect the spirit and principles of the NWI, appreciate the role that plantations play in the landscape, and achieve equitable water management outcomes.

Recommendation 2: *The COAG Working Group note A3P's in-principle support of the Guidelines intentions, but also should note that the Guidelines need to closely reflect the spirit and principles of the NWI, in order to be equitable and achieve the desired outcomes.*

- ***Australian Plantation Industry National Water Policy***

In July 2007, the Australian plantation industry, represented by A3P, Australian Forest Growers, the National Association of Forest Industries, and Timber Communities Australia released a national water policy. The policy details the industry's views on the National Water Initiative (NWI) and how the NWI clauses dealing with water interception should be dealt with in the development of regional water plans.

The policy advocates that:

1. Plantation forestry is a dry-land (non-irrigated) agricultural land use and any policy contemplated in relation to interception of water by plantations should be considered only as part of a full debate on water interception by all dry-land agricultural land uses;
2. All policy on water interception must be underpinned by sound, repeatable and reliable science;

3. All policy on water interception should take into account issues of water quality as well as water quantity;
4. Clauses 55-57 of the National Water Initiative should only be implemented as written, that is, constrained to consideration of land use change (for example new plantations) not existing land uses;
5. Any inclusion of land use change to plantation forestry in a water entitlement system must take into account the differences between the physical extraction of water from the water supply system by humans and the natural interception of water by plants.

Please refer to the "*Australian Plantation Industry National Water Policy*" (**Attachment 2**).

A3P acknowledges the importance of good management of water resources. As a responsible land user, the plantation industry has a role to play in water management. Many Australian plantation managers have achieved sustainable forest management (SFM) certification to substantiate their management credentials. SFM standards include forest management criteria requiring the protection and good management of water resources for water quality, water flows, and the prevention of water pollution.

Recommendation 3: *The COAG Working Group in the Guidelines consider the key principles detailed in the Australian Plantation Industry National Water Policy.*

- ***Key Issues in the Guidelines***

A3P has read the Guidelines in light of the key principles detailed in the *Australian Plantation Industry National Water Policy,* the NWI, and the current status of other water policy processes around Australia. As a result A3P discusses the following key issues identified in the Guidelines:

- *Uncertainty for Industry – Impact on Investment*

A3P supports positive approaches to plantation development detailed in the *Plantations for Australia: the 2020 Vision*, State Government initiatives, such as the Victorian Timber Industry Strategy (launched 18 December 2009); The Tasmanian Forest Industry Plan (launched 2 February 2010 by the Forest and Forestry Industry Council); and the Queensland Timber Industry Strategy (released on 26 November 2009) and direct investment via public plantation managers over many years. In addition the proposed initiatives from many parties to establish trees to sequester CO_2 and play a key role in climate change mitigation should be noted in this discussion. Water is a necessary input into establishing trees and gaining the benefit of trapped CO_2.

The multi-faceted benefits of investment (both public and private) in expanding the plantation base in Australia do not need to be stated again. However the adverse impacts of the uncertainty surrounding a key input in plantation investment, such as a potential cost of water interception rights (etc) incurred early in establishing plantations rotations could significantly reduce plantation establishment - directly in contradiction to the above-mentioned plantation development policy initiatives. The flow on negative impacts on regional processing, manufacturing and employment will also be substantial. There is a need for certainty of supply and policy for plantation managers and wood dependent industry over the length of the rotation and all subsequent rotations.

Recommendation 4: *The COAG Working Group and the Guidelines consider unintended outcomes of major reductions in plantation investment due to uncertainty and increased cost of inequitable water management policy development and measures.*

- *'Significance' of Plantations*

A3P notes the following points regarding the determination of the level of risk posed by interception activities '*Planners should assess the level of risk posed by interception activities, including:*

a) The geographic location of the risk arising from specific interception activities within a particular catchment or aquifer;

b) The hydrological characteristics of water intercepted or used by each interception activity;
c) Projections for growth in interception activity over the planning period;
d) The social, economic and environmental impacts of interception activities'(page 36 of the Guidelines)

A3P supports, in-principle, the methodology described above used in the determination of the level of risk posed by interception activities. However the 'significance' of plantations as a land-use activity and their associated impact on water flow and the water cycle on a landscape scale has always been in contention and continues to be questionable.

It is seen that the term 'significance' is very important in concluding the appropriate policy response (if any) to a land-use activity, and one that many policy frameworks have not addressed equitably or appropriately. A3P suggests that defining 'significance' within a defined area (catchment, basin etc) is one of the most important processes to get right at all levels of policy development. Importantly water flows, and particularly groundwater flows, integrate the effect of tree planting over such large areas that the effect of likely proportions of landscape planting on river flows will be small.

One way of looking at it is in a holistic sense, for example plantations are a relatively small percentage component of the total area of Australian forest. Plantation coverage in Australia is 1.9 million hectares (approximately 1%) out of a total area of 147 million hectares of existing native vegetation. It should be noted historically the total area of existing native vegetation was much higher (reduced overtime via land-clearing primarily for agricultural pursuits) obviously impacting on the distribution and scale of land-use but also significantly on water flows, available water, the water cycle, and the potential consumptive pool. The extreme policy emphasis on plantations, interception, and their estimated impact on water-flow and availability, evident in the Guidelines and other policy development processes must be seriously questioned. It should also be noted that around 10% of the Guidelines are dedicated to the issue of plantation water interception. There should be a greater and more equitable focus within the Guidelines on the significance and impact of the other 99 per cent of land-uses on water planning.

There needs to be equality in the policy approach to all land-uses, thus avoiding singling out afforestation/plantations for more stringent management or provisions than other agricultural land-uses. As detailed in the *Australian Plantation Industry National Water Policy* there are a number of other land use changes including grazing to cropping and changed grazing and cropping practices which could result in significant increased in interception particularly given the broad areas across which they are occurring. These other land-uses should be subject to the same requirements as forestry water use planning (specifically relating to water quality and water quantity issues)

The statement, "the significance of water interception by plantations in terms of water availability for irrigation and the environment in the major water supply catchments has been overstated previously and is virtually insignificant", has also been demonstrated by the CSIRO Murray Darling Basin Sustainable Yields Project (released in October 2008) which showed: "best estimates indicate only very minor impacts on total runoff reaching rivers across the Murray Darling Basin"; and that interception from likely farm dam expansion was several times larger than the likely impact of plantations but even farm dams were barely significant. These studies effectively replace earlier work which has previously overstated the likely impact of plantations. The over-riding influence on flows over recent times has been the lack of rainfall and extended drought over significant portions of the catchments.

Recommendation 5: *The COAG Working Group and the Guidelines consider carefully the methodology of determining 'significance' of an interception activity and the relatively small significance of plantations. In addition the COAG Working Group and the Guidelines should equitably address other land-use impacts on water planning in the broader vegetated landscape.*

- *Retrospectivity of Policy Measures*

A3P notes the following statement '*To avoid claims of retrospectivity, plantation owners should preferably not be required to purchase an entitlement during the remaining life of the existing plantations.'(page 39 of the Guidelines)*

A3P does not accept that establishing a subsequent rotation of an existing plantation is a trigger to require the forest manager to potentially obtain a water access entitlement, as the land-use activity has not changed as is deemed to be the intent of the NWI principle.
Continuing the same land-use (in many instances land that currently carries plantation has been under trees, be it plantation or previously native vegetation since time immemorial) does **not** pose any risk to the 'integrity of the water access entitlements system and the achievement of environmental principles'. Further does this mean that any harvesting of other dry land agricultural crops will then trigger similar needs for water access entitlements?

A3P strongly advocates that water management policy development, in particular, policy measures for 'significant intervention activities' should be constrained to consideration of land use change (for example new plantations) not existing land uses (i.e. **no** retrospective application).

The principle of **no** retrospectivity in relation to policy measures is seen to be consistent with the NWI principles and is one of the key principles in the *Australian Plantation Industry National Water Policy.* However the Guidelines then go on to detail the notion that a subsequent rotation of an existing plantations should be 'required to hold offsetting water access entitlements in highly developed water system[s] on the basis that they pose a risk to the integrity of the water access entitlements system and the achievement of environmental principles.' (page 38 of the Guidelines)

Licensing of existing plantations is effectively double counting depending on how the 'consumptive pool' was calculated, as existing plantations have already been accounted for in existing Water Allocation Plans whether proposed to be licensed or not e.g. SE South Australia.

Recommendation 6: *The COAG Working Group acknowledges that replanting of a plantation following harvest is* ***not*** *a change of land use and therefore does not trigger the interception provisions of the NWI. Any provisions should be constrained to 'significant' water interception by new plantations (i.e. those established on cleared land after some benchmark date, (suggested date is the date of signing of the NWI).*

- *Basis of Water Management Policy Development*

The proposed South Australian framework does not comply with aspects of the NWI (page 38 of the Guidelines). A significant example is consideration of water policy in regard to interception of future land use change should not be retrospectively applied and there should be adequate consultation with key stakeholders that are impacted (such as the forest industry). As a result it is strongly advocated that the South Australian framework should not be used as a generically applicable policy development template at a national level.

In addition the current regional South Australian water management policy (i.e. SE South Australia Natural Resource Management Plan and previous draft Water Allocation Plan (WAP)) is seen to be flawed, premature, inequitable, and not based on the best science and scaling possible. Plot-based estimates of water use based on a 1D hydrological model ignoring lateral subsurface flows cannot reliably be extrapolated to regional water use estimates based on area alone. It should also be acknowledged that the hydro-geological circumstances in SE South Australia have differences and are site specific in many cases. Therefore water policy and planning arrangements under consideration for plantations in SE South Australia should not be seen as any sort of precedent for other regions of Australia (i.e. a 'one size fits all' approach does not work).

Recommendation 7: *The COAG Working Group and the Guidelines note that A3P strongly advocates that the South Australian framework should not be used as a generically applicable policy development template at a national level.*

- *Plantation Characteristics*

In any policy development or outcome it should be noted plantations have the following key characteristics:

- They are a dry land agricultural land use;
- Plantations are generally not irrigated except to improve water quality outcomes such as reducing sewage and industrial liquid waste discharge to river systems);
- Trees are essentially biological measurement systems as tree rings faithfully record the history of climate, growth and water use;
- Trees are generally opportunistic water users and are also self regulating in water-use, i.e. trees naturally adjust their water use to the amount of soil moisture available;
- It should be noted rainfall is the key input, or only input in most instances, into the water system, and that it is not evenly spread spatially and over time (i.e. on an average basis) creating high rainfall events and periods of sustained dryness which trees have to deal with;
- Surface water and ground-water recharge in winter or summer rainfall areas is dependant on the intensity and amount of rainfall during the period when evaporation losses are low;
- The groundwater store generally needs to be fully recharged before surface-flow commences;
- The effect of plantations on water quality and other environmental measures (salinity);
- Runoff by overland flow occurs in short bursts and might be affected relatively little by forestry; groundwater discharge occurs over longer periods and may be saline or of low quality;
- Water quality (salinity control) as well as water volume effects should be considered in planning decisions regarding planting trees.

Recommendation 8: *The COAG Working Group consider the plantation-specific characteristics detailed above when reviewing the Guidelines, and specifically that trees naturally adjust their water use to the amount of rainfall available.*

- *Australian Land-use Historical Context*

Historically it should be noted most of the Australian softwood plantation resource was established after clearing native vegetation, although land clearance regulations now limit most new softwood and hardwood plantation establishment to ex-pasture sites only. These former forest sites have never had a pasture recharge/runoff period. A significant portion of the "consumptive pool" can be attributed to a reduction in interception as a result of historical deforestation. Permanently deforesting much of this land is simply not a realistic option. A plantation water license will simply become a tax on plantation growers, or if plantation growers choose not to replant will not result in any additional water because natural vegetation will be allowed and/or encouraged to regenerate and will intercept virtually the same amount of water as a plantation

Recommendation 9: *There should be no requirement or provision for water interception by a plantation (established on ex-native forest or before the benchmark date) where there is no prospect that the land concerned will ever be cleared or managed in such a way as to yield grassland type interception.*

- *Connectivity of Water Resources*

The point made on page 7 of the Guidelines, that surface water and ground-water resources are connected and should be managed in an integrated manner as a single resource is seen as a useful notion. As an extension, it is suggested only one water management plan may then be required to be developed to simultaneously deal with both surface water and ground-water resources, avoiding the possibility of double-counting and contradictory policy requirements.

A single planning document setting out effects on above and below ground water flows may be reasonable. Separate policy and planning decisions for each is inefficient, time consuming and expensive and does not reflect the real function of landscape hydrology in Australia and the impact of land use on overland and subsurface flows should be considered jointly.

Recommendation 10: *The COAG Working Group and the Guidelines consider the benefits of a policy direction that develops only one water management plan.*

- ***Additional Issues Identified in the Guidelines***

A3P has appended as Attachment 1 further discussion of more detailed issues that have been identified in the Guidelines. Note that **Attachment 1** is not an exhaustive list of potential issues but is representative of the types of concerns identified in the Guidelines and need to be addressed.

Recommendation 11: *The COAG Working Group consider in the Guidelines the additional issues detailed in* ***Attachment 1*** *before finalisation.*

- ***Community and Stakeholder Engagement in Developing the Guidelines***

Although A3P appreciates the COAG desired timelines for development of the Guidelines it should not be at the expense of a measured, evidence-based approach that has effective stakeholder engagement and consultation whilst developing and before finalisation of the Guidelines.

Recommendation 12: *The COAG Working Group ensures effective stakeholder engagement and consultation is conducted prior to the release of the Guidelines.*

- ***Conclusion***

The COAG Working Group notes A3P 'in principle' support of the intent underlying the Guidelines. In addition A3P urges COAG Working Group to consider the recommendations detailed above, and the elements of the *Australian Plantation Industry National Water Policy* when dealing with water management policy, and at a finer resolution plantations and interception in the Guidelines, and how these Guidelines are then disseminated into state, super-regional, and regional water plans.

The plantation timber industry looks forward to working constructively with the COAG Working Group and other bodies as the Guidelines are further developed, subsequently finalised and then implemented.

Yours sincerely

RICHARD STANTON
Chief Executive Officer

- **ATTACHMENT 1: ADDITIONAL ISSUES IDENTIFIED IN THE GUIDELINES.**

Guideline Reference	Issue
NA	As an example of differing water uses, plantations have a lower ground-water water use than native vegetation in SE South Australia (note hardwood plantations has 77% and softwood plantations has 83% compared to native vegetation at 100% recharge interception). Softwood plantations exhibit slower initial growth than hardwood plantations (blue gums), and are also thinned multiple times over longer rotations.
NA	It should be noted in policy development that estimates of direct extraction of groundwater are highly precautionary. Initial science has been undertaken by CSIRO, but the underpinning science used in regional extrapolation and scaling has been briefer and less coordinated. As a general comment, water allocation plans should be underpinned by the best available scientific knowledge and socio-economic analysis of any impacts and trade-offs.
NA	The current proposed South East Water Allocation Plan (WAP) is based mainly on the rise and fall of bores - not on all hydrologic inputs (rainfall, stream-flow, cross border lateral flow). It is suggested that a better hydrological model is required in order to assess all inputs and outputs into the system. A3P suggests the improved hydrological model should be part of the Guidelines work program and future water policy (in other jurisdictions) developed utilising these improved models rather than the existing limited models;
NA	All policy on water interception by a land-use activity should take into account issues of water quality as well as water quantity;
Page 8	Regarding the use of professional judgment as appropriate. A3P suggests it is a significant decision for a region to approve or disapprove a new plantation development based on existing limited water science or knowledge. This pressure point and the potential for inefficient outcomes should be further considered;
Page 12	It is agreed, in principle, that WAP rules should be robust and scientifically based so that plans are operating under “normal conditions most of the time”;
Page 16	Under principle 3.4.2, it is suggested both ‘plantation forestry’ and ‘environment’ should be listed under the heading of multiple use of water resources;
Page 31	Regarding the gifting of water resources. A3P understands that this is primarily how water was historically allocated. In SE South Australia, the historical gifting of water allocations via licences will effectively and inadvertently give relevant government bodies the ability to approve replanting of new and existing plantation estate. Is this an effective outcome, or a natural progression, or even an equitable result?
Page 33	Regarding ephemeral streams – these generally don’t have major fish migrations. It should be noted that ephemeral streams have a very different set of management issues compared with rivers with perennial flows downstream;
Page 35	Regarding the statement that bushfires result in increased interception during the recovery phase – this is seen as an overstatement over a slightly longer timeframe as the bulk of native vegetation in Australia will regenerate rapidly (with coppice regrowth and fast growing species) in order to restore ecological balance within the effected area. Water flows will increase for several years after fire due to decreased interception (and so will potential erosion and poorer water quality) and will also be dependent on the level of rainfall on the effected area during the regrowth period;

Page 35	Regarding the problem of defining “significance’. It is suggested that a percent figure potentially more applicable and more representative;
Page 39	The guidelines refer to” in general, high reliability surface water or groundwater access entitlements will be necessary to offset plantation water use (or an equivalent amount of low reliability water . . . . .). High reliability water has a significantly higher cost (than general security) due to a greater likelihood of receiving it during low rainfall periods, however if doesn’t rain the trees will not benefit from this supposed enhanced reliability of supply. Such a requirement as proposed not only seems to have an erroneous logic but as a result increases potential costs and uncertainty for plantation managers. The reference to “an equivalent amount of low reliability water . . . . “seems ambiguous at best in terms of defining the potential conversion process. As plantations are not irrigated they must solely rely on rainfall.
Page 37	Regarding water-use. A general point is that plantations use more water than pasture, but they actually use less than native vegetation (the default land-use historically was native vegetation);
Page 38	Regarding comments detailed in Box 6. They seem to say little and, as stated before, the proposed South Australian framework does not comply with aspects of the NWI. A significant example is consideration of water policy in regard to interception of future land use change should not be retrospectively applied and there should be adequate consultation with stakeholders (such as the forest industry). As a result it is strongly advocated that the South Australian framework should not be used as a generically applicable policy development template at a national level.

ATTACHMENT 2: Australian Plantation Industry National Water Policy.

Australian plantation industry

National Water Policy

The Australian plantation industry

The Australian community is becoming increasingly aware of the need to use our water resources more efficiently. As a responsible land user, the plantation industry has a role to play, in national water management alongside other dryland agricultural land users.

To assist this process the Australian plantation industry, represented by the Australian Plantation Products and Paper Industry Council (A3P), the Australian Forest Growers (AFG), the National Association of Forest Industries (NAFI) and Timber Communities Australia (TCA) has developed a national water policy and principles for dealing with interception in regional water plans.

National water policy

1. Plantation forestry is a dryland (non-irrigated) agricultural land use and any policy contemplated in relation to interception of water by plantations should be considered only as part of a full debate on water interception by all dryland agricultural land uses;

2. All policy on water interception must be underpinned by sound, repeatable and reliable science;

3. All policy on water interception should take into account issues of water quality as well as water quantity;

4. Clauses 55-57 of the National Water Initiative should only be implemented as written, that is, constrained to consideration of land use change (for example new plantations) not existing land uses.

5. Any inclusion of land use change to plantation forestry in a water entitlement system must take into account the differences between the physical extraction of water from the water supply system by humans and the natural interception of water by plants.

Supporting organisations:

a3p

Australian Forest Growers

NAFI
NATIONAL ASSOCIATION OF FOREST INDUSTRIES
ABN 40 008 621 510

TCA
Timber Communities Australia

Discussion:

The plantation industry acknowledges that:

- Forests (native and plantation) intercept a greater proportion of the total rainfall they receive than does grassland or pastures.
- Plantations are however, typically a much smaller proportion of the land area than other dryland agricultural land uses and the overall effect on water interception may be smaller in significance than the more extensive land uses.
- Forests (native and plantation) play an important and positive role in protecting and improving water quality by protecting soil from erosive forces. Plantations can also assist in managing dryland salinity by reducing recharge to groundwater and thereby potentially reducing salinity of waterways.
- The National Water Initiative (NWI) identifies certain land use change activities (including large scale plantation forestry) as having the potential to intercept significant volumes of surface / ground water.
- The NWI requires assessment of the significance of the impact of these land use change activities on catchments and aquifers, based on an understanding of the total water cycle, economic and environmental costs and benefits of the activities of concern.
- Appropriate planning, management and regulatory measures will be applied to land use change activities where necessary to protect the integrity of the water access entitlements systems and the achievement of environmental objectives.

The plantation industry considers that the implications of the interception of rainfall by plantations has been greatly exaggerated. This exaggeration has occurred in several ways:

- Plantation expansion scenarios are unrealistic and always biased grossly towards extreme overestimates (e.g. the CSIRO and MDBC publication “Risks to the Shared Water Resources of the Murray-Darling Basin” (MDBC Publication 22/06).
- Scaling up from small catchment studies has not adequately taken account of the areas within a plantation that are not intercepting at the ‘maximum’ rate. For example generally between 10 and 30% of the gross plantation area is not planted due to native vegetation retention, streamside buffers, roads and firebreaks. Within the planted area interception is reduced by fallow periods, time before canopy closure and plantation thinning.
- ‘Impact’ or water consumption figures are sometimes taken at source and ignore the very significant evaporation losses associated with the very large distance between the plantation and the downstream allocation owner.

Principles for Dealing with Interception in Regional Water Plans

The plantation timber industry continues to make a positive contribution to the implementation of the NWI. The following framework has been developed to assist the process of considering interception activities in the development of water plans:

1. A community consultation process on its own is not adequate to determine the significance of increased water inception associated with land use change. The significance must be demonstrated by science and socio-economic analysis conducted within the following principles.

2. Identification of significant interception resulting from land use change should include all forms of change in land use and land management practices which may result in increased or decreased interception of surface and or ground water, including:

- farm dams and bores;
- interception, diversion and storage of overland flows;
- clearing of native vegetation for urban development or agriculture;
- afforestation and reafforestation of land previously cleared for agriculture (whether natural or human induced);
- new crop establishment including:
  - timber plantations;
  - horticulture;
  - grains; and
  - fodder crops.
- changes in agricultural land management practices including:
  - stubble retention;
  - minimum or zero tillage practices; and
  - pasture improvement, rotational grazing, perennial pastures and drought resistant crops.
- changes in plantation management practices including:
  - rotation age;
  - species;
  - thinning regimes;
  - period of fallow between crops; and
  - treatment of logging slash.
- removal and regeneration of vegetation by controlled or uncontrolled fire.

3. For each of the above forms of change in land use and/or land management practices within a water plan region the following should be quantified as accurately as possible:

- the magnitude of likely impact on water quantity and quality over the plan period;
- the variability of this impact from year to year; and
- the error associated with the above estimates.

4. The estimation process must deal accurately with the extrapolation of impacts from detailed level (e.g. individual dam, plantation or paddock) up to a catchment or regional scale. This extrapolation process must accurately reflect the extent, configuration and timing of the land use or management practice change which is leading to the impact on water yield.

5. The threshold size of the interception to be used as the basis for defining the significance of a water interception activity should be determined having regard to regional circumstances and taking account of impacts on regional natural resource management outcomes.

6. The efficiency of the use of intercepted water to provide community, environmental and economic benefits through plantation management should be understood and compared with the efficiency, benefits and disbenefits of potential alternative water uses.

Supporting organisations:

The Australian Plantation Products and Paper Industry Council (A3P)
www.a3p.asn.au

The Australian Forest Growers (AFG)
www.afg.asn.au

The National Association of Forest Industries (NAFI)
www.nafi.com.au

Timber Communities Australia (TCA)
www.tca.org..au