WENTWORTH GROUP
OF CONCERNED SCIENTISTS

The Secretary
Senate Standing Committee on Rural and Regional Affairs and Transport
Parliament House
Canberra ACT 2600

12 March 2008

To The Secretary,

I wish to make a submission to the Standing Committee on Rural and Regional Affairs and Transport for their inquiry into Climate Change and the Australian Agricultural Sector.

The two papers included with this letter complete this submission. They are:

– A future-proofed Basin: A new water management regime for the Murray-Darling Basin
– Managing Change: Australian structural adjustment lessons for water

I am particularly concerned about the implications of future climate on Australia's agricultural industries and the need for a coordinated national response.

Yours Sincerely

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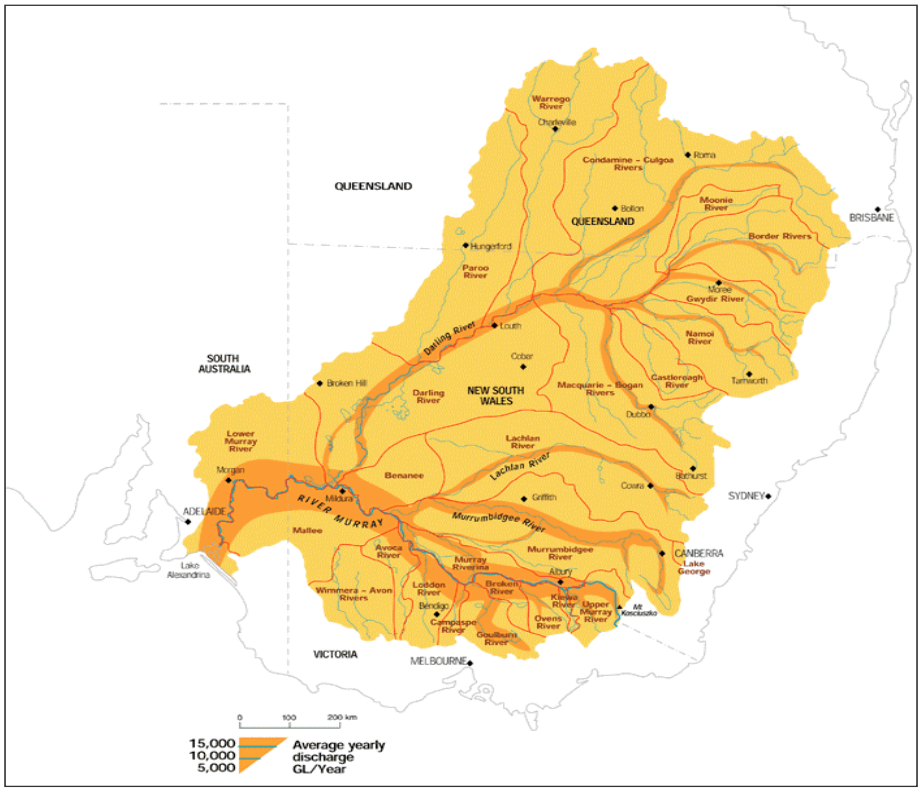
A future-proofed Basin

A new water management regime for the Murray-Darling Basin



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Preface and acknowledgements

The aim of the research that underpins this report is to use the immense experience that Australia has gained in the management of its water resources to identify robust ways to manage water resources. We would like to begin by acknowledging the support of Land and Water Australia, CSIRO Water for a Healthy Country and the University of Adelaide that has made it possible. We also acknowledge and thank our Steering Committee who have encouraged us to both search for and evaluate options for the better management of water resources, and to communicate with care and a sense of responsibility.

We would also like to acknowledge the important contribution made to this report by many people who live in the Murray-Darling Basin, who are responsible for the management and use of its water resources. We would also like to thank Fiona McKenzie from the Wentworth Group of Concerned Scientists, David Kaczan from CSIRO's Policy and Economic Research Unit and Marianne Hart from Adelaide University for tremendous support and assistance during the preparation of this report.

A much shorter and less detailed version of this report is available as a chapter in Manne, R. (ed) (2008) *Dear Mr Rudd*, Black Inc., Melbourne.

Executive summary

The Rudd Government has promised to tackle Australia's water crisis confidently, equitably and efficiently. This report proposes that this commitment be extended to put in place a suite of institutional arrangements that can be confidently explained as ones likely to *fix* Australia's water allocation and investment problems.

We urge people to begin by considering the robustness of the institutional template set out in this report and leave negotiation of the percentages and amounts of money offered to facilitate adoption of this template to a later stage.

Build on the NWI and NPWS

Many of the clues derive from knowledge about the design of robust systems. From a water perspective, this knowledge is well summarised in the National Water Initiative. Some of this knowledge is developed further in the National Plan for Water Security. Moreover, the money needed to fix the water crisis is available.

One of the key elements in the proposal is the reintroduction of an incentive payment system that rewards State and Territory governments for the delivery of agreed milestones. In the case of water reform, past experience has shown that reform is easier if agreement on what needs to be done is accompanied by an arrangement that makes delivery financially rewarding.

The Murray-Darling Basin

More than a drought

The causes of the Murray-Darling Basin's problems stem from a flawed allocation regime. Moreover, because Basin Governments could not agree, arrangements expressed in the new Commonwealth Water Act of 2007 are compromised.

The short answer to the question: "Can the arrangements set out in the new Water Act be confidently presented as likely to work well in times when water is abundant, in drought and cope during a prolonged dry period?" is NO.

The Basin's water resources, its river and aquifer environments and its people all deserve a regime that can be expected to work well in long dry periods and in times when water is abundant. The system has to be able to cope with change.

Two commitments

To fix the Basin's problems, it is necessary to put a new system in place that is designed to cope with whatever climatic conditions the future brings. Now is the time to:

1. Replace the current entitlement and allocation regime with a robust one that can be confidently explained as one that will work – work no matter what climatic future arrives.
2. Implement the resultant change in a just and fair manner.

Benefits

The main benefit of the proposal is a confident change to a system that can be expected to work – no matter what the future brings. For irrigators, the proposal also brings benefits in terms of prevention of the ongoing erosion of entitlement reliability and an end to investment and planning uncertainty. For the environment, it means a timely end to the debate about how best to resolve existing over-allocation problems. Other wider benefits include

- An efficient water trading market that reflects the value of future opportunities;
- An efficient adjustment process that establishes a 'level playing field' among all supply systems and all irrigation businesses;
- A reduction in opportunities for speculation and opportunism; and
- The immediate transfer of money to local communities in a way that will enable all to make the necessary adjustments in an efficient and socially equitable manner.

A dramatic increase in the efficiency of environmental water use and storage management can also be expected.

A new Agreement

This report proposes that the Federal Government, in partnership with Murray-Darling States and the ACT enter into a new Murray-Darling Basin Agreement that commits all to working under a system that is capable of coping with whatever future arrives. It is proposed that money to expedite the change process is made available now in a way that empowers and speeds, rather than hinders, progress.

One of the important principles of just reform is that the direction, nature and extent of the reform process must be clear. The new Murray-Darling Basin Agreement needs to bring clarity to water allocation and sharing arrangements.

Start with the southern system

The Murray-Darling Basin can be usefully partitioned into a northern summer-rainfall dominated system and a southern winter rainfall dominated system. While management in the northern Darling System needs attention, as a result of the pattern of climatic events and water allocation decisions over the last two decades, the situation in the southern River Murray System now needs to be urgently addressed.

Maintenance, shared and flood water

The report proposes that the new Agreement begins by defining entitlements and allocation rules in a manner that is consistent with the way water can be captured, stored and allowed to flow through and across land. This will require it to:

1. identify first the water needed to maintain the basic character of the system by putting aside enough water to cover evaporative losses, keep the Murray Mouth open, periodically flush some salt to the sea and provide sufficient amounts for existing stock and domestic purposes => **maintenance water**;
2. recognise that flood waters, particularly that water which can not be held in storages and is difficult to control, is best left to flow through the system in a way that minimises damage to property whilst maximising benefit to the environment => **flood water**; and
3. then formally share the remaining water between the environment and all other water users => **shared water**.

Rather than using complex planning systems to define when and how much water should be given to the environment, this report proposes that the environment be given a formal entitlement to a proportion of all allocations of water to the shared water pool. Consistent with the National Water Initiative, there would be no difference between an entitlement held by the environment and that held by any other entitlement holder.

Manage inter-connected surface and groundwater systems as one

The entire system, surface and groundwater, must be managed as a single interconnected system. For too long, the positive contribution that ground water flows make to the river and the adverse effects on river flow from land-use changes, like increased forestry, more farm dams and increases in saline water interception – have not been properly accounted for. If efficient investment decisions are to be made, if communities are to prosper and the environment's interest is not going to be continuously eroded, the practice of granting two or more people the opportunity to take the same water in the same year but at two or more different places has to stop.

Establish a Basin water entitlement register

The existing suite of allocation rules and the Cap on water diversions can be replaced with a Basin water entitlement register that defines bulk entitlements to receive allocations to the southern River Murray System's shared ground water and surface waters.

Appoint a Murray-Darling Basin Authority responsible for the integrity of the Basin entitlement register

A Murray-Darling Basin Authority needs to be appointed and made responsible for, amongst other things, making allocations across the system and to bulk entitlements, requiring the effects of adverse land-use change and other interception activities to be offset, and maintaining and enforcing the integrity of the Basin entitlement register. Penalties for using water without an allocation would apply equally to States and the ACT, irrigators and everyone else.

Working cooperatively with States

To bring integrity back into the system, a take over of the entire system is not necessary. Land-use control remains in the hands of States and the ACT and, as is the current case, responsibility for water delivery is left in the hands of government-owned and irrigator-owned water supply businesses.

No special treatment for the environment

The environment's entitlement to shared water would be defined in exactly the same way as all other shared water entitlements. In order to allow local catchment boards and communities to plan with confidence, the majority of these environment entitlements would be held by regional environment trusts.

In order to allow the environment to pay its way, the amount of shared water entitlement allocated to environment trusts should be large enough to enable them to recover costs by periodically selling water allocations. It should be possible to make tax deductible donations to these trusts and for them to enter into counter-cyclic trading agreements.

State and ACT Ministers would be responsible for appointing trustees who, by definition, would be the guardians of that water. In order to allow the pursuit of system-wide initiatives, a proportion of environmental entitlements should be placed in a system-wide trust.

Improve water trading processes

Under the current regime, it is possible for an interstate entitlement trade to take months to complete. The new system needs trading rules and processes that enable electronic trading across State boundaries so that allocation trades can be completed instantaneously and all unencumbered entitlement trades completed within two days.

Carry forward allowed

Each State, the ACT and all bulk water entitlement holders would be free to use, trade, or with an adjustment for evaporative and seepage losses, carry forward and store any water allocation made to them.

Fix the system properly, fix it now

Beginning in the southern River Murray System, it is proposed that as soon as a new Agreement can be put in place and approved by the Parliaments of all participating Governments, existing entitlement holders can be informed of the nature of the changes to the bulk entitlement system and when the change will be made.

In order to prevent flood damage, water-users would need to understand that the system manager may decide to spill stored water when a storage is more than, say, 85 per cent full. When spilt, shared water would be redefined as floodwater and managed by the Authority as it flows through the system.

The $10 billion over 10 years or $5 billion now?

Under the National Plan for Water Security it was proposed that $10 billion be invested in the Basin over 10 years. When discounted at a rate that recognises inflation and the opportunity cost of money (10%), the present value of the money on offer to the irrigation industry to secure water for the environment and for system modernisation is just over $5 billion. It is proposed that money to expedite the change process in the southern River Murray System is made available in a way that empowers and speeds, rather than hinders, progress.

Just financial recompense

When property rights are changed quickly, compensation is justified – especially when delivered fairly and in a manner that facilitates and expedites the adjustment processes. To treat irrigators fairly, it is necessary to provide them with early financial recompense for the likely impact of the change, and do so in a way that enables them to plan for change.

At a time when little water is available and all are searching for more efficient ways to use water, as soon as the new Agreement can be ratified by State and the ACT Parliaments, an up front compensating payment could be made to each entitlement holder.

Facilitating adjustment

It is suggested that $500 million be set aside for the northern Darling System. For the southern River Murray System, $1 billion could be set aside in an inflation proofed fund for the reconfiguration of any supply systems which become redundant as a result of these reforms. The remaining $3.5 billion of $5 billion should be made available as quickly as possible.

Given budget realities, 50% could be transferred as soon as the new Agreement is adopted, with two further equal 25% payments at the start of each of the next two financial years. If reinvested, these payments should not be subject to capital gains tax.

If States and the ACT can agree to this proposition quickly, the first payment could be made in the 2008/09 financial year. In order to expedite the adjustment process, during the two following years, all government water trading charges could be waived. In addition, it would be possible to reimburse water supply companies for the loss in revenue caused by the transfer of water from their system to the environment.

Under the new regime, the environment would be given a share and its trustees required to manage it in an efficient and accountable manner.

How fast a change?

Rather than a complete step change, there is an option to phase in the change in the balance between consumptive use and the environment over several years. But time, especially in the southern River Murray system, is not on the Basin's side. The slow incremental reform processes that have characterised the last decade of water reform have not served the Basin well. In our view, provided that adequate financial recompense and sufficient warning is given, the proposed step change is preferable to avoid the uncertainty of a long drawn out adjustment process.

Review system size and configuration

Finally, at the time of writing this report, the southern River Murray System is virtually out of water. Many wetlands have already been closed, and the level of Lake Alexandrina and Lake Albert is now below sea level. If this coming winter does not deliver well above average rainfall, a review of system size and configuration, and, in particular, a decision as to how best to downsize the entire system should be undertaken.

It may not be possible to keep all environmental assets and all irrigation systems going. Parts may have to be abandoned, or accepted as changed forever.

A future-proofed Basin

In summary, it is time to reset the system now. The biggest mistake this nation could make is to expend $10 billion and take 10 years to only partially fix the Murray-Darling Basin's problems.

A new Murray-Darling Basin Agreement is needed. This new Agreement must be more than a general plan. It must be a co-operative inter-state Agreement that rises above politics, and its implementation and management must not be subject to the whims of ministers or other authorities. It is time to stop incremental approaches to water reform and return to a focus on getting the fundamentals right.

Now is the time to confidently inform those who depend upon, and love the Murray-Darling Basin, what type of future they, and the system, can expect.

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A future-proofed Basin: A new water management regime for the Murray-Darling Basin

> "*A Rudd Labor government will tackle the water crisis with a national plan to invest in water infrastructure, sustain our farmers, revitalize our rivers and water ways, secure water supplies and adapt to climate change".*
>
> ALP Policy Document, November 2007

The first and arguably most important test of the new Rudd Government's capacity to fix the national water crisis will come in the Murray-Darling Basin and more particularly, in the southern half of the Basin. This region is often described as the River Murray System, where the river system, its aquifers, its environment and the livelihoods of people who depend upon it are under threat.

National water reform has been part of federal Labor's agenda since the late 1980s. Working collaboratively with states, its first major contribution was the development of the current Murray-Darling Basin Agreement, which all participating governments agreed to in 1993. This was followed by the inclusion of the water-reform agenda in CoAG's 1994 National Competition Policy. One of the pioneering features of this National Competition Policy was a condition that state and territory government access to competition payments would be limited to those who delivered the agreed reforms, including a number of critically important water reforms, on schedule.

The Rudd Government's election statement on water acknowledges the problems are due to much more than the current drought. Reforms over the past decade have been incremental, uneven and too slow.

The National Water Initiative, agreed to at CoAG in 2004, provided a great platform for change because it committed governments to:

- identifying and restoring over-allocated water systems to sustainable levels;
- expanding water trading;
- releasing environmental flows for rivers;
- ensuring secure water access entitlements;
- improving reporting and accounting of water use;
- introducing transparent water planning;
- improving the management of water in urban environments; and
- full cost pricing in a way that reflects environmental costs.

The National Water Initiative is acclaimed as a uniquely clear statement of international best practice in water management. When the NWI was negotiated, it was decided that it was no longer necessary to make delivery of agreed milestones a necessary condition for states to receive competition payments.

Unfortunately, without the financial discipline imposed by competition payments on state and territory governments, water reform progress has slowed to a snail like pace and, to make matters worse, many of the old *ad hoc* water policy and administration habits have started to return.

The Murray-Darling Basin

While progress has been made in the Murray-Darling Basin, many National Water Initiative commitments have yet to be met.

While all participating governments agree that the current water allocation regime needs to be changed, lack of cooperation and fundamental flaws in the existing Murray-Darling Basin Agreement have hampered progress. Because we have glued a water-trading system onto an allocation regime that was never designed for the world we now find ourselves in, the system is going backwards faster than reforms are taking it forward.

As many are aware, the southern part of this system is now seriously over-allocated. Moreover, as a result of the shift to a long dry period, like several of those experienced in the first half of last century (Figure 1), the lower part of this system is now being run below empty. This is not sustainable.

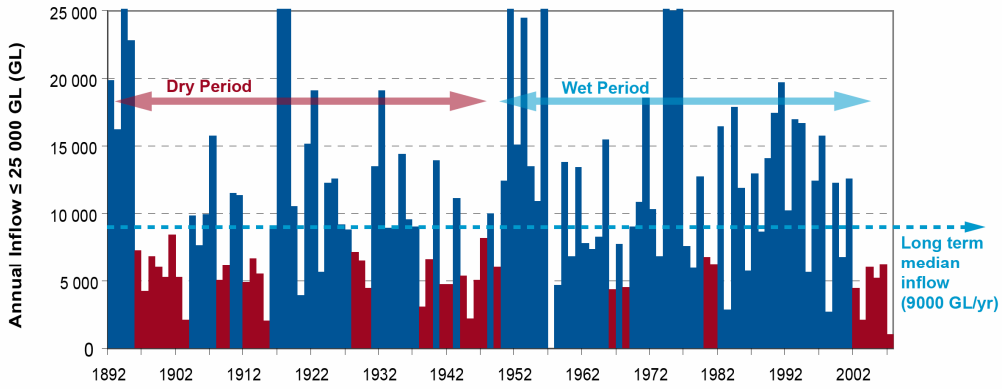

Figure 1 **A century of knowledge about the Murray Darling System - total annual inflows. Extended droughts shown in red.**

We are living in the 21st century and it is time to reshape, time to future proof the system by decoupling it from the past – decoupling it from all the arrangements that cause problems.

To fix the Basin's problems, it is necessary to put a new system in place that is designed to cope with whatever climatic conditions the future brings. Now is the time to:

1. Replace the current entitlement and allocation regime with a robust one that can be confidently explained as one that will work – work no matter what climatic future arrives.
2. Implement the resultant change in a just and fair manner.

A new Murray-Darling Basin Agreement

The proposition put forward in this report is that the Federal Government, in partnership with Murray-Darling State governments and the ACT government put in place arrangements that will withstand the test of time – no matter what climatic future arrives. This will require a new Murray-Darling Basin Agreement.

The southern River Murray System is heavily dependent on winter rainfall and storage, while much of the northern part of the system relies on episodic summer rainfall and the 'harvesting' of water by irrigators as it flows past their properties.

The good news is that the need for reform is less urgent in the summer rainfall driven northern Darling System. Rather than trying to fix the entire system in one hit, reform implementation can start in the southern River Murray System that encompasses the Murrumbidgee, River Murray, the Lower Darling and main Victorian tributaries to the River Murray.[1]

Significantly, the proposition can be implemented co-operatively with the States. It does not require a federal take-over of the entire allocation system. However, it will require a resetting of the system in a way that is just and fair and empowers local communities. The new Agreement will need to:

- Introduce a new bulk water sharing regime for the southern system;
- Manage the connected ground and surface water system as one;
- Remove water accounting flaws from the system;
- Create a water right for the environment;
- Establish environment trusts;
- Decide how hard to work the River;
- Replace the Cap with bulk entitlement shares;
- Appoint an Authority to allocate water to all bulk entitlement holders;
- Establish a Basin entitlement register;
- Create consistency among states in entitlements;
- Provide guaranteed allocations;
- Retain key State responsibilities;
- Empower the water market;
- Ensure a fair and equitable transition;

[1] If New South Wales and Victoria agree this could include the Lachlan and Wimmera systems.

- Improve water trading processes, and
- Allow water allocations to be carried forward.

If the Commonwealth, participating States and the ACT are prepared to sign-off on these core features, then we will have the opportunity to break the current impasse, get the details right and launch a new era in the management of the Murray-Darling Basin and its people.

In the southern River Murray System, the main difference between this proposal and that proposed under the Water Act 2007 is the upfront commitment to giving bulk entitlement shares to each State and the ACT and the environment, to bring an end to all processes that are undermining entitlement reliability, and to commence an adjustment process that is more predictable because the nature of the final outcome is predetermined.

The proposal also raises the question as to whether or not it will be possible to retain all environmental assets. Parts of the system may have to be abandoned, and we may have to accept that some parts have changed forever.

The following provides more detail supporting the listed elements of the proposed new Murray-Darling Basin Agreement.

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A new bulk water sharing regime for the southern River Murray System

One of the essential building blocks for the proposed new agreement is a new water bulk water sharing regime for the southern River Murray System.

If the system is to be robust enough to work no matter what climatic conditions the future brings, the allocation regime must be aligned with hydrological realities and defined in a way compatible with processes such as evaporation, storage and flow across and through land.

The southern River Murray System is characterised by a set of linked and interdependent dams, weirs, locks, lakes and barrages that collectively cause much water to evaporate.

Thus, the first step to a robust regime is to differentiate between water needed to cover evaporative losses and keep the Murray Mouth open; flood water; and water that can be shared between the environment and irrigation and other consumptive water users. The new Agreement needs to:

- Set aside enough **maintenance water** to allow for evaporative and other losses, existing stock and domestic uses[2] and to flush a small amount into the sea.[3]
- Leave **floodwater**, when it arrives, to be managed in a way that maximises environmental benefit whilst minimising damage to property.
- Define the remaining water as **shared water** and put in place a regime that entitles all users and the environment to a share of any allocations made to this pool of water.

Some may prefer to think of the maintenance water as a base flow but it is more than this. Without this minimal amount of water in the system, no-one can access water. Without it, there is no system as we know it. Pragmatically, and as this water will always be taken, maintenance water needs to include a provision for existing stock and domestic water.

At the end of this report, we also raise the question of whether or not the system should be reconfigured in a way that reduces the volume of water needed to maintain the system.

The maximum size of the shared water system is defined primarily by the volumetric capacity of the existing storage system. In most parts of the system, it would also be necessary to assign delivery entitlements to manage congestion through the Barmah Choke and within some water supply systems and, as already happens in the continuous accounting systems used in Queensland, make efficient trade of delivery entitlements possible (Figure 2).

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[2] The emphasis here is on existing stock and domestic uses which in most cases are unmetered. As far as possible, these uses should be metered.

[3] Scientists analyzing this part of the system think that the absolute minimum necessary is around 200 GL.

Total evaporative losses from the southern River Murray System are in the vicinity of 1,800 GL per year. We imagine that something like the first 2000 GL of annual inflows would be defined as maintenance water.

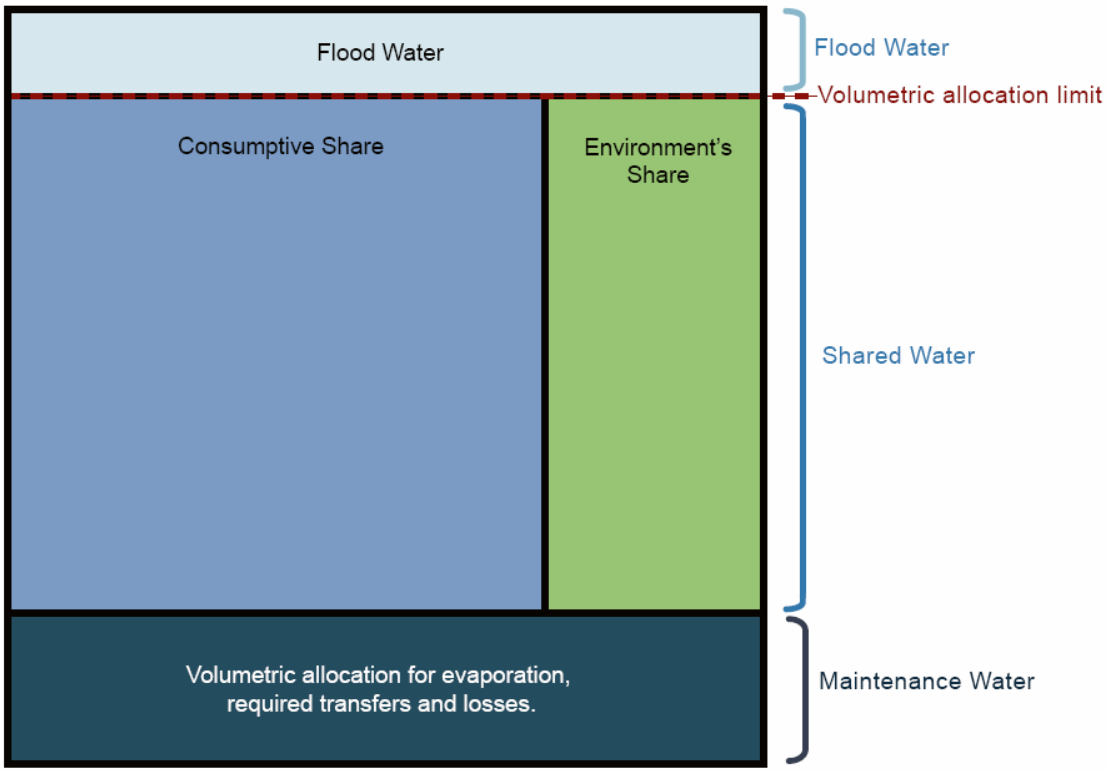

Figure 2 **Basic structure of the proposed regime**

Manage connected ground and surface water systems as one

In addition, the new Agreement needs to recognise the high degree of connectivity among the Basin's unconfined aquifers and its rivers. Whenever more groundwater is used, less water ultimately enters the river. The new Agreement thus needs to:

- Define all groundwater as part of the system and use a similar sharing system to allocate entitlements to take water from it.

As part of the process of managing system interconnectivity, it will be necessary to define the proportion and volume of groundwater in each part of the system that transfers to other water bodies.

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Remove water accounting flaws from the system

We cannot go on ignoring the fact that the current water accounting and allocation processes are undermining progress at a faster rate than water reform is driving the health of the southern River Murray System forward. It is time to get the basics of water allocation and accounting right. In particular, we need to stop the practice of defining water and land-use opportunities in a manner that allows the same water to be taken by two or more different people in two different locations. Whenever this happens, either someone else or the environment loses.

Too many actions that reduce flow and debase entitlement reliability are still allowed to occur. The list is long and includes the expansion of forestry in high rainfall areas, the continued construction of small farm dams and also the increased interception and evaporation of saline groundwater. Whenever any of these activities occur, either allocations to the water users or allocations to the environment are reduced.

Flawed allocation practices, like those described above, undermine the integrity of the entire system and debase the value of entitlements. It is time to fix them. Allocation policies must not allow the actions of one party to undermine the interests of another.

In short, the new Agreement must put in place an entitlement and allocation regime that is consistent with the way that water flows across the land. It is time to:

- Require the offset of the adverse effects on supply reliability of all water interception activities such as forestry in high rainfall areas, the building of more farm dams and the construction of salinity interception schemes.

Coordinated by the Authority, the States and the ACT would be required to establish and manage offset arrangements. Such arrangements could be administered by government agencies, catchment boards, or local governments.

This new approach, designed to prevent land use changes from undermining the reliability of the entitlements held by irrigators and the environment, should commence as soon as the new Agreement is put in place.

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Create a water right for the environment

As proposed in the National Water Initiative, we need a revolution in environmental management that gives environmental water the same degree of security given to all other water-users. We need managers responsible and accountable for managing environmental water in the best interests of the environment.

One of the features of the proposed new entitlement regime is that the environment is given an entitlement to receive allocations in exactly the same way as all other entitlement holders do. Thus:

- In every part of the system, the environment must be given a formal entitlement to a proportion of all allocations to shared water.

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Establish environment trusts

Some environmental water needs to be held centrally, but most of the environment's entitlement can be placed under the control of local or regional environment trusts. These environment trusts should be independent of ministers and other agencies, and should work in partnership with catchment boards and local communities to ensure that the water under their control is used to deliver the best environmental outcomes possible.

- The majority of shared water entitlements assigned to the environment should be placed in regional environmental trusts and a small proportion held centrally in a system wide trust.

Pragmatically, we suggest that the boundary of a regional environment trust's responsibilities should align with catchment board boundaries, and include responsibility for the management of all icon environmental sites within their boundaries.

By placing this water in regional trusts, environmental managers will, for the first time, be able to decide when, and how, to apply water to land. Empowered in this way, a dramatic improvement in the efficiency of environmental water use can be expected. Local environmental managers will be able to plan confidently and respond quickly when opportunities arise.

The role of governments is to define environmental objectives and to appoint the people to be responsible for determining where, and when, the environment's water should be used. At the local level, environmental managers, like irrigators, need to be empowered to make decisions in a timely manner. Therefore the new Agreement should:

- Assign responsibility for appointing environmental trustees and defining the regional trusts' objectives to the States and the ACT.

With responsibility and accountability, the environment must be seen as an equal partner in the system. Amongst other things, this means that environmental trusts must be required to pay their way, and should be expected to be as innovative as we expect irrigators to be.

One of the simplest ways of enabling the environment trusts to pay their way is to assign enough water to each trust to enable its managers to sell sufficient water allocations on the water market to recover costs. Thus, when deciding how large to make the environment's entitlement as a proportion of the shared pool:

- The amount of shared water entitlement allocated to environment trusts should be large enough to enable them to recover costs by periodically selling water allocations.

Under this proposal, each environment trust would be eligible under the Income Tax Assessment Act to receive tax deductible donations of water entitlement shares and/or allocations.

Each regional environment trust should also be able to enter into counter-cyclic trading[4] and long-term water sharing agreements with other entitlement holders.

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Decide how hard to work the River

Perhaps the most difficult element of this proposal is to determine the volume of maintenance water to set aside, and then to determine initial proportions of shared water to allocate as shares to each State and the ACT and to the environment.

With regard to the mix between the environment and consumptive users, we could begin by asking: "How hard should the River Murray be worked?" International standards for very hard working rivers (like the southern River Murray system) suggest that no more than 50% of all inflows on average should be used for consumption.

Assuming a continuing community preference for working this River and its associated aquifers very hard, and given that system maintenance water is first set aside and that all floods go to the River and its water dependent ecosystems, an indicative proportion of shared water to assign to the environment could be in the vicinity of 20%.

Many will argue that 20% or, perhaps 25%, is either too much or too little to assign to the environment. If this proposition is accepted in principle, the final proportion should be determined only after careful scientific analysis and widespread community consultation.

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[4] Environmental and other user needs can be counter-cyclic to one another. Environmental managers, for example, can be very interested in turning a high river -flow event into a managed flood and may be prepared to contract with other entitlement holders to have access to more water during such times on the condition that the other entitlement holders have access to a larger volume during dryer times.

Ultimately, any decision about how healthy the River Murray and its tributaries should be, and what proportion of shared water is required, is a matter of judgement. *Scientists can have their say but, at some point in time, participating governments will need to collectively decide on a proportion to allocate to the environment, and accept the consequences of and challenges that come with that decision.*

Once a proportion is decided upon at a system level, further analysis will be necessary to assign environmental entitlements to regional environment trusts.

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Replace the Cap with bulk entitlement shares

The Basin's current limit on water-diversions – a cap on the use of surface water and the associated water-allocation rules – is incapable of dealing with the situation we are now facing. The current agreement was designed for a specific climate with higher rainfall. Now that patterns have shifted, the move from a fully to an over-allocated system has been inevitable and swift. The new agreement for the southern River Murray System should:

- Replace the existing cap and limit on water extractions and associated sharing rules with a bulk entitlement system that is enforceable and underpinned by an accounting system that has integrity.

One of the flaws in the current allocation system is that it was not designed to work during long dry periods such as that which occurred when Australia was federated and the dry period that started in 1938 and ended twelve years later in 1950. Critically, by drawing a clear distinction between maintenance water, shared water and flood water, it is possible to put in place a regime that can be expected to work in wet and prolonged dry periods.

In the southern River Murray System and in most groundwater systems, the entitlement would be to a share of allocations made.[5] Allocations would be volumetric. Shares would be unitised in the same way that company shares are defined.

In most parts of the system, it would also be necessary to assign delivery entitlements and, as already happens in the continuous accounting systems used in Queensland, make efficient trade of delivery entitlements possible.

[5] In episodic systems, especially those that are dry for part of the year, sharing rules need to be more complex and constrained by river height, etc.

One of the merits of assigning water entitlements as shares is that the entitlement system does not have to be changed if, and when, climate change occurs. If it gets drier, then allocations per share are reduced proportionately. All shareholders are expected to manage with the water assigned to them. All shareholders have the capacity to manage supply risk by carrying forward water and, within delivery limits, decide when to use water.

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Establish a Basin water entitlement register

An indicative template for the structure of the proposed bulk entitlement register to be set up in each part of the system is set up in Figure 3 below.

Under the new Agreement, no State or Territory and no individual should be allowed to cheat. Practices such as those that have allowed some States to exceed the Cap should not be allowed to continue.

The penalty for taking water without an allocation should be the same for a State or Territory, an irrigator, an environmental manager and any one else. At a Basin level, the penalty for taking water without an allocation should be something like five to ten times the market value of the water taken. Among other things, this requires:

- The establishment of a Basin water entitlement register that defines bulk entitlements to receive allocations, and assignment of complete responsibility for allocating water to an independent, expertise-based Authority.
- The introduction and enforcement of penalties for taking unallocated water. These must apply equally to the States, the ACT, irrigation companies, entities responsible for managing environmental water and all other parties.

One of the features of the proposed Basin water entitlement register is that it would be possible for any person or any State or Territory to convert their current entitlement into an entitlement that is registered *only* on the Basin register.

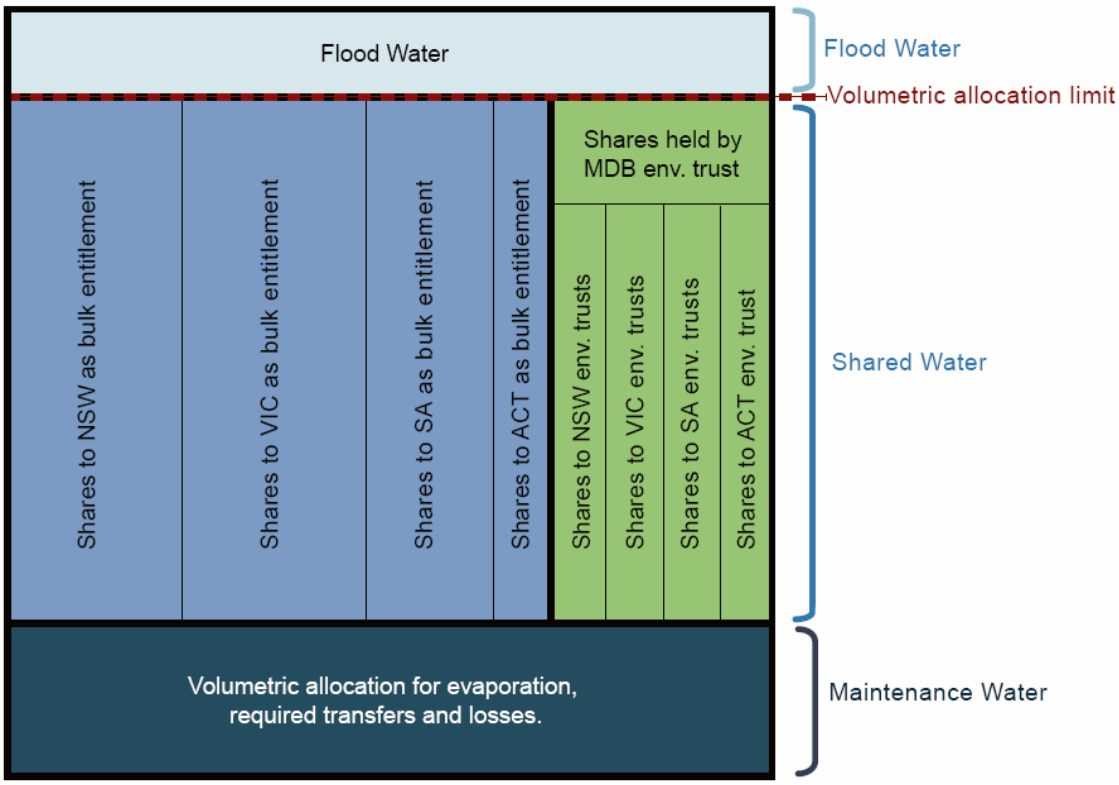

Figure 3 **Indicative template for the proposed allocation regime in each part of the southern River Murray system. Each State share could be further divided into high and low security entitlements (Not to scale)**

Existing hydrological models could be used to define the boundaries of each part of the system. There is also a question as to whether or not the Snowy system should be included within the new regime or treated as an external source of water that becomes available for allocation whenever it arrives.

*

Appoint a new Authority to allocate water to all bulk entitlement holders

The Rudd Government has committed to taking the politics out of the water business, and also endorsed the thrust of the National Water Initiative and the $10 billion National Plan for Water Security. This last decision includes support for an independent, expertise-based Murray-Darling Basin Authority. Allocation decisions should be made using the best available science, information and expertise. The new Agreement must therefore:

- Establish an independent, expertise-based Authority responsible for allocating groundwater and surface water, informed by the best available science.

Rather than a Cap on diversions, we need a regime that requires a limit on allocations to the shared water pool.

Under the new regime, it is critical that water markets should operate in a fair manner that gives all participants an equally informed opportunity to be active in the market. In particular, allocation announcements should always be made in the same way. Like the Reserve Bank, the Authority should be required to communicate with great discipline and always be mindful of the weight given to its statements. The new Authority must be required to:

- Give all stakeholders an equal opportunity to access information about likely and actual allocation announcements.

*

Create consistency among States and ACT bulk entitlements

Entitlements throughout the system should be defined in the same manner. For example, the existing annual entitlement to minimum flows into South Australia would be replaced with a bulk water entitlement to its share of the system. South Australia would then be able to allocate this water to all users including irrigators and those in its urban centres. The Basin Authority and environment trusts would be responsible for maintaining essential river functions, and the environmental trusts would be further responsible for looking after the environment's interests. As a result, the status of South Australian water-users would be no different from that of any other water-user in the system.

As part of the process of sorting out the detail, States/Territory can be expected to want to split the shared water pool into high and low security entitlement water. If this is done, in order to climate-change-proof the relationship between high and low security water, it will be necessary to keep a degree of balance between them. One way of doing this would be to define the maximum size of the volume of high security water as an entitlement to a percentage of the moving average of the last, say, ten years' allocations to the shared water pool.

Using a similar moving average allocation rule, the States and the ACT may wish to create an extremely secure pool to provide for essential urban, industrial, mining and other needs. If agreed, this could be included in the bulk entitlement regime.[6]

The models that underpin the CSIRO Sustainable Yield study could be used to help determine ground-surface water system transfer obligations and the most appropriate number of shares to issue in each groundwater system.

*

[6] Each State and the ACT would also be able to provide for such an arrangement as part of their own system. It would also be possible to include such a provision in the maintenance water pool.

Provide guaranteed allocations

Allocations made by the Authority to bulk water entitlements should be conservative. Unless a calamitous event occurs, such as the failure of a dam, all allocations should be guaranteed as being available for delivery.

*

Retain key State responsibilities

It is neither necessary nor appropriate for the proposed Authority to control everything. Under the proposed regime and nested under the bulk entitlement register, the States and the ACT would still be able to retain their existing register and entitlement systems.

Furthermore, over the last decade, one of the important reforms delivered by the States has been the separation of water licences into formal access entitlements and approvals for water use at specific locations. Allocations are now made in proportion to each entitlement and can be traded without touching the entitlement.[7] As a result of these reforms and through the use of normal development and catchment management processes, land-use can be controlled separately from water. Thus, under the new Agreement:

- Responsibility for control of land-use and water-use practices should remain with States and the ACT on the understanding that they deliver agreed salinity and other water-quality management targets, and manage offset arrangements for the adverse effects of water interception activities.

The proposed new Agreement should enable individuals and/or any consortia to earn and trade salinity credits.

Similarly, as a result of a decade of water reform, state-owned and irrigator-owned water supply businesses now deliver water allocated to water users. The new system could continue to:

- Use business structures to run and maintain system infrastructure and recover the costs of doing this from water users.

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[7] Under the old regime, an allocation trade was called a temporary trade because it was implemented by temporarily transferring the entire entitlement to another person, removing the allocation from the entitlement and then transferring the entitlement back to the original owner.

Empower the water market

Buying water for the environment is one of the most effective ways to restore over-allocated systems to sustainability. However, under the National Plan for Water Security, buying water for the environment to achieve the volume proposed threatens the viability of the entire water market. In effect, this would result in the gradual buy back of water for the environment over each of the next 10 years at an annual rate that, in all but this financial year, is greater than the value of all the water entitlements that have ever been sold in a year (see Figure 4).[8]

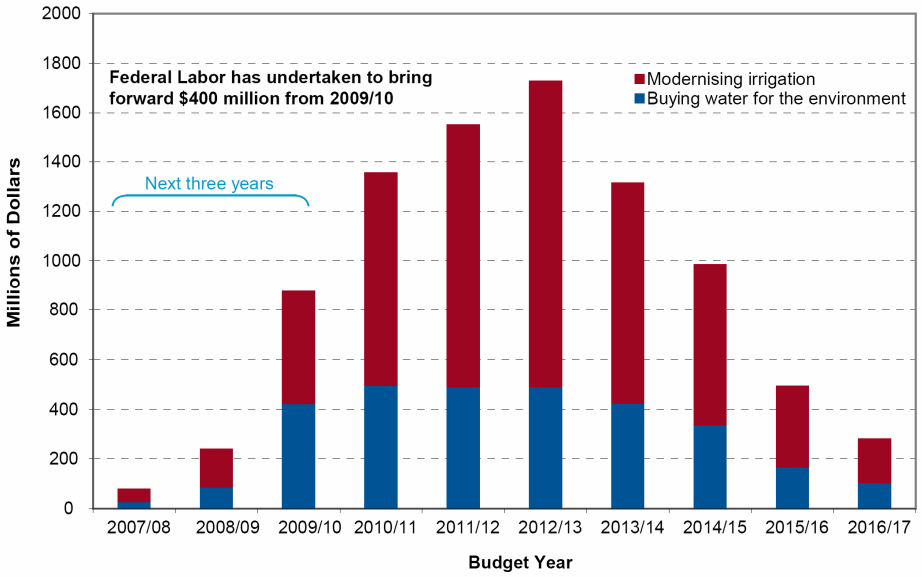

Figure 4 **National Plan for Water Security budget for modernisation and the purchase of environmental water as presented in budget papers for 2007/08**

The result would be an increase in water prices to the extent that no irrigator would be able to compete with the environment's water purchaser. The entitlement market would be wrecked and any structural adjustment that required the purchase of a water entitlement financially impossible.

This proposal presented here removes the need for the government to directly enter the water market and buy water entitlements for the environment. Instead, the environment is given an entitlement to receive allocations in exactly the same way as all other entitlement holders do, with compensation paid for this change in regime. The approach allows the water market to continue to do what it does best – to continuously reveal and recalculate the value of future opportunities to use water.

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[8] Estimates of the maximum value of permanent entitlement trades in the Southern Connected River Murray System, suggest that the maximum total value of water entitlements sold separately from an accompanying land transaction is in the vicinity of $100 million per year.

Under this proposal, the water market would continue to operate. Market prices would be determined by buyers without government interference. If the alternative market purchase approach is taken, no one other than the government will be able to afford to buy water. For the next decade, all others would be forced to stand still and watch opportunity after opportunity go past as the government tries to fix up a past mistake.

*

Ensure a fair and equitable transition

In announcing the step change to a new robust regime that is designed to work in all circumstances and conditions, it is necessary to treat those dependent upon the system fairly and equitably. This will require the Federal Government to:

- Compensate entitlement holders and water supply companies for the impact of the change on their livelihoods and on the value of capital assets, and assist them to adjust rapidly to the new regime.

The Howard Government's National Plan for Water Security put aside $10 billion, with $8.9 billion to be spent on modernising irrigation and purchasing water for the environment. Under this Plan, it is proposed that this money be spent over the next 10 years, with most not becoming available until after 2010.

Discounted at 10% to allow for the time delay of expenditure over the 10 year period and for inflation, the present value of the total of $8.9 billion on offer to the irrigation industry is a little over $5 billion.

It is suggested that the northern Darling System should have access to a fair share of the funds set aside under the National Plan for Water Security. For the purposes of discussion, we suggest that an appropriate amount to set aside for the Darling System would be in the vicinity of $500 million or thereabouts. This would leave around $4.5 billion for use in the southern River Murray System.

$1 billion could be set aside in an inflation-proof fund for the efficient reconfiguration of any parts of water supply systems that become redundant as a result of adjustment to the new management regime. The remaining $3.5 billion could be used to provide financial recompense to the industry for the change in the way that State entitlements are defined, the redefinition of the environment's entitlement, the change in the value of the industry's capital assets, and for the social impacts on each person's livelihood.

How this $3.5 billion is partitioned between irrigators and water system managers is a matter that requires careful consideration and further analysis. One option would be to provide a payment to each irrigation company equivalent to the termination fee these companies would be entitled to recover as a result of the increase in the environment's share and the transfer of this water out of their supply system.[9]

In order to ensure that all have sufficient opportunity to plan for the proposed step change, payments should be made several years in advance of the proposed change to the bulk water entitlement regime. Providing sufficient time and money is made available, all irrigators and all water supply companies involved would then plan for and put in place strategies to enable them to adjust. Pragmatically, payments to each irrigator could be in proportion to the current market value of their entitlements.

In our view, this approach is likely to be much more cost-effective and fair than one that requires entitlement holders and water supply companies to develop modernisation proposals and apply for money to implement them. In particular, it would ensure that those who have already modernised their farms and their supply systems are not dis-advantaged. Consistent with National Water Initiative compensation and pricing principles, a level "adjustment playing field" would be put in place.

When assessing whether or not the proposed transitionary arrangement is fair and just, consideration needs to be given to the value of preventing the ongoing erosion of entitlement reliability. Consideration also needs to be given to the value of the planning and investment certainty provided by the assignment of formal share of shared water to the environment. Other wider benefits of the proposed step change include:

- An efficient water trading market that reflects the value of future opportunities;
- An efficient adjustment process that establishes a 'level playing field' among all supply systems and all irrigation businesses;
- A reduction in opportunities for speculation and opportunism; and
- The immediate injection of money into local communities to facilitate adjustment in an efficient and socially equitable manner.

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Implementation

As soon as a new Agreement has been approved by all Murray-Darling State Parliaments and the ACT Parliament, payments could be made to all likely to be affected by the proposed new system.

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[9] The most recent ABS survey data suggests that there 15,496 agricultural establishments involved in irrigation in the Murray-Darling Basin and 12,478 agricultural establishments involved in irrigation in the southern Murray System (see ABS Publication 4618.0).

If fiscally possible, the cheques could be for the full amount to be paid. Alternatively, the first payment could be for, say, 50% of the total amount to be paid and accompanied by a statement indicating how much more money would be sent at the start of the next fiscal year and, if absolutely necessary, the year after that.

All payments would be made on the understanding that, in two irrigation seasons' time – in July 2010 – the new future-proofed water-allocation regime would begin.

If it remains dry over the next few years, considerable structural adjustment may be needed. Some irrigators will choose to leave the irrigation industry, others will choose to buy additional entitlement shares. Many will choose to invest the money in the development of more efficient systems.

If the money received is reinvested, it should not be subject to capital gains tax.

During this adjustment period, it will be critical that all impediments in the water market are removed.

In order to encourage structural adjustment and rationalisation of supply systems, at least until 2011, all government water-trading charges should be waived.

As part of the process of fixing water, it will be necessary to communicate carefully with all those living in rural communities about the nature and extent of the change that could be expected.

Fixing water is also about fixing the communities who have found so many of the past attempts to manage water unsatisfactory. It needs to be stressed that the vision is to put in place, once and for all, a system that can be expected to work no matter what climatic conditions the future brings.

How fast the step change is then implemented needs careful consideration. Rather than a complete step change, there is an option to phase in the proportion of shared water assigned to the environment over several years. A variant on this option would be to begin by allocating a smaller proportion to the environment and then using a voluntary share buy-back process to secure the remainder in a timely manner. It is also possible to buy water for the environment before the proposed step change to a new regime is implemented.

If the money is transferred at least two years in advance of the step change, all irrigators would have sufficient time to consider how best to adapt. In our view, therefore, provided that adequate financial recompense *and* sufficient warning of the change is given, a complete step change that involves all irrigators is preferable to the uncertainty of a long drawn out adjustment process.

Implementation of this proposed step change would need to be coordinated with existing regional assistance and structural adjustment programs. Existing commitments to purchase environmental water should still be honoured.

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Improve water trading processes

It is also time to put in place inter-state water trading arrangements that are as efficient as those found anywhere in the world. In practice, there are two water markets: a market where entitlements, like company shares, are traded, and a market where seasonal allocations, which are more like dividends, are traded.

One of the biggest impediments to improvement in the way water is managed is the presence of a significant number of extremely inefficient administrative practices. Under the current regime, it is possible for an interstate entitlement trade to take months. Under the new regime, it should be possible for entitlement trades to be executed as quickly as company shares can be traded on the stock market. It should also be possible for allocation trades to be executed in the same way that money can be moved from one bank account to another. The system therefore needs to:

- Establish trading rules and processes that enable electronic trading across state boundaries so that:
  - all allocation trades can be completed instantaneously, and
  - all unencumbered entitlement trades can be completed within two days.

*

Allow water allocations to be carried forward

In the northern Darling System, a significant water reform has been the conversion of a number of the existing entitlement regimes into ones that allow irrigators to decide whether or not to leave water in storage, use it or sell it. When water is left in storage, the amount stored is adjusted for evaporation. As a result, supply risk is managed largely by individual water users and governments do not have to decide between how much water to save and how much water to allocate each year.

In a climate where both long-dry and long-wet periods can occur, every user is better off with an opportunity to decide how much water to use and how much to keep in storage. The next core element to be included in a new Murray-Darling Agreement is therefore to:

- Allow all entitlement holders – all irrigators and all environmental managers – to carry forward allocations with adjustment for evaporative losses and seepage.

In order to prevent flood damage, water users would need to understand that the system manager may decide to spill stored water when a storage is more than, say, 85 per cent full. When spilt, such water would be redefined as floodwater and managed by the Authority as it flowed through the system.

In some parts of the system, because of limitations on the capacity to deliver water for use, separate delivery entitlements will need to be assigned to water access entitlement holders. These delivery entitlements should be tradeable.

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Review system size and configuration

Exceptional rains may get the southern River Murray System out of trouble but, by the end of this irrigation season, it is still possible that River Murray System dams will be nearly empty and that well over forty wetlands and lakes will have been dried out. At the time of writing, the water level in Lake Albert and Lake Alexandrina is predicted to be more than half a metre below sea level.

Recent rain is helping, but the amount of water necessary to fill this system back up to 'empty' is more than has flowed into the southern River Murray System during the past year. Several years of above-average rainfall are needed. If significant amounts of rainfall are not received by the end of August 2008, it would be wise to:

- Commission a formal review of opportunities to downsize and reconfigure the southern River Murray System.

It may not be possible to keep all environmental assets and all irrigation areas going. Parts of the system may have to be abandoned, and we may have to accept that parts may have changed forever.

Another important reason for commissioning a formal review of opportunities to downsize and reconfigure the southern River Murray System is the prospect that we may be experiencing a shift to a drier regime.

In Mediterranean climates, a 1 per cent decline in mean rainfall typically produces a 3 per cent decline in the amount of water that flows into the system. Australia appears to be getting drier. In Perth for instance, since 1974, the amount of water in storage has never reached the average amount that was available before that year. Very small reductions in mean rainfall can result in very large reductions in the amount of water available to consumers.

Because the amount of water lost to evaporation is a function of the size of the system, if existing environmental commitments are honoured, this means that a 10% reduction in mean rainfall can result in a 67% reduction in the amount of water available for use by irrigators (Table 1). If such a climate shift occurs, as it has in Western Australia, then this is another reason for immediately beginning a search for ways to reconfigure and downsize the current system.

Table 1 An illustrative overview of the consequences of a shift to a drier regime for a 10,000 GL system similar to the River Murray's. (Readers are encouraged to enter their own assessment of how best to configure such a system if, as Perth has experienced, there is a 20% decline in mean rainfall).

Mean rainfall shift		**10% reduction in mean rainfall**	**20% reduction in mean rainfall**
Mean inflow	**10,000**	**7,000**	**4,000**
Mean evaporation	2,000	2,000	2,000
Mean flow to the sea	2,000	2,000	…..
Net volume available for discretionary use	**6,000**	**3,000**	…..
Environmental entitlement	1,500	1,500	…..
Consumptive user entitlement	4,500	1,500	…..
Unallocated water	**0**	**0**	**0**
Reduction in mean volume available to consumptive users		67%	….%

* Murray-Darling Basin historical records indicate that mean annual inflows into the southern River Murray system including the Lower Darling is 11,229 GL per annum and the median inflow is 9,033 GL per annum.

*

State incentive payments

Payments to state and territory governments should be made conditional upon completion of already agreed National Water Initiative milestones, for both urban and rural agendas. This arrangement could extend to include funding for projects promised by the Rudd Government and also those that the previous government undertook to fund. It is time to:

- Reward states for implementing reforms and for the delivery of agreed water reform milestones under an outcome-focused regime similar to that set up under the National Competition Policy.

It is time to bring some economic discipline back to water reform.

*

A new agreement – A future-proofed Basin

It is time to reset the system now. The biggest mistake this nation could make is to take 10 years to only partially fix the Murray-Darling Basin's problems.

A new Murray-Darling Basin Agreement is needed. This new Agreement must be more than a general plan. It must be a co-operative inter-state Agreement that rises above politics, and it must not be subject to the whims of ministers or other authorities. It is time to stop incremental approaches to water reform and return to a focus on getting the fundamentals right.

Now is the time to confidently inform those who depend upon, and love the Murray-Darling Basin, what type of future they, and the system, can expect.

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Summary of key elements of the proposal

A 3-part system

1. Set aside enough **maintenance water** to allow for evaporative and other losses, existing stock and domestic uses[10] and to flush a small amount into the sea.

Maintenance water
Flood water
Shared water

2. Leave **floodwater**, when it arrives, to be managed in a way that maximises environmental benefit whilst minimising damage to property.
3. Define the remaining water as **shared water** and put in place a regime that entitles all users and the environment to a share of any allocations made to this pool of water.

Ground and surface water

4. Define all groundwater as part of the system and use a similar sharing system to allocate entitlements to take water from it.

Offset all interception

5. Require the offset of the adverse effects on supply reliability of all water interception activities such as forestry in high rainfall areas, the building of more farm dams and the construction of salinity interception schemes.

A right for the environment

6. In every part of the system, the environment must be given a formal entitlement to a proportion of all allocations of shared water.

Regional environmental trusts

7. The majority of shared water entitlements assigned to the environment should be placed in regional environmental trusts and a small proportion held centrally in a system wide trust.

Appoint trustees

8. Assign responsibility for appointing environmental trustees and defining regional trusts' objectives to the States and the ACT.

Environment pays its way

9. The amount of shared water entitlement allocated to environment trusts should be large enough to enable them to recover costs by periodically selling water allocations.

Bulk entitlements

10. Replace the existing cap and limit on water extractions and associated sharing rules with a bulk entitlement system that is enforceable and underpinned by an accounting system that has integrity.

A Basin Register

11. The establishment of a Basin water entitlement register that defines bulk entitlements to receive allocations, and assignment of complete responsibility for allocating water to an independent, expertise-based Authority.

Penalties that apply to all

12. The introduction and enforcement of penalties for taking unallocated water. These must apply equally to states, irrigation companies, entities responsible for managing environmental water and all other parties.

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[10] The emphasis here is on existing stock and domestic uses which in most cases are unmetered. As far as possible, these uses should be metered.

Authority makes all allocations

13. Establish an independent, expertise-based Authority responsible for allocating groundwater and surface water, informed by the best available science.

Equal opportunity

14. Give all stakeholders an equal opportunity to access information about likely and actual allocation announcements.

Land-use control with States

15. Responsibility for the control of land-use and water-use practices should remain with the States and the ACT on the understanding that they deliver agreed salinity and other water-quality management targets, and manage offset arrangements for the adverse effects of water interception activities.

Leave water supply as it is

16. Use business structures to run and maintain system infrastructure and recover the costs of doing this from water users.

Just compensation

17. Compensate entitlement holders and water supply companies for the impact of the change on their livelihoods and on the value of capital assets, and assist them to adjust rapidly to the new regime.

Electronic trading

18. Establish trading rules and processes that enable electronic trading across state boundaries so that:
    - all allocation trades can be completed instantaneously, and
    - all unencumbered entitlement trades can be completed within two days.

Carry forward

19. Allow all entitlement holders – all irrigators and all environmental managers – to carry forward allocations with adjustment for evaporative losses.

Reconfigure and downsize system?

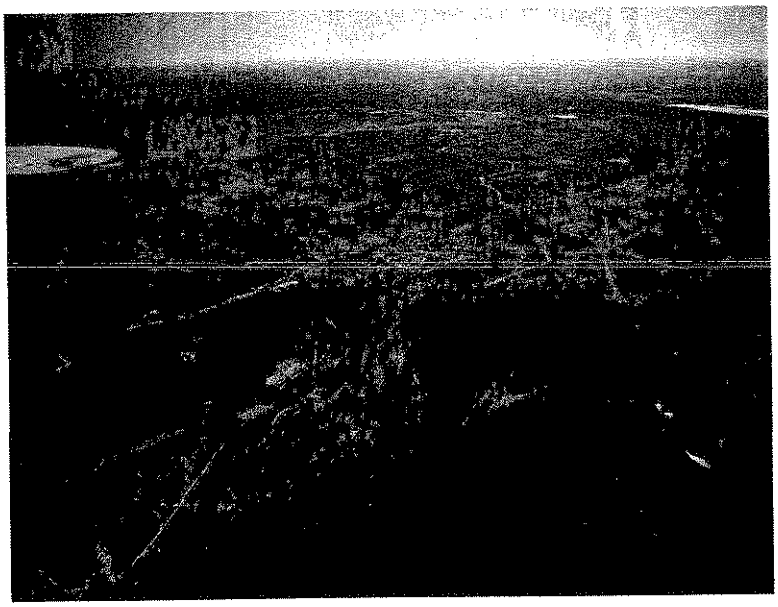
20. Commission a formal review of opportunities to downsize and reconfigure the southern River Murray System.

Reward States

21. Reward states for implementing reforms and for the delivery of agreed water reform milestones under an outcome-focused regime similar to that set up under the National Competition Policy.

Managing Change:
Australian structural adjustment lessons for water

J.C. McColl and M.D. Young
Report No. 16/05
September 2005



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Cover photo description: Dareton on the Murray. Photographer: Michael Bell, MDBC.

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CSIRO Land and Water

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Executive Summary

Australia has a rich experience in the development and implementation of structural adjustment programs, particularly in the rural sector. There have been, at least, ten rural structural adjustment schemes since the 1930s, each building upon the knowledge gained from those that came before them. There have also been at least five government initiated and funded reviews of the general rural adjustment schemes and a number of specific industry assistance enquiries, as well as more general reviews of rural adjustment in a number of government agricultural policy reports.

Drawing upon this experience, this report highlights opportunities available to governments to *facilitate* and *expedite* autonomous change.

When adjustment is *impeded*, the most significant adverse impacts are often on the capacity of the most talented in a district or an industry to innovate.

Adverse impacts on people and on the environment are most effectively managed using separate policy processes and instruments. History suggests that most attempts to impede autonomous adjustment backfire on people, regions, resource productivity, industries and the national economy.

Water allocation issues are capturing national attention.

Given the capital gains tax implications of buying and selling water and the report's focus on ways to expedite adjustment, the report identifies an opportunity to use either voluntary buy-back and/or compulsory acquisition as a means to increase the quantity of water available to enhance environmental flows.

This report

The purpose of this report is to search Australia's extensive experience in running and reviewing structural adjustment programs for insights of relevance to water reform.

While recognising that adjustment from both economic and social perspectives has both positive and negative aspects, the approach taken focuses mainly on benefits and opportunities arising from facilitating and expediting change and adjustment.

This report is written with a view to assisting those responsible for implementing the National Water Initiative (NWI). All parties involved have recognised that water reform has important structural adjustment implications. They have agreed to address significant adjustment issues affecting water users and regions on a case-by-case basis.

Change and structural adjustment

Structural adjustment refers to changes in the size and make-up of an economy in terms of the distribution of activity and resources among firms, industries and regions. These changes occur from the interaction over time of a wide variety of natural, social and economic forces within the economy. The more obvious responses are resource shifts among industries and regions, and in the development of new products and processes.

Typically, structural adjustment is necessary when some of the original structures that are in place are no-longer viable or sustainable, often as a result of significant changes in both market demands and in technology and management systems.

Change and adjustment is an essential and inevitable outcome of economic growth and is a process without beginning and without end. Although adjustment has both positive and negative dimensions, discussion of the issue generally takes place in the context of a declining sector. This leads to the term "adjustment" unfortunately tending to have a pejorative ring about it that makes objective discussion difficult.

Structural adjustment involves opportunity coupled with risk. There is an optimal time to change and, in cases where natural resource access is diminishing or more efficient technologies are being introduced, not all farm businesses can remain in agricultural production. The sum of many individual and often very difficult, personal choices determines how fast adjustment occurs.

The rural sector and autonomous adjustment

One of the most difficult issues to come to grips with is the rate and extent of structural adjustment across rural and regional Australia caused by changes in global market conditions, and by the flexibility and innovativeness of farmers in adapting to these pressures. These forces for change are typically outside of the control of government. Change or perhaps more correctly described – structural adjustment – tends to be the norm and largely occurs autonomously.

Experience suggests that Australian farmers, as a whole, and Australian rural communities have demonstrated great skill and capacity in adjusting to changing circumstances. Overall, the result of exposing the farming sector to market forces has been the retention of a vibrant and internationally competitive Australian farm sector, dynamically engaged with an ever changing global economy.

One of the most challenging issues for government is that autonomous adjustment processes often reveal the extent of government failure to put in place policies to manage social and environmental externalities. In such situations, it is tempting either to blame adjustment and/or attempt to retard adjustment rather than address the underlying failure.

Policy and process

Change and structural adjustment raises a number of important policy and process issues relating not only to the justification for government intervention but also to the nature of, and the process adopted for the development and implementation of any government intervention.

Where there is a case for government intervention, program choice tends to be influenced by whether or not the need for change is market or policy-induced. In the latter situation, a case for compensation can be made.

Often a pragmatic choice is made between the payment of compensation and the provision of adjustment assistance. There are specific situations where the wider community, generally expressed through the political process, supports compensation payment to those adversely affected, even though there is no legal case for compensation.

Adjustment assistance can be appropriate in situations where the affected group is relatively easy to identify and limited in its capacity to handle the adjustment pressure, and where the impacts can be well specified and are clearly associated with the proposed policy change. Adjustment assistance programs tend to be more selective in design and delivery than compensation programs, and are generally based on an assessment of need.

Program choice, design and delivery can also be influenced by the need for procedural fairness and to be seen to be dealing with those adversely affected in an equitable manner.

Some misconceptions

There are a number of misconceptions about structural adjustment. These misconceptions are related to impacts at national and regional economy levels, on regional and farming communities, on individual farming and local businesses, on the environment, and on resource productivity. Another set of misconceptions relate to second round effects of structural adjustment programs. In particular, whenever assistance is given to some but not all producers, it becomes harder for the non-assisted to compete with the assisted for access to land, water and other production resources.

National level

If Australia is to remain a wealthy and affluent country, the reality of change needs to be accepted and the overall net benefits of competition and the autonomous structural adjustment it induces must be positively and continuously pursued. Exposure to competition is a necessary part of processes that maintain and increase national wealth.

At the national level, average incomes per farm family living in rural areas remain as high as if not higher, than those in urban areas. Autonomous structural adjustment is a necessary part of the maintenance of a vibrant rural sector. This raises four important questions about the role of government in structural adjustment:

- Is there a role to act to either speed or slow autonomous adjustment?
- Should policies be devised to change the nature and direction of structural adjustment?
- When are the distributional effects of structural adjustment – whether induced by government or forces beyond the control of government – sufficient to justify intervention in the process?
- If government intervenes, how effectively can it accomplish intervention goals?

Regional level

A comparison of the rates of structural change across regions reveals diverse experiences with some regions doing better than others. Non-metropolitan regions had much greater variation in rates of structural change reflecting their typically smaller industry bases and a tendency for regional economies to be more specialised.

Experiences of regions in coping with change are mixed. A high rate of structural change does not necessarily result in a low or even a negative rate of income or employment growth. Those regions with a dominant farm sector generally have experienced the greatest variation in adjustment impact – sometimes positive and sometimes negative. Significant income and employment growth can be the result. In other regions, also with high rates of structural change, negative impacts have resulted. Similarly, regions with low rates of structural change have experienced a diversity of income growth and employment impacts.

One of the most important characteristics of adjustment at the regional level is that relatively inefficient businesses or practices are replaced by more efficient ones. Thus regional impacts are often much less than those that occur in an industry sector.

Business level

At the farm level, adjustment is about individual farm operators and farm families continually adapting farm businesses and possibly lifestyles to a wide range of changes to their operating environment.

There is an early mover opportunity, those who respond as soon as a viable new opportunity arises tend to maintain the resources necessary to adjust, while those who continue with less competitive practices gradually consume the resources necessary to finance adjustment. Farm businesses that adjust tend to prosper.

While the need to adjust may be suggested by low returns to capital or low farm incomes, there is a distinct time lag in individual response for a range of reasons including non-pecuniary (lifestyle).

One of the myths of Australian agriculture is that most rural households earn most of their income from "their" farm. Over the last decade or so, an important farm adjustment strategy has been the increasing linkage between farm house-holds and rural towns through involvement in "off-farm" work.

It is also important to recognise that businesses are in markets, and that industry structural adjustment is an outcome of business decisions and adjustment.

Community level

It is often in the area of community well-being that misconceptions are greatest.

Changes on farms have outcomes that affect rural communities and, particularly in those regions where farming is the dominant economic activity. In those regions largely dependent on a dominant agricultural or horticultural industry with significant long-term investment and little opportunity for diversification, the adverse impacts can be quite significant.

Overall, however, given the natural resilience of most rural communities in exploring new opportunities, experience suggests that the actual effects of adjustment on communities are often less than may initially have been expected by those most likely to be affected. Opportunities to pro-actively replace income derived from producing services to agriculture with income derived from providing services to others often emerge.

Resource and environmental sustainability

A major benefit of a positive response to change through structural adjustment can be the relief of pressure on the natural resources being used in production. Conversely, programs that slow adjustment or shield farmers from the need to plan for change can lead to land degradation and reduce regional productivity.

In particular, it is now recognised that drought assistance tends to support practices and actions that can worsen impacts on resource productivity.

On the other hand, structural adjustment can result in a reduction in the level of adverse external environmental impact, for example, the relocation of irrigation from a high salinity impact area to a low salinity impact area.

Rural adjustment and assistance

In line with other industries, the existence of various forms of market failure in agriculture has been suggested as justification for intervention by government and the provision of assistance. Market failure arguments for the provision of assistance have generally been based on:

- deficiencies in property rights (externalities), in pricing (resources priced below full cost), and in information;
- the impact of technical change leading to inefficient capital to land investment and the need to deal with the consequent sunk capital slowing down adjustment; and
- the erosion by policy-induced change of previous policy created rents through reduced barrier protection or by the introduction of new policies restricting resource use.

In general, governments intervene to improve the operation of markets and adjustment processes for:

- efficiency;
- equity; and
- welfare reasons.

There is an inevitable policy trade-off between pursuing efficiency, equity and welfare objectives. The nature of the trade-off generally reflects the political realities at the time.

Intervention for efficiency reasons aims to improve the efficiency of resource allocation whereas intervention for equity reasons focuses on meeting social equity objectives. However, if the market failure is due to a deficiency in the definition of property rights, it is more efficient to fix up the property rights problem first before considering any other form of intervention.

The equity case for government intervention in the adjustment process is somewhat difficult to argue. As a general rule, the equity case for adjustment assistance is greatest when the government policy change is sudden and unexpected or when the nature of formally defined property rights and other institutional arrangements is being changed. The case perhaps is least when intent to change the customary administrative conventions and implicit use rights in relation to access and use of resources for production is signalled for a reasonable period of time. In the latter situation, farmers have the time to develop alternative strategies and write-off investments made in the previous policy environment.

Welfare reasons are different from equity reasons and are reserved primarily for those, who as a result of an adjustment process are expected to or already are experiencing extreme financial or social hardship. In the past, farmers could be asset rich but income poor with the result that they were ineligible for welfare assistance. Recent policy reforms suggest, however, that asset rich but income poor people should have access to welfare assistance, and that this assistance is more efficiently and, arguably, more equitably administered through specialised welfare delivery agencies like Centrelink.

Effectiveness of schemes

There have been various government funded rural adjustment or assistance schemes put in place since the 1930s. The general effectiveness of such schemes has been the subject of considerable debate in governments and in the literature.

Changing policy objectives

A review of government policy since the 1930s reveals that there has been progressive incremental policy change from initially supporting farm incomes to ensuring that rural assistance was not, in effect, supporting otherwise non-viable farm business operations and thereby impeding structural adjustment. For many years, financial assistance was provided on an industry or individual basis for a range of reasons, generally related to market price or seasonal fluctuations adversely affecting farm incomes.

Competition is now recognised as an important ingredient in the search for national wealth and something that adjustment programs should avoid impeding. The stated policy emphasis has changed to one of facilitating adjustment and encouraging self-reliance.

Policy tensions

Within this progressive change in objectives, there have been, and to some extent still are, some important policy tensions. These policy tensions relate to the questions of whether the provision of assistance is to support farm business income during periods of temporary hardship, or to provide welfare assistance to farm families, or for supporting self-reliance and facilitating adjustment.

Business or welfare assistance

There has been continuous policy tension between a) the provision of assistance to farm businesses and b) a desire to meet the welfare needs of the farm family. While for much of the period little distinction was drawn between these two aspects, in recent years, there has been a move towards greater self-reliance of the farm business in line with the improved ability to access social security for farm family welfare needs.

The greater self-reliance of the farm business was to be achieved by improving the farm manager's capacity to cope with structural adjustment pressures largely through programs that invest in up-grading business and risk management capabilities.

Exceptional circumstances

In recent years, a policy tension has developed between self-reliance and the continuing availability of drought "exceptional circumstance" funding. On the one hand, there has been an increasing emphasis on risk management strategies and instruments supporting self-reliance. On the other, there is evidence of virtually continuous provision of drought "exceptional circumstance" support to certain so-called "marginal" agricultural areas. This assistance arguably discourages desirable adjustment of farming systems and business size to that more in harmony with the natural environment. In effect, the provision of exceptional circumstances assistance is in conflict with the requirements of long term sustainable natural resource management.

Differential effects – a two-edged sword

Generally, structural adjustment assistance given to some erodes the competitive position of the non-recipients of this assistance.

The provision of adjustment assistance can be a two-edged sword with the extent of differential effects depending upon choice of instrument and the rules used to determine eligibility of access to the program. In the long run, if individuals and communities are isolated from important changes in the market place and/or the emergence of new technological opportunities, the changes necessary to ensure their survival may not be adopted.

Policy instruments and adjustment packages

In line with the progressive changes in scheme objectives, and in the development of adjustment and assistance packages, there has been expansion and refinement of policy instruments used to provide adjustment assistance. These include concessional loans, interest rate subsidised commercial loans, rehabilitation loans, household support, and grants to individuals or groups.

In developing effective adjustment packages, a number of essential elements must be considered. These include broad economic, environmental, social, regional, political, financial market and risk aspects. The process of development of policy options, and the most suitable implementation approach (for example, timing including the interval between announcement and implementation, whether up front implementation or phasing in, and perhaps providing a choice of options) are also important.

From both an efficiency and equity perspective, governments can and in the past have, intervened in ways that have impeded, facilitated or expedited structural adjustment, sometimes using instruments that are in conflict.

Critical lessons

What has past experience taught us about change, structural adjustment and government intervention?

- Forces for change will continue, and there will be opportunities (benefits) as well as costs.
- Overall, national benefits from structural adjustment will exceed the costs.
- Most structural adjustment is and will continue to be autonomous without specific government intervention.

The "appropriate" rate of structural adjustment is not known and providing changes are occurring in a procedurally fair manner, there is no logical basis for masking, slowing or speeding up the rate determined by markets.

When pressures for change are high, there is a risk that well-intentioned adjustment programs can be counter-productive and in the longer term, result in a reduction in community well-being and wealth.

What should governments do?

In the long run, economic experience suggests that the nation, regions and communities will be better off if governments:

- remove impediments to adjustment;
- facilitate and expedite rather than impede such adjustment; and
- separately manage the consequences, including any adverse effects on third parties and /or the environment, rather than trying to buffer or even counter change.

What about the use of specific instruments?

- The general provision of concessional finance including its provision for exceptional circumstances is not only inequitable but also unnecessary and generally counterproductive (impedes structural adjustment);
- While the uptake of re-establishment grants or loans tends to be very low, they can be offered at minimal administrative cost and may be important in speeding up acceptance of an entire reform program (expedites adjustment);
- Grants and loans for improving management skills and obtaining qualified professional advice can be effective in facilitating adjustment;
- Grants within an industry adjustment package with clear adjustment objectives can be effective in expediting industry adjustment; and
- Regional development grants with an emphasis on improving both hard and soft infrastructure can encourage a positive environment for adjustment in which individuals and communities accept the need for change and pro-actively search for new opportunities (facilitates adjustment).

In summary, it appears that government structural adjustment policies and programs will have better economic, equity and welfare outcomes if they concentrate on:

- improving institutional arrangements, in particular, providing clear definition of interests, rights and obligations in resource access and use, and charging the full costs of resource use;
- facilitating structural adjustment by establishing and using efficient markets enabling dynamic response to changing social, economic, technical and biophysical conditions;

- assisting managers to adapt to change by improving understanding of both managers and regional communities of the issues involved in the adjustment process;
- providing increased access to relevant information and training; and
- investing in specific and targeted economic (industry or regional) development and adjustment packages and projects.

As part of these initiatives, there is a need to ensure that there is effective coordination among relevant agencies coupled with consultation and community or industry involvement, and monitoring to ensure desired outcomes are achieved.

Finally, it often seems easier for governments to hinder autonomous adjustment in response to local pressures and reflecting a failure to manage social and environmental externalities, but in the process disadvantage those adjustments of greatest value to the community and even to an entire region.

Implications for water reform

One of the general thrusts of the NWI is to increase the range of individual choices available to irrigators and, in particular, make structural adjustment more attractive than it otherwise would have been.

Trading water is one of the main mechanisms that irrigators use to adjust where and how they use water. In the irrigation industry, pressures for structural adjustment will come from autonomous external processes associated with changes in technology and the market for irrigated products. Other pressures have arisen because of previous decisions that sometimes located irrigation in sub-optimal areas. In addition, pressures can be expected to emerge as a result of COAG's decision to implement a National Water Initiative. As a result, there is likely to be:

- Increased opportunities to trade water;
- The separation of land use controls from water allocation policy;
- Increased allocations to the environment and decreased allocations to water users;
- The emergence of new competitors in the water market, including urban water suppliers, environmental managers and investors; and
- Actions to reduce the adverse impacts on rivers of increased forestry, more farm dams, less irrigation water returning to rivers and increased groundwater development.

All can be expected to increase the value of water and change the ways that people seek to use water and the places where water will be used. In any event, the price of permanent (entitlement) and temporary (allocations) water, including options and other derivatives that may develop, will always be set according to future expectations of such factors as market prospects, climatic conditions and risk. The elastic demand for many irrigated exports will establish a logical limit to water prices.

Adjustment package design

The agreement by governments to fund the securing of the first step Living Murray environmental water could be argued as representing an acceptance by governments that it is a policy-induced change and on equity grounds adjustment assistance is justified.

The experience summarised in this report suggests that any efforts made to mask long-term adjustment signals or even actions that distort these signals will not be in the interests of regions or the majority of people affected by them. Typically, signal masking and distortion works by disadvantaging more successful irrigators and, as a result, reduces the quantity and quality of induced innovation that would otherwise have occurred and work to the detriment of the region.

The management of externalities should not be confused with the management of adjustment. An essential step in addressing many of the problems associated with water management is the fuller specification of water access entitlements and the development of efficient water markets with low transaction costs coupled with an effective suite of policies to address any adverse effects of land and water use. It also requires the assignment of risks associated with these property rights and the full specification of opportunities and obligations associated with the application of water to land and other forms of water use. Ideally, this should be done before any consideration is given to adjustment assistance.

Care needs to be taken in designing any adjustment package, noting that adjustment assistance can impede, facilitate, or expedite efficient and equitable adjustment.

Impeding adjustment

Typically, the efficiency case for impeding the rate of structural adjustment is weak. Sunk costs are sunk and, as a whole, a nation will be better off if it invests to maximise net benefits at the margin. Nevertheless, the extent of sunk capital in irrigation both on-farm and in water supply infrastructure is substantial and there may be efficiency gains from improving price signals in the short to medium term to make use of these assets. Where maintenance costs are greater than expected benefits, however, it is important that systems are in place for facilitating the rundown and eventual closure of inefficient channel systems and encouraging longer term investments in irrigation infrastructure elsewhere.

To deal with this possibility, the NWI also provides for water suppliers to introduce access and exit fees, but in a manner that does "not become an institutional barrier to trade". The apparent aim is to ensure that water users are unable to:

- make free use of common pool resource infrastructure paid for and maintained by others; and/or
- escape from an obligation to maintain such infrastructure which they had previously agreed to maintain.

Facilitating adjustment

A desirable characteristic of instruments that aim to facilitate adjustment is that they do not mask long term signals in national and global markets for goods and services dependent upon water use, and do not lead to detrimental environmental outcomes.

The NWI heralds a new approach to water management characterised by the delivery of increased opportunities for water users to adjust. In particular, Murray-Darling Basin parties have committed "to immediate removal of barriers to temporary trade ... by June 2005". Removing barriers to trade increases opportunities for individuals to adjust and become more profitable. If temporary transaction costs are low, then it is possible to couple this mechanism with long term leasing and other similar arrangements to efficiently facilitate adjustment whilst retaining ownership of the water access entitlement assets in a region.

Further, while at first glance the NWI's interim threshold limit on the level of permanent trade out of an irrigation area may appear restrictive, 4% per annum over five years will result in movement of almost 20% of permanent water access entitlements and through the use of interim leasing arrangements, the effective transfer of potentially unlimited amounts of allocation water. Transfer waiting lists are emerging and administrative pathways are being found to circumvent the intent of this restriction. The main effect is an increase in transaction costs – a dead weight economic loss.

Expediting adjustment

Opportunities to introduce policies that expedite adjustment are many. For example, introducing programs that correct market failures associated with salinity and other adverse environmental impacts of water use. Adjustment programs and policies could also be used to facilitate the speedier re-alignment of supply channel infrastructure. The relocation of water through trading is likely to result over time in significant reduction in water users and use in some supply areas. Given the sunk capital in supply channel systems, the adjustment of the channel supply system may be slower than desirable and it may be beneficial both from an environmental and water use efficiency perspective to encourage the remaining water users to withdraw from irrigation and possibly to relocate.

Once all efficient opportunities to save water at less than the cost of buying water from irrigators have been found, an important structural adjustment issue is the question of how to source the next tranche of environmental water for the River Murray and elsewhere. In the case of the River Murray, our impression is that most efficient infrastructure reconfiguration and other large management opportunities to realise water savings at a cost less than the value of purchasing water entitlements have been exhausted. If this is the case, then the next most efficient option is to find ways to encourage irrigators to return water to the river. Options for doing this include:

- taking out options for the supply of water for environmental purposes when pre-specified conditions apply;
- purchasing water on an opportunistic basis and essentially placing a price floor in the entitlement market until sufficient water is found;
- running a voluntary entitlement buy-back process where irrigators are asked to nominate how much water they are prepared to offer at different prices per unit of entitlement;
- compulsory buy-back of a small proportion of each water entitlement;
- the compulsory acquisition of larger amounts of water from selected areas or entitlement types; and
- making pro-rata reductions to all entitlements with or without the payment of compensation and the provision of adjustment assistance.

In specific situations and as being well articulated by ABARE research, the purchase of options has a clear role in the development of a portfolio of arrangements necessary for the efficient delivery environmental outcomes.

Typically, voluntary buy-back programs acquire water from those most able to do without it at a nominated price. On completion of the buy-back process, a settlement price is announced and all offers less than the settlement price are settled at that the settlement price. (It is also possible to run a tender program where entitlement holders are paid only the price they offer.)

The main merit of voluntary buy-back programs is that they search efficiently for those most able to adjust the size of their holding. The main downside of voluntary buy-back programs is that the payments made to entitlement holders are subject to capital gains tax.

While many states would need to legislate to allow compulsory acquisition of water entitlement, compulsory acquisition has a number of unique features that differentiate it from other options. First, any capital gains tax liability can be deferred. Second, the fair and just price that legislation requires normally includes a payment to compensate for any inconvenience and disruption imposed. Third, all irrigators are forced to consider carefully whether or not they could do without some water. If only a small proportion of each entitlement is acquired then most irrigators could be expected to seek ways to do with less

and invest the money received in actions that make this possible. In cases where doing with less is difficult and if the price paid is just, irrigators should have enough money to buy-back entitlements from irrigators more able to adjust. (In order to signal government awareness of the cost of buying back water, governments could offer to waive any transfer, registration and stamp duty charges associated with the repurchase of water.)

The main disadvantages of compulsory acquisition are administrative and political. In most jurisdictions new legislation would be required. Moreover, as most registers are not yet electronic, the costs of dealing with each entitlement could be high.

Under voluntary and compulsory options, there is a case for considering the merits of targeting acquisition to selected areas and entitlement types. In particular, there is a strong case for biasing an acquisition program towards those areas and entitlement types where use and/or the consequences of further development or trade tend to work against river health objectives. But before one targets, the likelihood that a voluntary buy-back program would target these same areas and entitlement types needs to be considered. The main areas and entitlement types that work against river health include:

- areas where salinity impacts are high;
- properties where unused "sleeper" groundwater entitlements exist;
- areas where water use is inefficient and no return flow obligation is in place.

On efficiency grounds there is also a case for targeting or compulsory closure of branches of irrigation systems, which as a result of trading, are now expensive to maintain.

Economic theory would suggest, however, that in many if not most cases, there will be a strong correlation between willingness to sell and situations that work against river health objectives. That is, the market place may well be such a powerful targetor that there is little advantage in attempting to develop a formal targeting process. The costs may outweigh the benefits.

Coincidence between buy-back offers and river health objectives is particularly likely if a premium over and above market price is offered and those considering significant adjustment see participation in a voluntary buy-back program as their best opportunity to get a high price for their water. If this is the case, then voluntary buy-back possibly underpinned by the power to compulsory acquire unprofitable channel systems and areas where irrigation and land use works against river health may be the most efficient way to expedite adjustment.

Concluding remark

If adjustment is impeded, the most significant adverse impacts are often on the capacity of the most talented in a district or an industry to innovate. Australian history is rich with stories of the adverse effects of attempting to shore up existing businesses experiencing financial difficulties rather than allowing others the opportunity to enter and existing businesses to adjust and expand.

There are many opportunities for governments to facilitate and expedite change.

The future of Australia and its people – at the regional and at the National level – lies with processes that allow and encourage autonomous changes to occur.

Where unacceptably adverse impacts occur, whether on people or the environment, experience suggests they are most effectively managed using separate policy processes. In all cases, the first best option is always to address underlying policy failures and not use restrictions on adjustment as a means to postpone the need to do so.

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1. Introduction

Australia has a rich experience in the development and implementation of structural adjustment programs. While these policies and programs have been put in place at various times for a range of industries across the economy, probably a majority have been focused on agricultural industries and businesses, often with a strong regional flavour. Dairy, wool, sugar, wheat, egg and many other production industries have all, at various stages, had their turn. There have been a number of rural structural adjustment schemes since the 1930s, each building upon the knowledge gained from those that came before them.

The purpose of this report is to search through this extensive experience with structural adjustment and reconstruction programs, particularly in the rural sector, for insights of relevance to water reform. While recognising that adjustment from both economic and social perspectives has both positive and negative aspects, the approach taken is mainly focused on the benefits and opportunities arising from managing change and adjustment.

1.1. Water reform

The latest step in the progressive implementation of the 1994 Water Reform Agenda **(COAG, 1994)** is the agreement by the governments to implement the National Water Initiative (NWI) **(COAG, 2004)**. Key elements include:

- the improved definition of water access entitlements (consumptive and environmental);
- return of over-allocated systems to sustainable levels of use;
- assignment of risk relating to future changes in water availability;
- facilitation of more efficient water trading arrangements;
- full cost recovery water pricing for both rural and urban water;
- national standards for water accounting; and
- improved demand management in urban areas.

More detail is provided in Appendix 1. An Intergovernmental Agreement (IGA) **(COAG, 2004a)** sets out implementation details.

For the Murray-Darling Basin, member governments agreed to provide new funding of $500 million over five years to address water over-allocation in the Basin **(COAG, 2004b)**. The priority for investment is the recovery of water to implement the "Living Murray first step decision" focusing on the achievement of specific environmental objectives and outcomes for six significant ecological assets. The aim is to recover water over a period of five years to an estimated requirement of 500GL/year.

It is recognised that implementation of the actions agreed in the NWI and in the IGA will have structural adjustment implications. For example, the IGA identifies the need to, where appropriate, facilitate the rationalisation of inefficient infrastructure or unsustainable irrigation supply schemes (paragraph 60, (vi)). The parties also agreed to address significant adjustment issues affecting water users[1] and regions on a case-by-case basis (paragraph 97).

[1] See para 62

1.2. Change and structural adjustment

Structural adjustment refers to changes in the size and make-up of an economy in terms of the distribution of activity and resources among firms, industries and regions. These changes occur from the interaction over time of a wide variety of natural, social and economic forces within the economy. The more obvious responses are resource shifts among industries and regions, and in the development of new products and processes.

In the popular media there is a general perception that structural adjustment produces many adverse impacts. It is true that average data can hide many of the social and economic problems present in a region or an industry.

Typically, structural adjustment is necessary when some of the original structures that are in place are no-longer viable or sustainable, often as a result of significant changes in both market demands and in technology and management systems.

Change and adjustment is an essential and inevitable outcome of economic growth and is a process without beginning and without end. **Musgrave (1982)** points out that, although adjustment has both positive and negative dimensions, discussion of the issue generally takes place in the context of a declining sector. This leads to the term "adjustment" unfortunately tending to have a pejorative ring about it and making objective discussion more difficult.

There have been at least ten rural structural adjustment schemes since the 1930s, each building upon the knowledge gained from those that came before them. There have also been at least five government initiated and funded reviews of the general rural adjustment schemes and a number of specific industry assistance enquiries, as well as more general reviews of rural adjustment in a number of government agricultural policy reports.

Apart from these general adjustment assistance schemes (described in section 2.2 and Appendix 1), there have also been an array of programs that have sought to alleviate the impacts of drought and other adverse or exceptional circumstances. While these latter programs are not the main focus of this report, we observe the difficulty of defining what is in fact exceptional in complex and variable natural systems. Exceptional circumstance assistance is often criticised because its very existence increases the incentive for interest group political and media lobbying, and decreases the incentive for managers to adopt risk management strategies and to make the decisions and investments necessary to cope with such circumstances.

Structural adjustment involves opportunity coupled with risk. There is an optimal time to change and, in cases where natural resource access is diminishing or more efficient technologies are being introduced, not all farm businesses can remain in agricultural production. The sum of many individual and often very difficult, personal choices determines how fast adjustment occurs.

1.3. The rural sector and autonomous adjustment

One of the most difficult issues to come to grips with is the rate and extent of structural adjustment across rural and regional Australia caused by changes in global market conditions, and by the flexibility and innovativeness of farmers in adapting to these pressures. These forces for change are typically outside the control of government. Change or perhaps more correctly described – structural adjustment – tends to be the norm and largely occurs autonomously.

a) For the 11 years ending in 1976-77, the number of orchardists in Tasmania dropped by 63%, and the number of dairy farmers in Queensland dropped by 61% (**Longworth, 1997**).

b) The decline in farm numbers for the period 1982-83 to 1994-95 with an estimated value of agricultural operations of $20,000 or more was about one per cent per year, although there are significant differences between industries with the horticulture industry increasing in farm numbers (**McColl *et al.*, 1997**).

c) Farm numbers in Australia have declined by about one quarter (or by almost 46,000 farms) over the 20 years to 2002-2003 **(Productivity Commission, 2005).**

In short, relatively rapid autonomous structural adjustment has been an important aspect of the development of Australian agriculture and rural communities for many years.

Experience suggests that Australian farmers as a whole and Australian rural communities have demonstrated great skill and capacity in adjusting to changing circumstances. Overall, the result of exposing the farming sector to market forces has been the retention of a vibrant and internationally competitive Australian farm sector, dynamically engaged with an ever changing global economy.

However, one of the most challenging issues for government is that autonomous adjustment processes often reveal the extent of government failure to put in place policies to manage social and environmental externalities. In such situations, it is tempting either to blame adjustment and/or attempt to retard adjustment rather than address the underlying failure.

1.4. Policy and process

Change and structural adjustment raises a number of important policy and process issues relating not only to the justification for government intervention but also to the nature of, and the process adopted for the development and implementation of any government intervention. These include procedural fairness, equity issues, whether the change is policy or market-induced, and the question of compensation or adjustment assistance.

Procedural fairness

The perception of "fairness" substantially depends on whether the process of developing policy is conducted transparently, and with adequate consultation and participation, and with proper consideration of the points of view of those likely to be negatively affected by policy change. In other words, this seems to relate more to the procedural "fairness" as perceived by those likely to be most affected by the policy change than necessarily to the policy outcome as such. In the context of process, policy decisions could be improved if information was available on likely behavioural attitudes and distributional impacts of proposed policy change options, keeping in mind that adjustment takes place in a dynamic environment over time and within a complex economy.

Equity issues

Equity issues arise where there are significant effects on the economic and financial circumstances of individuals and businesses resulting from the distributional outcomes from a policy change. Adjustment and distributional issues have been central to community concerns about the impact of the program of microeconomic reform undertaken by Australian Governments over the last 30 or so years. Removing unwarranted restrictions on competition, while benefiting many, will inevitably impose costs on those who have gained from the restrictions **(Productivity Commission, 2005).**

Adjustment Assistance or Compensation

While changing market conditions in both domestic and overseas markets is generally the most important influence on structural change, policy decisions by governments are also significant. Market-related sources include technological change, changes in demand resulting from behavioural and social changes, international trade developments involving the mergence of new markets and increased competition, and changes in the availability of resources through discovery and depletion and/or degradation. Government-related sources include trade and investment liberalisation, infrastructure and institutional reforms, labour market changes, and taxation reforms.

Sometimes a practical distinction can be made between policy-induced and market-induced change **(Productivity Commission, 1999).** Market-induced (general) pressures for adjustment are mainly driven by changes in market demand and by technical change. This distinction may be important where a policy-induced change may be deemed to justify a specific government intervention to modify adjustment impacts, whereas a market-based change would not. After all, policy-induced changes result from political decisions made within the context of political debate and possible trade-offs. In this context, important policy-induced changes are those that arise from the reduction of industry protection or through new rules for resource use.

It is also important to draw a distinction between compensation and adjustment assistance. In our mind, compensation is something paid for the loss of a right or an opportunity that is owned via a legal arrangement. The law requires compensation as a way to encourage efficient investment. The distinction between adjustment assistance and compensation depends on the answer to the question as to whether or not as a result of the change made, a court of law would require a payment to be made to an entity affected by the change. In principle, if a court of law would not require payment then it should be regarded as assistance not compensation.

Often a pragmatic choice is made between the use of a compensation process or the use of adjustment assistance. There are specific situations where the wider community, generally expressed through the political process, supports the provision of adjustment assistance even though there is no legal case for compensation. This could arise where the structural adjustment is policy-induced, or where the adjustment impact is likely to be severe.

Adjustment assistance can be appropriate in situations where the affected group is relatively easy to identify and limited in its capacity to handle the adjustment pressure, and where the impacts can be well specified and clearly associated with the proposed policy change. Adjustment assistance programs tend to be more selective in design and delivery than compensation programs, and are based on an assessment of need.

2. Some misconceptions

There are a number of misconceptions about structural adjustment. These misconceptions are related to impacts at national and regional economy levels, on regional and farming communities, on individual farming and local businesses, on the environment, and on resource productivity. Another set of misconceptions relate to second round effects of structural adjustment programs. In particular, whenever assistance is given to some but not to all producers, it becomes harder for the non-assisted to compete with the assisted for access to land, water and other production resources.

2.1. Change and the National economy

The national economy is the aggregate of the economies of the states and territories underpinned by sets of resource and environmental arrangements that produce both market and non-market benefits. As forcefully reasoned by **Hilmer (1993)**, *if Australia is to remain a wealthy and an affluent country, the reality of change needs to be accepted and the overall net benefits of competition and the autonomous structural adjustment it induces must be positively and continuously pursued.*

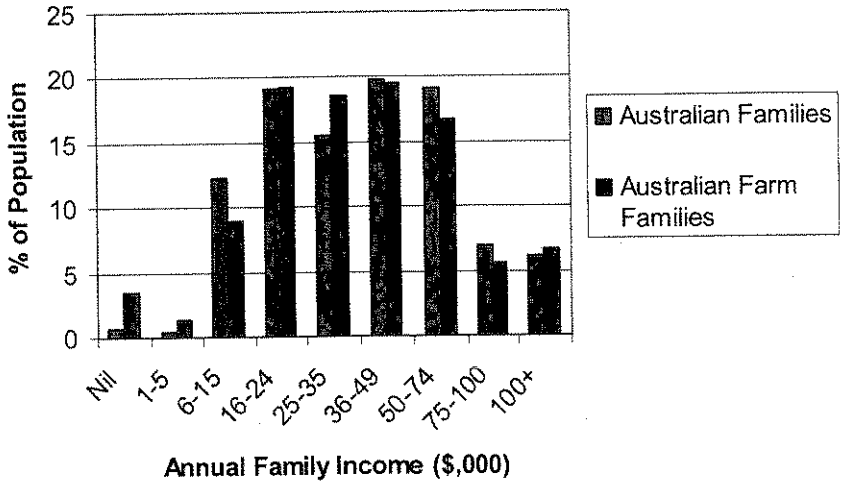
In recognition of this reality, Australian governments with the support of all States and Territories established a National Competition Policy and a National Competition Council in the belief that such arrangements are necessary to encourage and ensure continuing effective competition. *Exposure to competition is a necessary part of processes that maintain and increase national wealth.*

For example, the **Productivity Commission (2005)** has estimated that observed productivity and price changes in key infrastructure service through the 1990s have boosted Australia's GDP by 2.5 per cent.

Over the last 30 years or so, structural change in the Australian economy has seen an increase in the services sector and a decline in the relative sizes of both manufacturing and the agricultural sectors. There has also been an increase in the size of the mining sector in the early years with a small decrease in the share of economic activity since the mid 1980s **(Productivity Commission, 1998)**. In recent years, there has been a major boost in the contribution of the mining sector. People previously engaged in agriculture have found opportunities in other sectors. As result, Australian agriculture remains one of the most efficient agricultural sectors in the world.

At the level of the national economy, the benefits of competition are illustrated vividly by comparing household incomes received by people living in rural areas and those living in urban areas (see Figure 1). At the national level, incomes per farm family living in rural areas remain as high as, if not higher, than those in urban areas.

Figure 1: Comparison of rural and urban household incomes



Source: **National Land and Water Resources Audit (2002),** page 65.

Rural areas are defined as all non-urban centres. An urban centre is any bounded locality with a population of more than 200 people.

The most obvious lesson from analysis of these data is that autonomous structural adjustment is a necessary part of the maintenance of a vibrant rural sector. It also raises four important questions about the role of government:

1) Is there a role to act to either speed or slow autonomous adjustment?
2) Should policies be devised that also influence the nature and direction of structural adjustment?
3) When are the distributional effects of structural adjustment – whether induced by government or forces beyond the control of government – sufficient to justify intervention in the process?
4) If government intervenes, how effectively can it accomplish intervention goals?

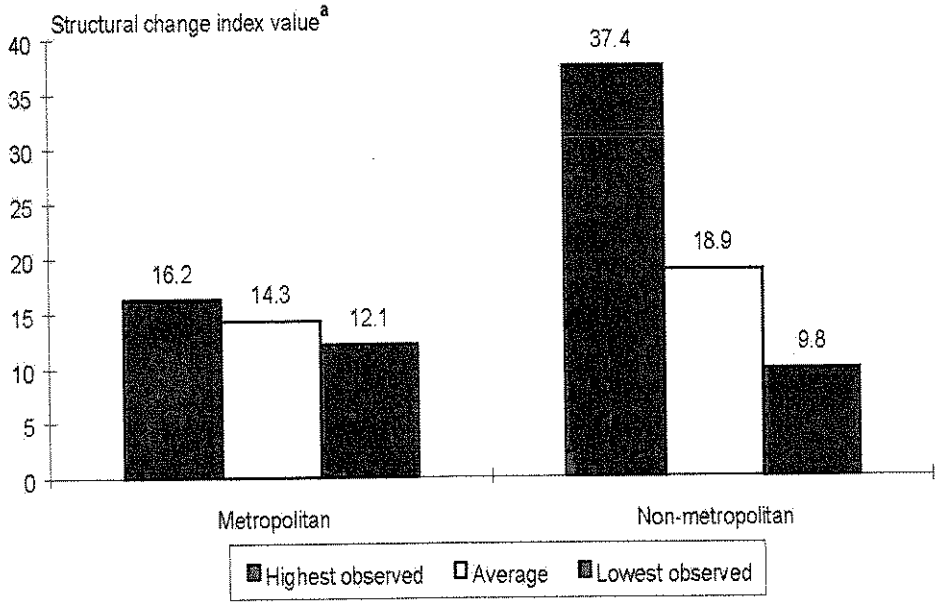
2.2. Change and regional economies

At the regional level, a comparison of the rates of structural change across regions during the period 1981 to 1996 as reflected in rates of structural change in employment, reveals diverse experiences.

As shown in Figure 2, metropolitan regions experienced relatively low rates of structural change given their greater size and overall levels of employment and diversity of activity. On the other hand, non-metropolitan regions had much greater variation in rates of structural change reflecting their typically smaller industry bases and a tendency for regional economies to be more specialised.

Experiences of regions in coping with change are mixed, with some regions doing better than others. At the regional level, high rates of structural change do not necessarily lead to negative economic impacts. Significant income and employment growth can be the result. In other regions, also with high rates of structural change, negative impacts have resulted. Similarly, regions with low rates of structural change have experienced a diversity of income growth and employment impacts. *An important conclusion is that, despite initial fears, a high rate of structural change does not necessarily result in a low or even a negative rate of income or employment growth.* Those regions with a dominant farm sector generally have experienced the greatest variation in adjustment impact – sometimes positive and sometimes negative.

Figure 2: A comparison of change in employment share in 60 industries across Australia's metropolitan and non-metropolitan regions, 1981 to 1996



[a] The index represents a measure of the extent of change in the employment shares of a common set of 60 industries across 113 regions.

Source: **Productivity Commission, 1998.**

One of the most important characteristics of adjustment at the regional level is that relatively inefficient businesses or practices are replaced by more efficient ones. Thus regional impacts are often much less than those that occur in an industry sector.

For example, the regional impacts of reducing water allocations are much less than those that occur at the industry level. The **Centre for International Economics (CIE, 2004**) recently observed that a 10% cut in the quantity available for irrigation would reduce agricultural income by around 2%. They go on to observe that a once-off efficiency improvement of 1.3% across all irrigators in Australia is sufficient to completely off-set direct value added losses.

There can, however, be significant impacts on local industry. If, for example, there is a decline in the volume of sugar or rice produced in a region, then one or more mills may need to close. Initially, local government revenue may be adversely affected but the experience in many towns is that often the resultant change develops more, not less revenue. Vulnerability is greatest when there is little diversity, industries are concentrated and no obvious alternative opportunities exist.

2.3. Change and individual businesses

As pointed out earlier, average data can hide many of the social and economic problems present in a region or an industry. At the business level, change can be avoided for a while but eventually it must be dealt with.

At the farm level, adjustment is about farm operators and farm families continually adapting farm businesses and possibly lifestyles to a wide range of changes to their operating environment **(Gow and Stayner, 1995**). *There is an early mover opportunity; those who respond as soon as a viable new opportunity arises tend to maintain the resources necessary to adjust, while those who continue with less competitive practices gradually consume the resources necessary to finance adjustment. Farm businesses that adjust tend to prosper.*

Musgrave (1982) points out that while autonomous adjustment over time has been significant, there is a distinct time lag in response. While the need to adjust may be suggested by low returns to capital or low farm incomes, there is a distinct time lag in individual response for a range of reasons. These include the non-pecuniary (lifestyle) benefits, the low opportunity costs of remaining on the farm, impediments to adjustment (lack of information and other market imperfections), and rapidity of change in economic conditions, both positive and negative.

Related to this point, one of the myths of Australian agriculture is that most rural households earn most of their income from "their" farm. Over the last decade or so, an important farm adjustment strategy has been the increasing linkage between farm house-holds and rural towns through involvement in "off-farm" work **(Peterson and Moon, 1994 quoted in Gow and Stayner, 1995)**. For example, for family owned broadacre farms in 1992-93, the proportion surveyed earning off-farm income was 34%, earning around 37% of total income.

Finally, it is also important to recognise that businesses are in markets, and that industry structural adjustment is an outcome of business decisions and adjustment.

2.4. Change and communities

It is often in the area of community well-being that misconceptions are greatest. A clear distinction can be made between the effects of structural adjustment on community well being and the effects on regional economies. Box 1 provides one overview of the nature of structural adjustment in Australia. It is often in the area of community well-being that misconceptions are greatest.

Changes on farms have outcomes that affect rural communities and, particularly in those regions where farming is the dominant economic activity. In those regions largely dependent on a dominant agricultural or horticultural industry with significant long-term investment and little opportunity for diversification, the adverse impacts can be quite significant.

Concerns are often expressed about the continuing changes in the economic and social structures of rural towns and regions. Much of this has occurred as a result of forces for change external to the farm sector, having a negative effect on farm business efficiency and farm household well-being. Such changes can have important socially disruptive effects, such as calling into question the long term viability of the local football team and frequently leading to the inevitable amalgamation of former bitter rivals.

The resilience of individuals and communities as reflected in the ability to absorb changes or manage changes successfully is important **(Hassall & Associates, 2003)**. Vulnerability is also greatest in areas where communities are living beyond sustainable limits. If, for example, salinity is widespread there may be little opportunity to continue with current practices.

Overall, however, given the natural resilience of most rural communities in exploring new opportunities, experience suggests that actual effects of adjustment on communities are often less than may initially have been expected by those most likely to be affected. Opportunities to pro-actively replace income derived from providing services to agriculture with income derived from providing services to others often emerge.

Box 1: Extracts from Australia's farmers: past present and future - Seminar by Dr Neil Barr 21st September 2004

Overall the number of Australian farms has declined by 1.3% each year. If this trend continues into the future, there will be half the number of farms in 20 years as there is today. "It is a landscape of continuing farm aggregation" ...

These trends are evident across Australia, although the changes are more pronounced in the beef and sheep regions compared to areas dominated by dairy and cropping farms.

Farming is no longer a young person's game. In 2001, the average farmer was aged 50 compared to 44 in 1981. Older farmers appear to be retiring from farming later in life due to economic pressures associated with the recent extended drought and because the next generation is entering farming at a later age than ever before in Australia's history. Young farmers, it seems, are slow to enter industry until the income prospects improve.

Since 1976 the number of farmers in their 20s has declined by over 60%. The average age of new farmers in 2001 was 39 for males and 43 for females.

The total number of females entering farming has declined with each census period since 1976. In some regions, males outnumber women by 3:1 in the 20-29 year old age group.

Divorce and family breakdown are the key reasons why both males and females leave farming in their middle years. These factors are more important than climatic conditions, interest rates and commodity prices.

Against the traditional rule of agricultural economics, where people buy land where it is less expensive, the opposite is true in Australia where most new small farms are in high land value areas. The reason is one of "what use will the land be put to". The amenity value of land, often in peri-urban areas, is making small farms near metropolitan areas increasingly popular. ....."

Source: http://www.lwa.gov.au/sirp/seminar_DAV41.asp

2.5. Change and resource and environmental sustainability

Some responses to structural adjustment pressures can lead to reduced resource productivity. For example, on-going support for practices and actions that worsen impacts on resource productivity, such as fodder subsidies provided as drought assistance, encourage higher stocking rates than would otherwise be the case. Over grazing can be the result which in turn can lead to soil erosion, shrub invasion and the loss of perennial pastures.

On the other hand, structural adjustment can result in a reduction in the level of adverse external environmental impact. For example, the relocation of irrigation from a high salinity impact area to a lower salinity impact area resulting from water trading from the Kerang-Pyramid area in Victoria to new developments in the Sunraysia area. The new developments are in areas of improved long term sustainability in relation to river salinity management and are subject to salinity impact zoning and a salinity levy system.

Similarly, South Australia has recently introduced a salinity zoning policy preventing the trading or movement and use of water for new developments unless the impact on river water quality is reduced, or the impact is off-set by an agreement, undertaking or obligation for works, actions or practices to prevent increases in river salinity **(DWLBC, 2005).**

As a result, those involved in the relocation of irrigation can benefit from increased opportunities to produce, and other water users benefit from reduced river salinity.

A major benefit of a positive response to change through structural adjustment can be the relief of pressure on the natural resources being used in production.

3. Rural adjustment and assistance – experience and lessons

Governments have been involved in a multitude of ways in agricultural assistance since early settlement, particularly during the development period of Australia's primary industries driven by the political and social needs for regional development. This involvement has largely continued during the subsequent period of overall expansion and structural change in Australia's economy.

There have been a number of rural reconstruction and adjustment schemes provided by the Commonwealth Government since the 1930s. The schemes include the:

- Commonwealth Debt Reconstruction Schemes of the 1930s;
- Rural Reconstruction Commission's programs that began in1943;
- Industry Reconstruction Schemes of the 1970s;
- Rural Reconstruction Scheme of 1972;
- Rural Adjustment Scheme that began in 1985 and was significantly revised in 1988 and again in 1992; and
- Agriculture Advancing Australia Package established in 1997.

A summary of the key features of these assistance schemes is provided in Appendix 2.

3.1. Government intervention – rationale

From an overall economic policy perspective, it is arguable as to whether industries in the agricultural sector have any special claim separate from industry policy in general in a mature economy largely exposed to the competitive pressures of globalisation.

That said, apart from the special characteristics and challenges of farming in Australia (declining terms of trade, climatic volatility, fluctuating prices etc), there have also been significant historical, political and economic development reasons put forward for continuing government support being provided to the rural sector.

In line with other industries, the existence of various forms of market failure has been suggested as justification for intervention by government and the provision of assistance. There is a tendency amongst producers to consider the uncertainty and risk involved in managing market and climate conditions as an indication of market failure.

Market failure arguments for the provision of assistance, however, have generally been based on:

- deficiencies in property rights (externalities), in pricing (resources priced below full cost), and in information;
- the impact of technical change leading to inefficient capital to land investment and the need to deal with the consequent sunk capital slowing down adjustment; and
- the erosion by policy-induced change of previous policy created rents through reduced barrier protection or by the introduction of new policies restricting resource use.

In general, governments intervene to improve the operation of markets and adjustment processes for:

- efficiency;
- equity; and
- welfare reasons.

There is an inevitable policy trade-off between pursuing efficiency, equity and welfare objectives. The nature of the trade-off generally reflects the political realities at the time.

While most people understand what efficiency is about, many people often use the terms equity and welfare interchangeably. In this paper, we use equity to refer to policy outcomes where governments perceive that some people are being treated unfairly in the context of changes to their economic and financial status, and welfare to refer to situations when people are experiencing extreme personal and family hardship.

Intervention for efficiency reasons aim to improve the efficiency of resource allocation whereas with intervention for equity reasons focuses on meeting social equity objectives. However, *if the market failure is due to a deficiency in the definition of property rights, it is more efficient to fix up the property rights problem first before considering any other form of intervention.* Sometimes assistance can be justified on the grounds that it can be expected to speed the rate of change and thereby achieve greater economic gains than would be the case if one waited for the change to occur autonomously. For example, if a small number of people are opposed to a change that is in the interests of the majority it can be politically and administratively cheaper to pay them to change. Provision of assistance in a way that makes it possible for all to adjust quickly may be cheaper than facing the political and administrative costs associated with forcing those unable to change to exit the industry.

The equity case for government intervention in the adjustment process is somewhat difficult to argue. Equity reasons are often used to justify the provision of assistance when a government acts to correct what are now seen as adverse effects of previous interventions by governments (government failure). For example, some closer settlement schemes, and tax concessions for land clearing have caused people to make investments that they would not have made if these arrangements had not been in place. Another example is the preferential access to higher priced liquid milk previously provided to certain milk producers.

The equity case is particularly strong when policies of this nature were considered admirable and were widely supported. When removed, for whatever reason, a case for assistance can reasonably be made.

The 2000 Dairy Industry Adjustment Package (see Box 2) provides a recent example. When those producing premium milk for urban consumption were exposed to open competition, all producers received a one-off payment in proportion to the volume of premium milk they had been producing.

Box 2: Dairy Industry Adjustment Package

The Commonwealth Government's Dairy Industry Adjustment Package was developed to assist the dairy industry adjust to the removal of State-regulations on milk production from 1 July 2000.

The main features of this program were:

A *Dairy Structural Adjustment Program* providing $1.63billion paid to around 30,000 dairy producers at a rate of 46.23c per litre of drinking milk and 8.96c of manufacturing milk with individual payments capped at $350,000 per producer;

A *Supplementary Dairy Assistance* providing $139million payable to farmers who are receive more than 25% of their income from premium milk production paid on a sliding scale commencing with a base payment of $10-15,000 plus an additional per litre payment;

A Centrelink administered *Dairy Exit Program* offering optional tax-free exit payments of up to $45,000 per farmer for those who undertake to stop producing milk and following the sale of their farm had total remaining assets of not more than $157,500; and

A Department of Transport and Regional Services administered *Dairy Regional Assistance Program* providing http://www.daa.gov.au/drap.html $65 million to assist regional communities to adjust to dairy deregulation.

The program is funded via an 11 cents per litre levy on retail drinking milk until 2010.

Source: http://www.daa.gov.au/package.html

As a general rule, the equity case for adjustment assistance is greatest when the government policy change is sudden and unexpected or where the change is policy-induced. The case perhaps is least when intent to change is signalled for a reasonable period of time. In the latter situation, farmers have the time to develop alternative strategies and write off investments made in the previous policy environment.

Welfare reasons are different from equity reasons and are reserved primarily for those, who as a result of an adjustment process are expected to, or already are, experiencing extreme financial or social hardship. In the past, farmers could be asset rich but income poor with the result that they were ineligible for welfare assistance. Recent policy reforms suggest, however, that asset rich but income poor people should have access to welfare assistance, and that this assistance is more efficiently and, arguably, more equitably administered through specialised welfare delivery agencies like Centrelink.

3.2. Rural assistance and adjustment - an assessment

At various times, general assistance for primary production has been provided through such instruments as subsidies on inputs, guaranteed price programs and statutory marketing schemes, import restrictions, generous taxation measures, substantial public funding of research and extension services, and through the provision of funding for support during and following natural disasters such as fire, floods and drought. There have also been various government funded rural adjustment or assistance schemes put in place. The general effectiveness of rural assistance and adjustment schemes has been the subject of considerable debate in governments and in the literature.

3.2.1. Changing policy objectives

Box 3 provides a brief summary of the changing nature of these objectives reflecting the changes in the political economy through this period. There has been progressive incremental policy change from initially supporting farm incomes to ensuring that rural assistance was not, in effect, supporting otherwise non-viable farm business operations

(Botterill, 2002). To a large extent, this change reflects the decreasing relative importance of the agriculture sector in the Australian economy, increasing competition in world markets, the opening up of the Australian economy through financial deregulation and microeconomic reform, and increasing community attention to environmental issues and sustainability.

Competition is now recognised as an important ingredient in the search for national wealth and something that adjustment programs should avoid impeding. The stated policy emphasis changed to one of facilitating adjustment and encouraging self-reliance.

Box 3: Changing policy objectives

In the 1930s the assistance provided aimed at ameliorating adverse farm financial outcomes from earlier (post WW1) government agricultural and horticultural soldier settlement projects. Subsequently, assistance has been provided for:

- improving competitiveness in specific industries in response to adverse market conditions, and general assistance provision for coping with on-going adjustment pressures (Rural Reconstruction Scheme 1972);
- helping restoring to economic viability those farmers with the capacity to maintain viability once achieved but recognising that most adjustment will continue to take place autonomously (Rural Adjustment Scheme 1977);
- assisting rural industry structural adjustment and easing adjustment pressures (Rural Adjustment Scheme 1985);
- improving the efficiency of Australian rural industry and enhancing international competitiveness, while not aiming at keeping farmers on the land or propping up farm enterprises that were not viable in the longer term (Rural Adjustment Scheme 1988);
- fostering the development of a more profitable farm sector able to operate competitively in a deregulated financial and market environment, and in a sustainable manner; providing targeted assistance for farms in "exceptional circumstances"; including a regional focus (Rural Adjustment Scheme 1992); and
- helping support and develop a profitable, sustainable, competitive and self-reliant farm sector recognising that rural adjustment is about managing change (Agriculture Advancing Australia (AAA)).

Policy Tensions

Within this progressive change in objectives, there have been and to some extent still are, some important policy tensions. These policy tensions relate to the questions of whether the provision of assistance is to support farm business income during periods of temporary hardship, or to provide welfare assistance to farm families, or for supporting self-reliance and facilitating adjustment.

For many years financial assistance was provided on an industry or individual basis for a range of reasons, generally related to market price or seasonal fluctuations adversely affecting farm incomes. Commencing in the 1970s, this progressively changed coinciding with the reduction of assistance being provided to specific industries, frequently by means of various statutory marketing arrangements, and the general opening up of the national economy to competitive market forces. The stated policy emphasis changed to one of facilitating adjustment and encouraging self-reliance. The continuing need for structural adjustment and the reality of globalisation became generally, but not unreservedly, accepted not only by the farm sector, but also by the wider community.

There has been continuous policy tension between the provision of assistance to farm businesses and a desire to meet the welfare needs of the farm family. While for much of the period no distinction was drawn between these two aspects, in recent years, there has been a move towards greater self-reliance of the farm business in line with the improved ability to access social security for supporting farm family welfare needs.

The provision of assistance to facilitate adjustment and thus improve the efficiency, competitiveness, sustainability and self-reliance of the farm sector was also a concept that began to emerge in the 1970s. This facilitation was to be mainly achieved by improving the farm manager's capacity to cope with structural adjustment pressures largely through up-grading business and risk management capabilities.

3.2.2. Exceptional circumstances and climate risk

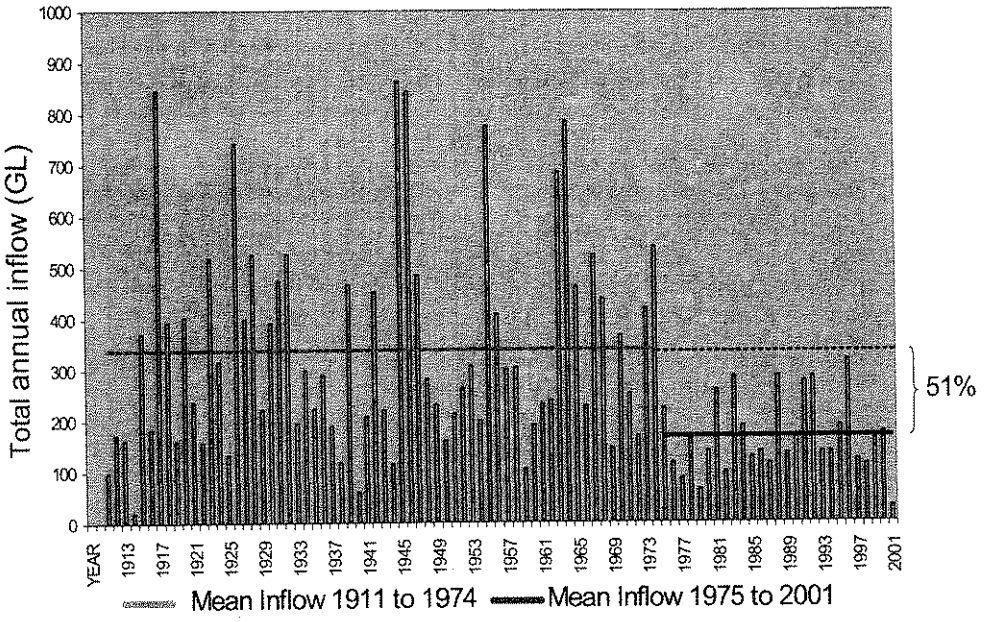
Recently, a new policy tension has developed between self-reliance and the continuing provision of drought "exceptional circumstance" funding. On the one hand, there has been an increasing emphasis on risk management strategies, recognising the increasing availability of financial instruments to deal with risks such as futures, and including the provision by the Commonwealth Government of an attractive financial arrangement in the form of the Farm Management Deposit Scheme. On the other, there is evidence of virtually continuous provision of drought "exceptional circumstance" support to certain so-called "marginal" agricultural areas. This assistance arguably discourages desirable adjustment of farming systems and business size to that more in harmony with the natural environment. In effect, the provision of exceptional circumstances assistance is in conflict with the requirements of long term sustainable natural resource management.

Perhaps more importantly, there is a risk that adverse climate change may be mistakenly interpreted simply as a 'prolonged drought'. During the public debate on the recent drought and the provision of exceptional circumstances assistance, mention was made of the possibility that Goyder's Line[2] has shifted, and that special assistance perhaps should be provided to farmers to change farming systems in the "marginal lands". Currently there is no evidence as to whether it has shifted or not. In any event, more generally, recent research relating to Australian broadacre agriculture indicates that appropriate farming systems can effectively manage the risks associated with a highly variable, low rainfall climate so long as they have adequate scale. Further, biophysical indicators of vulnerability such as rainfall and soil type are poor indicators of the vulnerability of farm households. A range of factors such as education levels, average farm income, diversified and appropriate farming systems, farm size, internet access and membership of Landcare groups are more important than climate risk in predicting which farms will survive **(Nelson *et al*, 2005).**

With regards to the chance of failure to recognise possible climate change, it is interesting to observe how long it took those responsible for managing Perth's water supply to conclude that the decline in dam water supplies that occurred in the mid 1970s was as a result of climate and land use change and not a longish period of drought (see Figure 3).

[2] For a description of Goyder's Line see **Meinig D.W, (1962).**

Figure 3: Change in water inflow into Perth water supplies, 1911 - 2001



Source: **Water Corporation, 2003.**

3.3. Differential effects of assistance

From a policy perspective, one of the most difficult issues to address is the differential effect of assistance on recipients of this assistance and those who miss out on the same opportunity. Generally, *structural adjustment assistance given to some firms erodes the competitive position of the non-recipients of this assistance.* This may result in some more talented managers deciding to adjust out of the industry and possibly even transferring out of the region. This tends to make not only those who leave worse off because they cannot compete with an inferior but government supported manager, but also the region worse off as it loses scarce managerial talent and access to the increased profits that such people are more likely to generate. Attention therefore needs to be paid to the opportunity costs not only to individuals, but also to regions and industries of any form of assistance.

The overall conclusion is that the provision of adjustment assistance can be a two-edged sword with the extent of differential effects depending upon choice of instrument and the rules used to determine eligibility of access to the program. In particular, *the provision of equity assistance applied differentially can disadvantage the most talented, be seen as unfair to those deemed ineligible who have made provision for, and/or taken management action to deal with changing circumstances and ultimately impede autonomous adjustment and thereby make farm communities and regional economies worse, not better, off.* In the long run, if individuals and communities are isolated from important changes in the market place and/or the emergence of new technological opportunities, the changes necessary to ensure their survival may not be adopted.

Failure to understand how structural adjustment and other support measures in one market adversely affect another market is common. The essential point is that all dimensions of the market must be considered with care. Farm businesses compete with one another in three markets:

- The market for their products;
- The market for the land they use; and
- The market for production inputs, including water.

Often even well-intentioned assistance programs frequently distort input and land markets. When the initial reasons for such programs no longer apply and the programs are dismantled, structural adjustment problems can emerge which require careful unravelling. For example, support for premium milk production in areas close to cities from the 1940s to 2000 resulted in liquid milk prices paid by consumers being higher than otherwise would be the case. This has meant that both land prices in these regions and prices for grain and water were higher than they otherwise would have been.

Since the introduction of the Dairy Industry Adjustment Package (see Box 2), the average retail price of drinking milk has fallen by 5% per cent in real terms since full deregulation in 2000, despite the imposition of the 11 cents a litre levy on retail drinking milk to fund the assistance package **(Productivity Commission, 2005)**.

Similar differential effects can be found in land and input markets. For example, farmers given access to concessional interest rate assistance can afford to pay more for land than they would otherwise be able to, resulting in an increase in the value of land. This can mean that others not able to access concessional finance get less opportunity to positively adjust by purchasing more land. Moreover, if the recipient farm manager is less skilled than the non-recipient, the region may end up worse off.

Similarly for water, if one person holds a water entitlement and another is willing to buy it but is prevented from doing so then the aspiring buyer loses an opportunity to adjust. If that trade was to occur within the region then that region is better off. If the water trades to another region then that other region benefits but, in doing so, repatriates money to the seller. If the revenue from water trades is used to enable a seller to diversify and engage in other activities then the region may be better off.

3.4. Policy instruments and adjustment packages

There has been various comment and criticism over the years on the effectiveness of rural assistance and adjustment schemes mainly related to confusion of objectives and of policy instruments.

In line with the progressive changes in scheme objectives, and in the development of adjustment and assistance packages, there has been expansion and refinement of policy instruments. These include concessional loans, interest rate subsidised commercial loans, rehabilitation loans, household support, and grants to individuals or groups.

In developing effective adjustment policy packages, a number of essential elements must be considered. These include economic and financial, environmental, social, regional, political, and risk aspects. The process of development of policy options, and the most suitable implementation approach (for example, timing including the interval between announcement and implementation, whether full impact or phasing in, and perhaps providing a choice of options) are also important.

From both an efficiency and equity perspective, governments can and in the past have intervened in ways that have:

- Impeded structural adjustment (for example, by providing farm business income assistance to those who probably should leave the industry);
- Facilitated structural adjustment (for example, removing impediments to adjustment, improving institutional arrangements such as transferable "property" rights); or
- Expedited structural adjustment (for example, providing exit grants).

Sometimes governments have used instruments with conflicting objectives in the same assistance scheme.

3.4.1. Concessional finance

Some adjustment schemes have included contradictory provisions, for example, concessional finance for debt reconstruction (retarding structural adjustment) and at the same time for farm build-up (expediting structural adjustment). In any case, the use of concessional credit causes inefficiencies and inequities especially when there is no obvious market failure in farm financing **(Malcolm, 1994).** Since the implementation of deregulation of the finance industry in Australia in the early 1980s, the case for government intervention in the provision of loans to the rural industry has been minimised.

Similarly, while the provision of low interest rate loans for debt reconstruction may allow unviable properties to continue to service debt, the national result will remain a low inefficient return on resources used. The provision tends to discourage repayment of the loan and thus provides less incentive to improve the overall financial situation. It also provides a very profitable exercise for those receiving assistance by avoiding selling at low land prices. The result is to increase the cost of farm build-up to those outside the scheme through having to purchase additional land at a higher price than would otherwise have been the case **(Harris *et al.*, 1974**). In effect, the availability of concessional loans disadvantages the more efficient **(Balderstone, 1982**).

With regards to the change to the provision of an interest rate subsidy on a commercial loan, this raised the question as to whether or not the obtaining of the loan was entirely dependent on the availability of the subsidy. If not, then the benefit of the provision went to the financing entity. **McColl *et al.* (1997)** in a Mid-Term Review of the Rural Adjustment Scheme (RAS 92), included the following reasons for abolishing concessional finance:

- the absence of any significant market failure for borrowed capital;
- lack of evidence of positive effect on productivity;
- delay of adjustment responses possibly leading to an erosion of equity;
- encouragement of further debt;
- the subsidy gets capitalised into asset values;
- risk is transferred away from farmers and financial institutions;
- masking of market signals impeding adjustment responses; and
- provides competitive advantage to the recipient farmers.

For farms actively engaged in adjustment through change of land ownership, government assistance is either not significant or negatively related to farm adjustment expansion, suggesting that if interest rate subsidy had any effect it is to slow adjustment.

3.4.2. Farm re-establishment - grants and loans

There is little evidence that the availability of a re-establishment grant (expediting structural adjustment) has been a major factor in decisions by farmers to leave agriculture. A decision to leave farming is not a simple business decision, but a complex process involving a major upheaval in lifestyle and generally takes place over a relatively extended time period **(McColl *et al*, 1997). Bryant (1989)** in a survey in South Australia of the policy and service needs of farm families in adjusting out of agriculture, drew attention to the psychological and social factors arising from displacement of the whole family unit. This includes the loss of home, job, way of life, children's future, future goals, family, friends and self-esteem. While leaving can be quite stressful, for some families surveyed it became a positive experience with increased and regular income, more leisure time and a "life after farming".

McColl *et al.* (1997) found little evidence that land trading by the adjustment agency speeds re-establishment. Nevertheless, and as participation rates tend to be low, often exit assistance is offered as a means to help gain political acceptance of a total package.

3.4.3. Farm management improvement – grants and loans

There is some evidence that the provision of grants or loans to acquire farm management skills and qualified professional advice that, in turn, facilitates structural adjustment, is effective in raising productivity **(McColl *et al.*1997).**

A mid-term review of RAS 92 **(McColl *et al*, 1997)** recommended the abolition of interest rate subsidies, and then the abolition of grants to farm businesses for productivity improvements. The review also recommended the abolition of exceptional circumstances support and that RAS 92 should be terminated and replaced by a program structure addressing the adjustment issues of management skills, farmer re-establishment, savings, and welfare.

The Commonwealth Government subsequently introduced an integrated rural policy package, Agriculture Advancing Australia (AAA), with four objectives:

- To help individual farm businesses profit from change;
- To provide positive incentives for on-going farm adjustment;
- To encourage social and economic development in rural areas; and
- To ensure the farm sector has access to an adequate welfare safety net.

The package included a Farm Business Improvement Program (FarmBis), a new tax-linked Farm Management Deposit Scheme replacing the existing Income Equalisation Deposits and Farm Management Bonds, a Retirement Assistance for Farmers Scheme incorporating a provision to facilitate inter-generational transfer of farm ownership, and a Farm Family Restart Scheme providing welfare support and re-establishment assistance. Rather than being abolished, exceptional circumstances provisions were continued and expanded with an Exceptional Circumstances Relief Payment available to cover exceptional circumstances other than drought.

Subsequent development of the AAA Package widened its scope to include government programs designed to help primary producers in agriculture, fishing, forestry and processed food industries become more competitive, sustainable and profitable.

More detail of the AAA Package is provided at Appendix 1.

3.5. Regional adjustment and assistance

The provision of regional support and investment programs is sometimes proposed as an alternative approach to providing direct assistance by acting to minimise third party effects, stimulating regional economic activity and generating employment opportunities. Through the existence of such programs, a positive environment to invest is established, the response to necessary change is encouraged and the adjustment process speeded up.

However, the virtues of such a regional approach should not be embraced unreservedly, and some caution needs to be exercised in this area. Earlier, the differential effects of assistance on recipients as against those who miss out is pointed out. At the regional level, the same principle applies. Unless very specifically targeted in support of an adjustment objective, assistance provided to a region may in fact hinder beneficial adjustment.

The close linkage between farms and businesses that supply inputs and handle and process outputs has been used as an argument for extending farm sector assistance provided by government to small businesses in regions. This issue has been particularly prevalent in times of drought. However, on the other hand, it also could be argued that some of the benefits of the provision of drought exceptional circumstances flows through to the small business sector. **Davenport *et al.* (1991)** concluded that such an extension would impede the development of small business self-reliance suited to a fluctuating income environment.

More generally, from time to time, there are renewed requests for government assistance for claimed special needs of rural and regional Australia. However, for reasons discussed earlier (variation across regions), there is mixed evidence of disadvantage.
Freebairn (2003) concludes that economy-wide government policies on taxation and social security that focus primarily on individual and family circumstances, and government expenditure on goods and services have a larger effect on the incentives and outcomes than industry or regional policies.

Nevertheless, in the last ten to fifteen years, there has been increasing interest in regional economic development reflecting the perception that rural and regional Australia has not received the level of benefits and has born more of the costs of microeconomic reform (tariff protection reduced, regulation of rural marketing arrangements, pricing of resources(water) more in line with real cost, corporatisation and privatisation of government enterprises), and globalisation, that has been realised by metropolitan Australia.

In the early 1990s, there were a number of reports on regional development and adjustment from a national perspective. Detail on these reports and on current Department of Transport and Regional Services (DOTAR) Programs are at Appendix 3.

Table 1: Rural Assistance - instruments, objectives and impacts

Adjustment instruments	Adjustment objectives	Expected adjustment impact	Comments
Concessional loans including interest rate subsidies	Debt reconstruction	retards	Inequitable, leave to financial system and autonomous adjustment
	Farm build-up	expedites	Inequitable, leave to financial system and autonomous adjustment
	Land trading by adjustment authority	expedites	Ineffective and unnecessary
	Drought exceptional circumstances	retards	In conflict with self-reliance, with natural resource management, and is inequitable,
Grants	Exit and re-establishment	expedites	Useful in an adjustment package but generally low uptake
	Retraining for other employment	facilitates	Useful in an adjustment package but generally low uptake
	Improving management capacity	facilitates	Improves decision making and risk management capabilities
	Obtaining qualified professional advice	facilitates	Assists with adjustment related decisions
	Industry adjustment	expedites	Provision of transition assistance following policy change
	Regional adjustment and development	facilitates	Stimulates regional economic activity, response to change encouraged

3.6. Developing adjustment packages

In developing effective adjustment policy packages, a number of essential elements must be considered. These include broad economic, environmental, social, regional, political, and financial market and risk aspects. The process of development of policy options and the most suitable implementation approach (for example, timing including the interval between announcement and implementation, whether up front implementation or phasing in, and perhaps providing a choice of options) are also important.

An important consideration relates to the sourcing of assistance funding, whether government or from an identifiable community group or a combination of both. For example, the Dairy Industry Adjustment Package is funded by a levy on milk drinkers, the substantive long term beneficiaries of the policy change. It is often not possible to identify a beneficiary community group. In such cases, the beneficiaries are generally considered to be the community as a whole and accordingly governments provide the necessary funding.

From both an efficiency and equity perspective, governments can and in the past have intervened in ways that have:

- Impeded structural adjustment (for example, by providing farm business income assistance to those who probably should leave the industry);
- Facilitated structural adjustment (for example, removing impediments to adjustment, improving institutional arrangements such as transferable "property" rights); or
- Expedited structural adjustment (for example, providing exit grants).

The Dairy Industry Adjustment Package (see Box 2) provides an interesting case study **(Harris, 2005)**. While since the 1980s there has been a phased reduction of domestic price arrangements supporting the export sector, there remained the preferential access by some milk producers to the higher priced liquid milk market. A decision to fully deregulate the industry was taken in 2000. The following are some key points regarding the development and implementation of the adjustment approach and package:

- The decision to fully deregulate was announced nine months before implementation giving limited time for farmers to review their situation and make decisions.
- The deregulation was implemented with full implementation up front with explicit adjustment (transition) assistance announced (full impact approach). Producers received immediate market signals providing a strong incentive to assess future viability and make the necessary changes.
- There were no conditions on how farmers could use the assistance and there was no requirement to exit the industry, although a program was made available to provide exit assistance. In any event, although 1840 farmers left the industry during the first two years of deregulation, only 134 were recipients of specific exit assistance. These were mainly small scale manufacturing milk producers. Very few made use of the retraining grants available suggesting that most had organised alternative employment.
- After three years of deregulation, 2242 farmers had left the industry, a decline of 17 per cent. The average annual exit rate was 225 farms during the previous five years.
- Most farmers increased farm output by increasing herd numbers. Carrying capacity was improved by greater use of improved pasture, and increased fertilizer and water inputs. Improved pasture and grazing management and greater use of supplementary feed led to increase in milk yields.
- Producers used restructuring assistance in ways that suited their individual circumstances. Many producers converted their DSAP/SDA entitlement to a lump sum payment and mainly used it to finance restructuring including off-farm investments and debt reduction.
- The downstream impact for the South East Queensland regional economy - with a heavy focus on fluid milk sales – revealed loss of employment and a reduction in regional GDP. However, when assessed against the size of the regional economy, the impact was relatively small. Employment effects tend to be over-shadowed by adjustments that are continuingly occurring in other sectors of the economy.

3.7. Critical lessons

What has past experience taught us about change, structural adjustment and government intervention?

- Forces for change will continue and there will be opportunities (benefits) as well as costs.
- Overall, national benefits from structural adjustment will exceed the costs.
- Most structural adjustment is, and will continue to be, autonomous without specific government intervention.

The "appropriate" rate of structural adjustment is not known and providing changes are occurring in a procedurally fair manner, there is no logical basis for masking, slowing or speeding up the rate established by markets.

When pressures for change are high, there is a risk that well-intentioned adjustment programs can be counter-productive and in the longer term result in a reduction in community well-being and wealth.

What should governments do?

In the long run, economic experience suggests that the nation, regions and communities will be better off if governments:

- remove impediments to adjustment;
- facilitate and expedite rather than impede such adjustment; and
- separately manage the consequences including any adverse effects on third parties and/or the environment, rather than trying to buffer or even counter change.

What about the use of specific instruments?

- The general provision of concessional finance including its provision for exceptional circumstances is not only inequitable but also unnecessary and is generally counterproductive (impedes adjustment);
- While the uptake of re-establishment grants or loans tends to be very low, they can be offered at minimal administrative cost and may be important in speeding up acceptance of an entire reform program (expedites adjustment);
- Grants and loans for improving management skills and obtaining qualified professional advice can be effective (facilitates adjustment);
- Grants within an industry adjustment package with clear adjustment objectives can be effective (facilitates adjustment); and
- Regional development grants focusing specifically on adjustment with an emphasis on improving both hard and soft infrastructure can encourage a positive environment in which people are prepared to invest (facilitates adjustment).

Pressures for adjustment can sometimes develop rapidly and generally available assistance programs may be inadequate. In such circumstances, there may be a case for specific industry or regional programs incorporating specific forms of assistance to help people in communities adversely affected by change **(Productivity Commission, 1999)**. This approach is particularly appropriate where the affected parties are relatively easy to identify and there is limited capacity to handle the adjustment pressure. For example, where there has been a significant permanent transfer of water from particular irrigation areas over a relatively short period or possibly where there is a significant impact of vegetation control clearance regulation.

In summary, it appears that government structural adjustment policies and programs will have better economic, equity and welfare outcomes if they concentrate on:

- improving institutional arrangements, in particular, providing clear definition of interests, rights and obligations in resource access and use, and charging the full costs of resource use;
- facilitating structural adjustment by establishing and using efficient markets enabling dynamic response to changing social, economic, technical and biophysical conditions;
- assisting managers to adapt to change by improving understanding of both managers and regional communities of the issues involved in the adjustment process;
- providing increased access to relevant information and training; and
- investing in specific and targeted economic (industry or regional) development and adjustment packages and projects.

As part of these initiatives there is a need to ensure that there is effective coordination among relevant agencies, coupled with consultation and community or industry involvement, and monitoring to ensure desired outcomes are achieved.

Finally, it often seems easier for governments to hinder autonomous adjustment in response to local pressures and reflecting a failure to manage social and environmental externalities, but in the process disadvantage those adjustments of greatest value to the community and even to an entire region.

4. Implications for water reform

4.1. Adjustment pressure

In July 2002, the MDBMC released a discussion paper on restoring the health of the River Murray entitled "The Living Murray" **(MDBMC, 2002)**.

This paper introduces the issue of additional environmental flows and identifies three reference points (350, 750 and 1500 GL/year). These reference points were to be used for a process of community engagement and as a basis for assessing the costs and benefits involved in transferring various volumes of water from current use (such as irrigation), or by securing water by investing in water saving projects.

The discussion paper generated a number of analyses and reports on the likely economic and social impacts of securing volumes of water from irrigation for the environment. Examples of these studies include **(Rendell-McGuckian, 2002; SKM, 2003; CARE and IRF, 2003; ECB, 2003; Hassall & Associates *et al*, 2003; and CIE, 2004)**.

4.1.1. Impact reports

These reports adopted a range of approaches including stakeholder consultation at catchment and regional level, and modelling (farm level, regional input/output, and general equilibrium).

Taken together, some general conclusions extracted from the reports are as follows:

- Market-based purchase is the most favoured mechanism to secure water as revealed by stakeholder consultation, followed by water supply infrastructure redevelopment - although it is considered that most attractive opportunities have already been implemented **(SKM, 2003)**;
- In the development of market-based approaches, policy may be directed at implementing transparent water trading processes, the development of incentives to retain income from the sale of water in local regions, and the use of exit fees to address the potential for stranded supply system assets **(ECB, 2003)**.

- Mechanisms less favoured by stakeholders to secure water include more efficient on-farm systems (difficult to assess net return to the environment), changing reservoir rules and allocation strategies, conversion of water access entitlements from low security to high security and compulsory acquisition (voluntary mechanisms favoured) **(SKM, 2003)**.
- It is important to try and maintain the existing contributions from the natural resource based industries while the capacity of other industries in a region have time to share in the growth of the national economy **(CARE and IRF, 2003)**.
- The ability of individuals and communities to absorb changes or manage changes successfully (the concept of resilience) is important and depends on such aspects as economic viability or versatility of the area's economy; social vitality related to social capital and extent of social resources to manage change; political efficacy relating to the ability to organise and draw on external links to help people manage change; and environmental qualities – are the land and water resources in a healthy condition and does land capability allow alternatives **(Hassall & Associates *et al.*, 2003)**.
- There is a need for greater focus on the communication of scientific knowledge to local communities; and on the use of local knowledge in the development, implementation and operational aspects of specific water recovery options **(ECB, 2003)**.
- For the Murray Irrigation Area, depending on the relevant assumptions regarding the level of reduction of irrigation diversions and time period of assessment, in the short-term, compulsory acquisition without compensation will lead to decreased farm-gate profit (from $4.0 to $62 million) with farm business numbers reducing in the longer-term through adjustment (from 1445 to 409) **(Rendell McGuckian, 2002)**.
- Reducing irrigation diversions in the Southern-connected River Murray System (RMS) by 540 GL (10%) using a market-based buy-back approach with trading allowed is estimated to;
    - reduce Gross Domestic Product (GDP) by $88 million per annum or nearly $1.0 billion net present value over a 20 year period; and
    - result in the loss of 400 to 900 jobs in irrigation and related activities **(CIE, 2004)**.
- The indirect impact of diversion (540 GL) makes up a significant proportion of the total impact. Direct losses to irrigators in the River Murray System are $32 million per year (equivalent to a 2% cut in annual net income) compared to indirect losses from processing of $12 million and flow-on losses of $47 million per annum **(CIE, 2004)**.
- Recovering water through administered reductions (pro-rata across all users) with no trading allowed is almost twice the cost of using a market-based method **(CIE, 2004)**.
- The reductions in GDP provide a benchmark against which to compare environmental benefits of increased flows in the RMS **(CIE, 2004)**.

With the possible exception of the CIE report, most of the above are static economic analyses and do not take into account the dynamics of the adjustment process.

It is also worth noting that water secured as environmental entitlements is likely not to be completely lost to production. There will be opportunities for counter-cyclical trading of allocations between environmental and production uses.

4.1.2. National Water Initiative and choice

One of the general thrusts of the NWI is to increase the range of individual choices available to irrigators and, in particular, make structural adjustment more attractive than it otherwise would have been.

Trading water is one of the main mechanisms that irrigators use to adjust where and how they use water. In the irrigation industry, pressures for structural adjustment will come from autonomous external processes associated with changes in technology and the market for irrigated products. Other pressures have arisen because of previous decisions that sometimes located irrigation in sub-optimal areas. In addition, pressures can be expected to emerge as a result of the decision by COAG to implement a National Water Initiative. As a result, there is likely to be:

- Increased opportunities to trade water;
- The separation of land use controls from water allocation policy;
- Increased allocations to the environment and decreased allocations to water users;
- The emergence of new competitors in the water market, including urban water suppliers, environmental managers and investors; and
- Actions to reduce the adverse impacts on rivers of increased forestry, more farm dams, less irrigation water returning to rivers and increased groundwater development.

All can be expected to increase the value of water and change the ways that people seek to use water and the places where water will be used. In any event, the price of permanent (entitlement) and temporary (allocations), including options and other derivatives that may develop, will always be set according to future expectations of such factors as market prospects, climatic conditions and risk. The elastic demand for many irrigated exports will establish a logical limit to water prices.

4.2. Water adjustment package design

The agreement by governments to fund the securing of 500 GL of environmental water (the first step of "The Living Murray") could be argued as representing an acceptance by governments that it is a policy-induced change and on equity grounds adjustment assistance is justified.

The experience summarised in this report suggests that any effort made to mask long-term adjustment signals or even actions that distort these signals will not be in the best interests of regions or the majority of people affected by them. Typically, signal masking and distortion works by disadvantaging the more successful irrigators and, as a result, reduces the quantity and quality of induced innovation that would otherwise have occurred and ultimately works to the detriment of the region. The management of externalities should not be confused with the management of adjustment.

As noted earlier, an essential step in addressing many of the problems associated with water management is the fuller specification of water access entitlements and the development of efficient water markets with low transaction costs, coupled with an effective suite of policies to address any adverse effects of land and water use.

It also requires the assignment of risks associated with these property rights and the full specification of opportunities and obligations associated with the application of water to land and other forms of water use. Ideally, this should be done before any consideration is given to adjustment assistance. Significant improvement is also necessary to water monitoring and measurement to support an efficient water trading and use system.

Care needs to be taken in designing any adjustment package, noting that adjustment assistance can facilitate, expedite or impede efficient and equitable adjustment.

4.2.1. Impeding adjustment

Typically, the efficiency case for impeding the rate of structural adjustment is weak. Sunk costs are sunk and as a whole the nation will be better off if it invests to maximise net benefits at the margin. Nevertheless, the extent of sunk capital in irrigation both on-farm and in water supply infrastructure is substantial and there may be efficiency gains from improving price signals in the short to medium term to make use of these assets. Where maintenance costs are greater than expected benefits, however, it is important that systems are in place for facilitating the rundown and eventual closure of inefficient channel systems and encouraging longer term investments in irrigation infrastructure elsewhere.

To deal with this possibility, the NWI also provides for water suppliers to introduce access and exit fees, but in a manner that does "not become an institutional barrier to trade". The apparent aim is to ensure that water users are unable to:

- make free use of common pool resource infrastructure paid for and maintained by others; and/or
- escape from an obligation to maintain such infrastructure which they had previously agreed to maintain.

4.2.2. Facilitating adjustment

A desirable characteristic of instruments that aim to facilitate adjustment is that they do not mask long term signals in national and global markets for goods and services dependent upon water use and do not lead to detrimental environmental outcomes.

The NWI heralds a new approach to water management that is characterised by the delivery of increased opportunities for water users to adjust. In particular, Murray-Darling Basin parties have committed to "immediate removal of barriers to temporary trade ... by June 2005" and to "establish an interim threshold limit on the level of permanent trade out of all *water irrigation areas* of four per cent per annum of the total water access entitlement for the *water irrigation area* by June 2005 (Paragraphs 60-63). Removing barriers to trade increase opportunities for individuals to adjust and become more profitable. If temporary transaction costs are low, then it is possible to couple this mechanism with long term leasing and other similar arrangements to efficiently facilitate adjustment whilst retaining ownership of the water access entitlement asset in a region.

Further, while at first glance the NWI's interim threshold limit on the level of permanent trade out of an irrigation area may appear restrictive, 4% per annum over five years will result in movement of almost 20% of permanent water access entitlements and through the use of interim leasing arrangements, the effective transfer of potentially unlimited amounts of allocation water. Transfer waiting lists are emerging and administrative pathways are being found to circumvent the intent of this restriction. The main effect is an increase in transaction costs – a dead weight economic loss.

4.2.3. Expediting adjustment

Opportunities to introduce policies that expedite adjustment are many. For example, introducing programs that correct market failures associated with salinity and other adverse environmental impacts of water use. Adjustment programs and policies could also be used to facilitate the speedier re-alignment of supply channel infrastructure. The relocation of water through trading is likely, over time, to result in significant reduction in water users and use in some supply areas. Given the sunk capital in supply channel systems, the adjustment of the channel supply system may be slower than desirable and it may be beneficial both from an environmental and water use efficiency perspective to encourage the remaining water users to withdraw from irrigation and possibly relocate.

An example of such an approach is the South Australian Highland Irrigation Areas Rehabilitation and Restructuring Initiative negotiated in 1992 between the South Australian and Commonwealth Governments. As part of the agreement, new legislation relating to irrigation (Irrigation Act 1994) was enacted. An important aspect of the new legislation is the provision for compulsory closure (with compensation) of water supply to some farms on the grounds of land unsuitability and uneconomic cost of supply, helping to expedite structural adjustment processes (see Box 4).

Box 4: Rehabilitation and Restructuring of the South Australian Highlands Irrigation Areas

Two thirds of the South Australian Highlands Irrigation Areas were rehabilitated to pressurised systems by the State Government during the 1970s and the early 1980s. In 1992, the program was recommenced under the SA Highland Irrigation Areas Rehabilitation and Restructuring Initiative that included irrigation infrastructure rehabilitation, on-farm adjustment (restructuring), and institutional and policy reforms. As part of this process, it quickly became apparent that considerable efficiencies and savings in supply provision could be made if some irrigation farms were decommissioned. The Irrigation Act 1994 provides for inclusion or exclusion from a district, abolition of a district with or without landowners application, and an appeals mechanism through an Environment, Resources and Development Court (ERDC).

As part of the program, a review of land suitability and water supply rights was undertaken on land restricted to irrigation of annual crops (mainly vegetables) only. Of a total of 323 irrigation blocks, 121 were retired from irrigation. There was considerable negotiation regarding the level of compensation with a number of growers appealing to the ERDC. Overall the review has been assessed as successful in formalising (with conditions) permanent high security water allocations; raising the question of the rights of irrigators to a permanent supply, and achieving and legitimising retirement of land deemed unsuitable for irrigation and/or uneconomic to supply water (McFarlane M (1996), The Vegetable Review – Final Report).

An important adjustment issue relates to the securing of water for the environment. Apart from exhausting the available efficient water saving opportunities by investing in improved supply and storage infrastructure, governments face a choice – they can secure water via the market place or make pro-rata reductions with or without compensation and/or assistance.

Once all efficient opportunities to save water at less than the cost of buying water from irrigators have been found, an important structural adjustment issue is the question of how to source the next tranche of environmental water for the River Murray and elsewhere. In the case of the River Murray, our impression is that most efficient infrastructure reconfiguration and other large management opportunities to realise water savings at a cost less than the value of purchasing water entitlements have been exhausted. If this is the case, then the next most efficient option is to find ways to encourage irrigators to return water to the river.

Options for doing this include:

- taking out options for the supply of water for environmental purposes when pre-specified conditions apply;
- purchasing water on an opportunistic basis and essentially placing a price floor in the entitlement market until sufficient water is found;
- running a voluntary entitlement buy-back process where irrigators are asked to nominate how much water they are prepared to offer at different prices per unit of entitlement;
- compulsory buy-back of a small proportion of each water entitlement;
- the compulsory acquisition of larger amounts of water from selected areas or entitlement types; and
- making pro-rata reductions to all entitlements with or without the payment of compensation and the provision of adjustment assistance.

In specific situations and as being well articulated by ABARE research, the purchase of options has a clear role in the development of a portfolio of arrangements necessary for the efficient delivery environmental outcomes. Options work by specifying the conditions when allocations are to be transferred to an environmental manager rather than used by an irrigator (Heaney, et al. 2005). In the case of NSW general security allocations, for example, under an options arrangement an irrigator could, in return for a fee, write a contract to allow an environmental manager to sell any announced allocation in excess of 90% of their full entitlement. In effect, this would mean that in low allocation years no water would be transferred to the environment but that in high allocations up to 10% could be transferred to the environment. If there is a high correlation between high allocation years and the need for environmental water then options such as this provide an efficient mechanism that could be used to improve river health. The administrative approach used to acquire options would probably be similar to that for the voluntary buy-back programs described below.

Typically, voluntary buy-back programs acquire water from those most able to do without it at a nominated price. On completion of the buy-back process, a settlement price is announced and all offers less than the settlement price are settled at that, the settlement price. (It is also possible to run a tender program where entitlement holders are paid only the price they offer.)

The main merit of voluntary buy-back programs is that they search efficiently for those most able to adjust the size of their holding. The main downside of voluntary buy-back programs is that the payments made to entitlement holders may be subject to capital gains tax and any assets purchased using the money received would be subject to capital gains tax (see Box 5).

While many States would need to legislate to allow compulsory acquisition of water entitlement, compulsory acquisition has a number of unique features that differentiate it from other options. First, any capital gains tax liability can be deferred. Second, the fair and just price that legislation requires normally includes a payment to compensate for any inconvenience and disruption imposed. Third, all irrigators are forced to consider carefully whether or not they could do without some water. If only a small proportion of each entitlement is acquired then most irrigators could be expected to seek ways to do with less and invest the money received in actions that make this possible. In cases where doing with less is difficult and if the price paid is just, irrigators should have enough money to buy-back entitlements from irrigators more able to adjust. (In order to signal government awareness of the cost of buying back water, governments could offer to waive any transfer, registration and stamp duty charges associated with the repurchase of water.)

The main disadvantages of compulsory acquisition are administrative and political. In most jurisdictions new legislation would be required. Moreover, as most registers are not yet electronic, the costs of dealing with each entitlement could be high.

If the Commonwealth Government is involved in or implements a compulsory buy-back program then it would need to be implemented in a manner consistent with Section 51 (xxxi)

Box 5: Capital Gains Tax implications of voluntary and compulsory acquisition of water

When a government agency compulsorily acquires as asset, a person may reinvest the money received without incurring a capital gains tax liability. Capital gains tax is payable only on the gains earned from assets purchased after 19th September 1985. Assets purchased before then are Pre-CGT assets and assets purchased after this date are Post-CGT assets.

Suppose the government acquires one megalitre of water for $1,600 from a person who originally purchased this megalitre for $600.

- If the purchase was voluntary, income tax would be payable on 50% of the money received 50% x ($1,600-$600) = $500.
- If the purchase was compulsory and involved Post-CGT water, $1600 could be used to buy a new asset which for capital gains tax purposes would be valued as if it had been purchased for $600.
- If the purchase was compulsory and involved Pre-CGT water, a replacement asset worth up 120% x $1600=$1,920 could be purchased *and* remain exempt from capital gains tax.

Given the above, irrigators could be significantly better off if water is acquired compulsorily. Under the provisions of the Income Tax Assessment Act, compulsory acquisition is deemed to occur if a government indicates that it will compulsorily acquire an asset unless a satisfactory price can be negotiated. Legislation giving a government power to compulsorily acquire water may be necessary before a government could compulsorily acquire water.

Caveat: Independent professional advice should always be obtained before making a decision to accept any offer from a government to purchase water.

Source: CCH (2005) Australian Master Tax Guide 2005, Sydney.

of the Constitution. Allen (2000) in a recent review of compulsory acquisition observes that section 51 of the "Constitution states that the Commonwealth Parliament 'shall, subject to this Constitution, have power to make laws for the peace, order and good government of the Commonwealth with respect to' a list of subjects; this list includes, in paragraph (xxxi), the 'acquisition of property on just terms from any state or person for any purpose in respect of which the Parliament has power to make laws'". He also observes that the High Court has expressed the view that the requirement for payment on just terms "should be construed generously."

Under voluntary and compulsory options, there is a case for considering the merits of targeting acquisition to selected areas and entitlement types. In particular, there is a strong case for biasing an acquisition program towards those areas and entitlement types where use and/or the consequences of further development or trade tend to work against river health objectives. But before one targets, the likelihood that a voluntary buy-back program would target these same areas and entitlement types needs to be considered. The main areas and entitlement types that work against river health include:

- areas where salinity impacts are high;
- properties where unused "sleeper" groundwater entitlements exist;
- areas where water use is inefficient and no return flow obligation is in place.

On efficiency grounds there is also a case for targeting or compulsory closure of branches of irrigation systems, which as a result of trading, are now expensive to maintain.

Economic theory would suggest, however, that in many, if not most cases, there will be a strong correlation between willingness to sell and situations that work against river health objectives. That is, the market place may well be such a powerful targetor that there is little advantage in attempting to develop a formal targeting process. The costs may outweigh the benefits.

Coincidence between buy-back offers and river health objectives is particularly likely if a premium over and above market price is offered and those considering significant adjustment

see participation in a voluntary buy-back program as their best opportunity to get a high price for their water. If this is the case, then voluntary buy-back possibly underpinned by the power to compulsory acquire unprofitable channel systems and areas where irrigation and land use works against river health may be the most efficient strategy.

4.3. Concluding remark

If adjustment is impeded, the most significant adverse impacts are often on the capacity of the most talented in a district or an industry to innovate. Australian history is rich with stories of the adverse effects of attempting to shore up existing businesses experiencing financial difficulties rather than allowing others the opportunity to enter and existing businesses to adjust and expand.

There are many opportunities for governments to facilitate and expedite change.

The future of Australia and its people – at the regional and at the National level – lies with processes that allow and encourage autonomous changes to occur.

Where unacceptably adverse impacts occur, whether on people or the environment, experience suggests they are most effectively managed using separate policy processes. In all cases, the first best option is always to address underlying policy failures and not use restrictions on adjustment as a means to postpone the need to do so.

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Appendix 1. National Water Initiative – Key elements.

Key elements of the National Water Initiative are as follows:

- water access entitlements to generally be defined as open-ended or perpetual access to a share of the water resource that is available for consumption as specified in a water plan;
- outcomes to be achieved for particular water systems, improved accountability arrangements for environmental managers and statutory recognition for water that is provided to ensure environmental outcomes are met;
- over-allocated water systems to be returned to sustainable levels of use in order to meet environmental outcomes, with substantial progress by 2010;
- a framework that assigns risk between water users and government of future reductions in water availability arising from natural events such as climate change, drought or bushfires, or from changes in government policy not previously provided for (for example, through the planning process);
- more efficient administrative arrangements to facilitate water trade in connected systems;
- removal of institutional barriers to trade in water, including a phased removal of barriers to permanent trade out of water irrigation areas in the southern Murray-Darling Basin;
- regional assessments of the level of water intercepted by land use change activities and requiring new activities expected to intercept significant volumes of water to hold a water access entitlement if the catchment is at, or close to, its sustainable level of water allocation.
- continued implementation of full cost recovery pricing for water in both urban and rural sectors;
- national standards for water accounting, reporting and metering; and
- actions to better manage the demand for water in urban areas, including a review of temporary water restrictions, minimum water efficiency standards and mandatory labelling of household appliances, and national guidelines for water sensitive urban design.

Appendix 2. Rural adjustment assistance schemes

The Commonwealth government has provided assistance for rural adjustment since the 1930s initially through the Commonwealth Debt Reconstruction Scheme.

Commonwealth Debt Reconstruction Scheme 1930s

This scheme was probably the first example of government intervention to correct the adverse effects of a previous intervention; namely, post WWI soldier settlement schemes in marginal areas with inadequate areas of land, exacerbated by the impact of low grain prices during the Great Depression.

Rural Reconstruction Commission 1943

In 1943, the Rural Reconstruction Commission was established to review agriculture and to make recommendations for the post World War 2 period. The report of the Commission emphasised the realities of practical farming and the pressures of the economic environment within which farmers had to operate. It aimed at tempering the unrealistic enthusiasm for small farm settlement schemes particularly in low rainfall areas. Post- war government investment during the 1950s and 60s focused on both soldier and closer settlement schemes mainly in irrigation or higher rainfall areas.

Industry Reconstruction Schemes 1970s

Subsequent specific industry assistance schemes established in response to adverse market circumstances included the Marginal Dairy Farms Reconstruction Scheme (1970) and the Fruit growing Reconstruction Scheme (1972). The Marginal Dairy Farms Reconstruction Scheme was mainly aimed at the build-up of uneconomic dairy farms in areas less suited to dairy production. This resulted in a reduction in the number of dairy properties, mainly in Queensland. The Fruit growing Reconstruction Scheme involved the removal of specified varieties of trees by those wishing to leave the industry or those lacking resources to remove trees but desiring to remain in the industry. The Scheme was established in recognition of the particular constraints on structural adjustment experienced by fruit growers that could not be adequately covered by the general Rural Reconstruction Scheme. These constraints include the low salvage value of redundant trees, and the high proportion of farm capital in trees, and the long time lag between planting of new varieties and production. It was also recognised that additional problems arose because of the concentration of orchards in specific regions and where alternative enterprises were often limited.

Rural Reconstruction Scheme 1972

In the early 1970s, with generally adverse conditions for most rural industries and, in particular, with both wool and wheat industries in dire straights, the first Rural Reconstruction Scheme (RRS 72) was set up as a joint operation between Commonwealth and State Governments. The scheme included components covering; debt reconstruction (for those unable to meet current financial commitments but with prospects of long-term viability), farm build-up (to enable the amalgamation of properties to an economic size) and rehabilitation (providing limited assistance to those leaving the industry). The provision of concessional low interest rate loans was the policy instrument used. The main demand was for debt reconstruction (2/3) and for farm build-up (1/3). There was little demand for rehabilitation assistance for leaving the industry.

The inclusion of the UK in the European Economic Community in 1973 and the consequent protection provided for a wide range of temperate agricultural commodities provided under the common arrangements, virtually excluded any real competition from imports. This led to the loss of key markets by Australian producers, particularly in horticultural products and dairying.

Rural Adjustment Scheme 1977

In 1977, following a review by the Industries Assistance Commission (IAC), RRS 72 was replaced by the Rural Adjustment Scheme (RAS 77) designed to smooth and facilitate the structural adjustment process in agriculture. At the same time, it was recognised that most adjustment will continue to take place autonomously and without government intervention.

The overriding objective was to help restore to economic viability those farms and farmers with the capacity to maintain viability once achieved.

The main feature was the provision of adjustment assistance on a continuing basis under a single scheme operating under a Commonwealth Government/State Government Agreement. All previous schemes were terminated. Part A, funded by the Commonwealth with States to repay 85%, continued with debt reconstruction and farm build-up, plus a new component of assistance for farm improvement. Rehabilitation loans for farm exit were also continued. Part B incorporated the carry-on arrangements available to the beef, dairy, winegrape, canning fruit and the sugar industries prior to 1976 and was funded on a dollar for dollar basis by Commonwealth and State governments. Part C introduced household support wholly funded by the Commonwealth for non-viable farmers exiting farming. Again the policy instrument was concessional low interest rate loans.

Rural Adjustment Scheme 1985

In 1985, following a report by the IAC, arrangements were revised to provide more borrowing flexibility for farmers (RAS 85). The objectives were to both facilitate rural industry structural adjustment and to ease adjustment pressures. Taking into account deregulation of financial markets in Australia in the early 1980s, concessional loans continued as the policy instrument, but were modified by funding as an interest rate subsidy on commercial loans rather than providing loans fully funded by government.

Rural Adjustment Scheme 1988

Following a review (Coopers Lybrand WD Scott) in 1988, RAS 88 was introduced with the aim of improving the efficiency of the Australian rural industry and enhancing its international competitiveness. The stated aim was not to keep farmers on the land or prop up farm enterprises that were not viable in the long-term. Additional components focusing on improving efficiency included assistance for change of farm programs, adoption of technological developments and acquisition of improved skills and professional advice. This was an important policy change. Nevertheless, the perception that the RAS was basically an assistance mechanism to provide interest subsidies to fill in temporary shortfalls in cash flow continued to persist.

In 1992, an important addition to RAS 88 was the inclusion of assistance for drought relief. This assistance had previously been provided through national disaster relief arrangements. Presumably governments at the time concluded that drought is an occurrence for which farmers can be reasonably expected to plan and prepare. In other words, drought is a component of business risk, the probability of drought in particular areas being generally known. In contrast, the farm manager cannot reasonably be expected to plan and prepare for the impact of a natural disaster such as fire or flood episodes.

The concept of "exceptional circumstances" was first introduced to assist farmers in NSW and Queensland affected by drought. Unfortunately, the introduction of this arrangement has led to some regions effectively depending on regular access to government funds to underpin existing agricultural production systems and business structures rather than allowing the farming system and business structures to adjust and evolve consistent with the realities of markets and of the natural environment.

Rural Adjustment Scheme 1992

Following further review of RAS 88 (Synapse Consulting (Australia) Pty Ltd), the key objectives became to foster the development of a more profitable farm sector that is able to operate competitively in a deregulated financial and market environment and to improve the competitiveness of the farm sector in a sustainable manner (RAS 92). The policy objectives were essentially the same as for RAS 88 with the addition of a reference to sustainability providing a linkage to the early 1990s development of the concept of ecologically sustainable development (ESD). RAS 92 incorporated farm productivity enhancement and skills enhancement aimed at improving competitiveness; land trading and re-establishment to facilitate exit; and exceptional circumstances. It was also recognised that financial assistance was also provided through programs administered by the Department of Social Security including farm household support; job search allowance; and family payments. A RAS Advisory Council was also established to advise the Minister.

In 1995, in response to pressures for structural adjustment assistance to be available within a regional and or industry context, a regional component was included. This component supported farmer training courses, farm management planning, improved information flows to farmers, property build-up and productivity enhancement measures, re-establishment support and re-training schemes for those leaving the sector; and funding for regionally-based facilitators. Also in 1995, the Rural Partnership Program (RPP) was introduced aimed at providing single access to a range of relevant government programs for communities working with governments. Importantly, for the first time these policy initiatives integrated rural adjustment programs with those focused on natural resource management.

Agriculture Advancing Australia (AAA) Package 1997

In 1997, a mid-term review of RAS 92 was undertaken **(McColl *et al*)** which recommended the abolition of interest rate subsidies and of grants to farm businesses for productivity improvements. The review also recommended the abolition of exceptional circumstances support and that RAS 92 should be terminated and replaced by a program structure addressing the adjustment issues of management skills, farmer re-establishment, savings, and welfare.

Following this review, an integrated rural policy package, Agriculture Advancing Australia (AAA), was introduced with four objectives:

- To help individual farm businesses profit from change;
- To provide positive incentives for on-going farm adjustment;
- To encourage social and economic development in rural areas; and
- To ensure the farm sector has access to an adequate welfare safety net.

The package included a Farm Business Improvement Program, a new tax-linked Farm Management Deposit Scheme replacing the existing Income Equalisation Deposits and Farm Management Bonds, a Retirement Assistance for Farmers Scheme incorporating a provision to facilitate inter-generational transfer of farm ownership and a Farm Family Restart Scheme providing welfare support and re-establishment assistance. Rather than being abolished, exceptional circumstances provisions were continued and expanded with an Exceptional Circumstances Relief Payment available to cover exceptional circumstances other than drought.

Subsequent development of the AAA Package widened its scope to include government programs designed to help primary producers in agriculture, fishing, forestry and processed food industries become more competitive, sustainable and profitable.

Appendix 3. Regional development and adjustment

In the early 1990s, there were a number of reports on regional development and adjustment from a national perspective **(Industries Commission, 1993), (Taskforce on Regional Development, 1993), Bureau of Industry Economics, 1994), (McKinsey & Company, 1994).**

Key principles flowing from these reports include:

- The willingness and capacity of a region to upgrade its competitiveness and adapt to changing opportunities, particularly in export markets, are important influences on performance;
- There is an important link between investment and growth, and regions can influence factors which drive investment;
- Positive regional leadership is vital, focusing on key issues, identifying priorities and commitment and capability to implement effectively; and
- Governments can assist by acting as change leaders through encouraging changes in attitudes and behaviour for economic growth, improving incentive structures, building skills in regional leaders.

State, Territory and Local Governments have traditionally been the most significant players in regional development with considerable diversity in approaches taken in terms of both structures and policies. Commonwealth agencies, particularly the Department of Transport and Regional Services (DOTARS) and Agriculture, Fisheries and Forestry Australia (AFFA) are both significantly involved in regional development and adjustment.

AFFA has focused on helping primary producers in general manage change, on those rural regions with substantial core economic activities based on primary industries often with an industry development approach, and on the utilisation and management of natural resources.

There is considerable scope for overlap and some confusion amongst regional and rural communities regarding the plethora of programs and of the respective roles of governments and government agencies both Commonwealth and State.

DOTARS Regional Development Activities

The following is a list of some of the regional and rural initiatives provided.

Regional Partnerships - bring together a number of regional funding programs.

These include:

- *Regional Solutions* – to assist regional and rural communities build their capacity to identify and implement development opportunities.
- *Regional Assistance* – aimed at generating employment in metropolitan, regional and remote Australia by encouraging local community action to boost business growth and create sustainable jobs.
- *Rural Transaction Centres* – funding to help rural communities establish their own rural transaction centres
- *Dairy Regional Assistance* – part of the Commonwealth's Dairy Industry Adjustment Package.
- *Structural Adjustment Programs* including Wide bay-Burnett, Namoi Valley, Weipa, and South West Forest Region of Western Australia.
- *Area Consultative Committees (ACCs)* – a network providing a linkage between the Federal Government, business and local communities to build stronger communities and generate opportunities for jobs, business success and regional economic growth.

- *Sustainable Regions Program* – assists regional communities to address priority issues they have identified and offers a planned, integrated approach to regions facing economic, social and environmental change.
- The *Commonwealth Regional Information Service (CRIS)* – provides information about Federal Government programs and services, and about entitlements and obligations.
- *Foundation for Rural and Regional Renewal* – a philanthropic foundation to provide a viable social and economic future for Australia's rural and regional communities.

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