



Australian Government
Productivity Commission

Water reform in rural Australia

Supporting Paper H

National Water Reform 2020
Draft Report

February 2021

GUIDE TO THE SUPPORTING PAPERS (AND DESCRIPTOR)

SP A	Water entitlements and planning (<i>Entitlements and planning</i>)
SP B	Water trading and markets (<i>Trading</i>)
SP C	Environmental management (<i>Environment</i>)
SP D	Securing Aboriginal and Torres Strait Islander people's interests in water (<i>Cultural access</i>)
SP E	Ensuring the integrity of water resource management (<i>Integrity</i>)
SP F	Urban water services (<i>Urban</i>)
SP G	Urban water services: regional and remote communities (<i>Regional</i>)
SP H	Water reform in rural Australia (<i>Rural</i>)
SP I	Government investment in major water infrastructure (<i>Infrastructure</i>)
SP J	Community engagement (<i>Engagement</i>)
SP K	Knowledge, capacity and capability building (<i>Knowledge</i>)

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An appropriate reference for this publication is:

Productivity Commission 2021, *Water reform in rural Australia, Supporting Paper H* to National Water Reform 2020, Draft Report, Canberra.

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Key points

- Over the last 25 years, reforms promoting the efficient use of water have enabled significant gains for rural water users.
 - Statutory based water entitlements provide clear and secure long-term property rights and have become valuable assets.
 - Market driven water trade has resulted in higher value irrigated production, including thriving new irrigated industries.
 - Trade gives irrigators flexibility in managing risks in water availability and facilitates longer-term investment planning.
 - Market signals also encourage irrigators to become more technically efficient, freeing up water for other productive uses.
- A drying climate and more variable seasonal conditions will place further challenges on irrigators and communities. Entitlement holders are well-positioned to address future challenges. National Water Initiative (NWI) tools can enable businesses to adjust their water portfolios to better reflect their risk profiles and assist less viable businesses to adjust or exit.
- NWI renewal is an opportunity to strengthen those tools and frameworks. For example:
 - risk-based frameworks for managing water uses within entitlement regimes could promote efficient management of shared resources
 - best-practice principles for community partnership and engagement would help to ensure water planning processes and outcomes reflect the diverse needs of rural communities
 - a new integrity element would build greater confidence in water resource management
 - stronger trading foundations and better market information would provide greater support for commercial decision-making
 - guiding principles that help ensure government-funded infrastructure investment is economically viable would avoid future burdens on rural water users and communities.
- Inclusion of guiding principles in a renewed NWI would clarify how governments can respond to any significant adjustment pressures faced by rural communities as a result of reform-induced reductions in water availability.
 - Generally-available measures targeting the welfare and skills of individuals, and regional development planning to leverage off community level capabilities and competitive advantages are usually the most appropriate responses to adjustment pressures.
 - Where specific assistance is warranted, governments should facilitate change by focusing any direct assistance on building adaptive capacity and securing employment or business opportunities for the most vulnerable affected individuals.
 - Assistance should reflect the needs of communities and be backed by a commitment to public monitoring and evaluation of outcomes.

National reform has transformed water resource management and water service provision in rural Australia, delivering substantial benefits. However recent severe and extensive droughts, long-term declines in inflows across southern Australia and the risks posed by climate change have created significant challenges for irrigators and other rural water users and their water-dependent communities. Looking forward, irrigators will likely need to

contend with more frequent and severe droughts, and their businesses and communities will need to adapt to a world with less water.

This paper considers the realised and potential impacts of water reform on rural water users and communities. For rural water users, NWI-consistent reforms have provided tools and frameworks that support long-term business decision-making and enable adaptation to changing conditions. NWI renewal could strengthen these supports (section 1). For rural communities, a revised NWI could provide clearer guidance on the role of governments in addressing adjustment issues (section 2).

1 Reform and rural water users

Rural businesses — mainly irrigators — are Australia’s largest water users. In 2018-19, water for agricultural purposes accounted for about 70 per cent of consumptive use (BOM 2020, p. 42). Given this status, rural water users have the most to gain from effective and efficient water resource management, allocation and service provision policies.

1.1 NWI consistent reforms have delivered large benefits

Over the past 25 years, reforms promoting efficient and sustainable use of water have enabled significant gains for rural water users. The establishment of NWI-consistent entitlement regimes and trading frameworks has been fundamental to unlocking these gains.

Secure property rights, separate from land, provide the foundations for better management of Australia’s water resources. As the National Farmers Federation (sub. 42, p. 13) noted, ‘for irrigated agriculture and the broader water management framework, the establishment of secure property rights has been a cornerstone that has underpinned much of the progress achieved under the NWI’.

Water markets and trade — enabled by secure property rights — provide choice and flexibility to irrigators and open up new business opportunities. By facilitating longer-term investment planning, including about decisions to change production or exit irrigated agriculture, farmers have more flexibility in managing their businesses (NWC 2011, pp. 62–71). Furthermore, irrigators now own valuable assets that can be used as collateral for loans — estimates put the total value of entitlements in the southern Murray–Darling Basin (MDB) at more than \$26 billion (Aither 2020, p. 5).

Market driven water trade has also enabled equitable water recovery for the environment. The strength of water property rights has been fundamental to addressing overallocation, particularly in the MDB, where farmers have been compensated for water recovery through a mix of market purchases and on-farm water efficiency measures.

Economic regulation and local ownership and management (especially by irrigators) of rural water service providers have improved the accountability, productivity, efficiency and responsiveness of these businesses to the needs of rural water users (PC 2017, p. 237).

Water reforms have also led to significant efficiency gains by changing where and how water is used in rural Australia. Across the agricultural sector, market driven trade has enabled water resources to move to higher value uses. This has enabled the rapid development of thriving new irrigated industries, such as nut growing. On farm efficiency has also been encouraged by price signals that highlight the true value (or opportunity cost) of water (ACCC 2020, p. 84). And by highlighting the alternative uses of water, markets encourage farmers to become more technically efficient with the water they use, freeing up water for other productive uses.

These reforms have also done much to position entitlement holders to manage risks by:

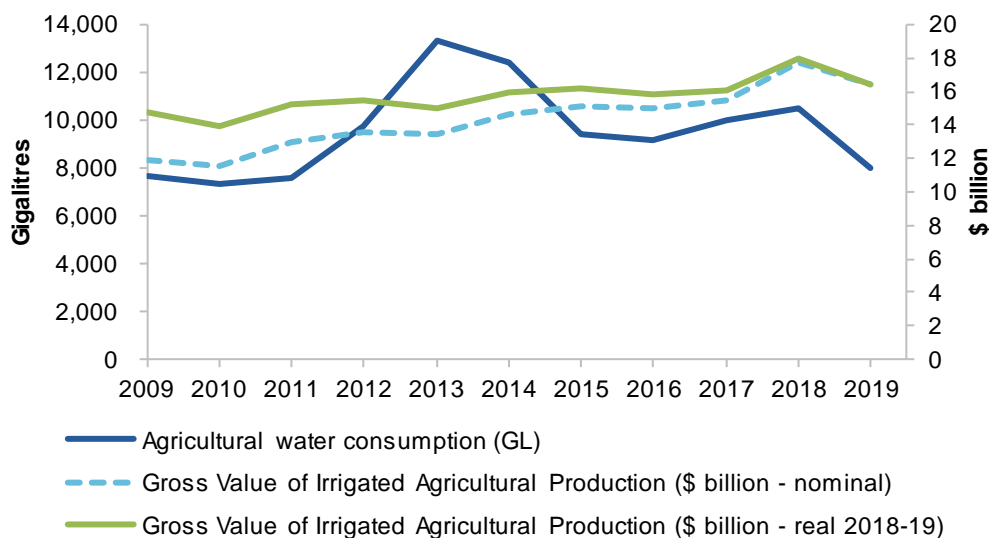
- establishing clear and well-defined property rights that can be traded (SP A *Entitlements and planning*, SP B *Trading*)
- requiring transparent and consultative water planning processes that establish the rules for how and when water rights can be used (SP A *Entitlements and planning*, SP J *Engagement*)
- mandating clear risk assignment frameworks for short and long-term changes in water availability (SP A *Entitlements and planning*).

The above NWI frameworks — particularly tradable water rights — have proved their worth in times of drought. Some entitlement holders have been able to sell water allocations to provide revenue to support production changes and to manage debt, while purchasers of allocations have been able to maintain high value production and permanent plantings. Allocation trade in particular allows water to move from producers with flexible irrigation demands (such as rice and cotton growers) to those with inflexible demands (such as horticulturalists with perennial crops) in response to seasonal variations in water availability.

Studies of the economic benefits of water trading, although dated, pointed to substantial value, concentrated in times of drought. For example, research commissioned by the National Water Commission illustrated its significant value during the Millennium drought. This work culminated in a 2012 study that estimated that regional GDP in the southern MDB was \$4.3 billion higher over the 5 years to 2010-11 than it would have been without water trading. Gains were concentrated in the driest years of 2007-08 and 2008-09 (NWC 2012, p. xii).

Trading has allowed the gross value of irrigated agricultural production in Australia to increase in most years over the period from 2008-09 to 2018-19, despite water use varying considerably between wet and dry years (figure 1). From 2012-13 to 2014-15, production increased (in nominal and real terms) despite a 29 per cent reduction in water use for irrigation. And in 2018-19 the value of production was at its second highest level on record, despite record breaking droughts across much of Australia.

Figure 1 **Australia's gross value of irrigated agricultural production increased in most years despite variable water use^{a,b}**



^a Year ending 30 June. ^b Commission estimates of the real 2018-19 gross value of irrigated agricultural production using December quarter values for the consumer price index.

Sources: ABS (Water Account, Australia, 2016-17, table 12, Cat. no. 4610.0); ABS (Water use on Australian Farms, 2017-18 and 2018-19, table 1, Cat. no. 4618.0); ABS (Water Account, Australia, 2018-19, table 13.1, Cat. no. 4610.0); (Consumer Price Index, Australia, Sep 2020, Series ID A2325846C, Cat. no. 6401.0).

1.2 Reforms have also prepared water users to address future challenges

Looking forward, water trading will be vital to enabling businesses to adjust — and for less viable businesses to exit — in response to climate change and other pressures. Australian farmers will need to adapt their farming practices in response to changing water availability and trends in commodity markets, and trade will help businesses to adjust their water portfolios to better reflect their water needs and risk profile.

For rural Australia as a whole, the continued evolution of irrigation toward higher value industries will help to maintain the value of irrigated agricultural production. This point was illustrated by Australian Bureau of Agricultural and Resource Economics and Sciences analysis for the southern MDB (Gupta et al. 2020, p. 19).¹ The analysis showed that under a scenario that led to a 3 per cent reduction in water use compared with recent years, the gross value of irrigated agricultural production could be maintained if farmers continue to adjust from lower value-added industries to higher value-added industries (future market scenario, figure 2). The analysis also showed that continued adjustment of production — supported

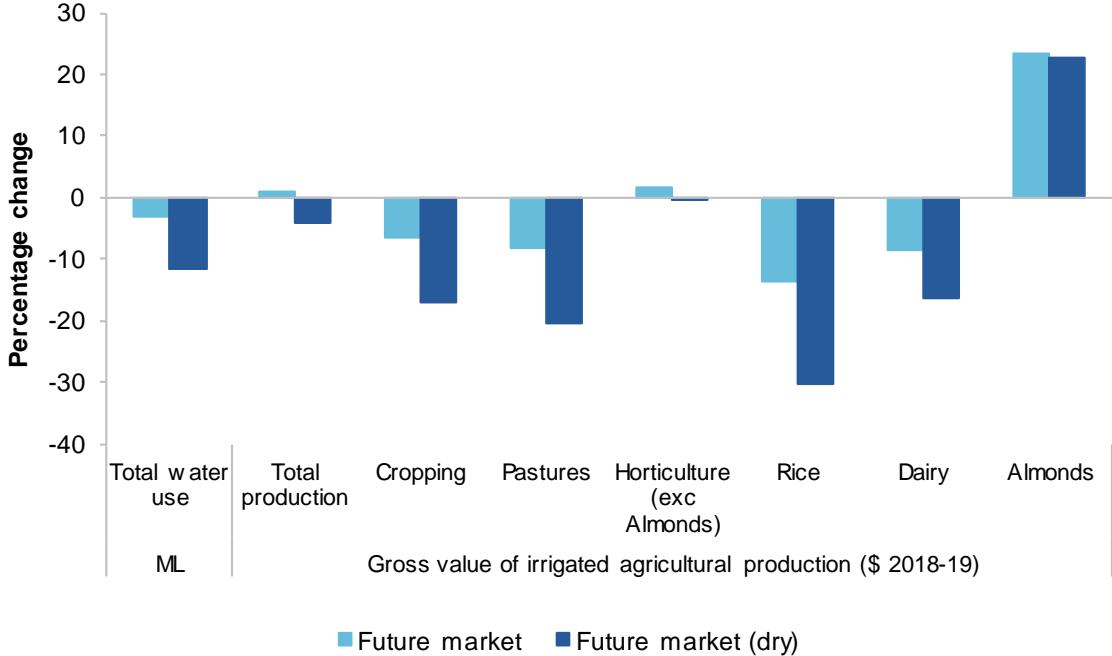
¹ Commissioned for the *Independent Assessment of Social and Economic Conditions in the Basin* (Sefton et al. 2020).

by water trading — would be even more important for maintaining the value of agricultural production with an even dryer climate. Under a scenario where a further 11 per cent reduction in water availability means that water use is 12 per cent lower than in recent years, the value of production is estimated to fall by only 4 per cent (future market (dry) scenario).

While at current commodity prices, nuts such as almonds are very profitable, the future may look very different, and efficient markets will be essential to ensure that water keeps moving to where it is most valued and can best support profitable Australian farmers.

Figure 2 Maintaining production with reduced water use

Average annual water use and gross value of irrigated agricultural production (2018-19 prices) in the southern Murray–Darling Basin under different water availability scenarios^a



^a Results for all scenarios are averages based on the historical climate sequence from 2005-06 to 2018-19 (a relatively dry period). The ‘current market’ scenario holds all water market drivers fixed at 2018-19 levels. The ‘future market’ scenario accounts for planned future water recovery measures and an increase in demand. The ‘future market (dry)’ scenario assumes a further 3 per cent decline in rainfall and 11 per cent decline in allocation volumes (water supply).

Source: Gupta et al. (2020).

1.3 A renewed NWI to lock in past benefits and enable adaptation

While rural water users have benefited from past water reform, attention to several issues in a renewed NWI would lock-in the benefits of reform to date and ensure that irrigators can continue to adapt their businesses in response to changes in water availability.

As noted above, strong statutory-based water property rights are a pillar of the success of water markets in Australia. But there is scope to strengthen them, particularly in highly developed water systems where there is significant competition for the resource. More needs to be done to ensure that the current risk-based approach outlined in the NWI can be effectively applied in instances such as interception for on-farm dams or plantations. Inaccurate measurement of interception activities pose a risk to water availability and undermine the integrity of the entitlements system. Recommitting to a risk-based approach for managing interception activities would increase transparency and promote efficient management of shared resources (SP A *Entitlements and planning*).

Another pillar of success is robust water planning processes. However, these processes have been challenged by lower catchment inflows and instances of extreme water scarcity. Planning provisions proved inadequate to deal with the Millennium Drought and the recent drought in New South Wales and Queensland, and processes for rebalancing water use in response to climate change are unclear. Provisions to deal with low flows in water plans could give greater certainty to rural water users, while protecting the environment. And in responding to permanently lower resource availability, there is a need for increased robustness in processes for adjusting the relative shares between consumptive users and the environment (SP A *Entitlements and planning*). Adoption of best-practice principles for community partnership and engagement would help to ensure water planning processes and outcomes consider and reflect the diverse needs of rural communities (SP J *Engagement*).

Investors, entitlement holders and communities must have confidence that the integrity of water resources management frameworks (including property rights, markets and planning processes) can effectively support irrigators and water dependent businesses to adapt to a changing climate. This requires governments to invest in the underpinning systems of water accounting, monitoring, compliance and enforcement. A common theme from reviews of the MDB experience is that a lack of commitment by some governments to monitoring and compliance has undermined investor and community confidence and trust in water resource management. To address this, a renewed NWI should include a new element focused on safeguarding the integrity of water use and system management (SP E *Integrity*).

Opportunity for improvement also lies in strengthening market frameworks and market information to make them easier to use and better enable businesses to confidently make decisions and adapt to change. The Australian Competition and Consumer Commission *Murray–Darling Basin Water Markets Inquiry: Interim Report* (2020) found that governance, regulatory and operational frameworks in the MDB have not evolved in step with the market and are now inappropriate. Lessons from 30 years of trading in the MDB can help jurisdictions ensure institutional arrangements for water trading beyond the MDB remain in step with the level of market development. And there is a need for more focus on the timeliness, transparency and completeness of market information to support irrigators and other entitlement holders in response to short- and long-term challenges and opportunities (SP B *Trading*).

Governments are looking to invest in major water infrastructure in pursuit of regional development. However, clear assessment criteria are required to demonstrate how those investments are economically viable and environmentally sustainable. Where governments fund water infrastructure development to support irrigators and rural communities it is important that these investments do not leave an excessive financial burden for future users or taxpayers, and that negative impacts on downstream communities and environments are appropriately mitigated. The Commission advises that for new investments (SP I *Infrastructure*):

- environmental sustainability should be demonstrated through environmental, cultural heritage and social impact approvals, and compliance with a high quality and NWI-consistent water plan
- economic viability should be demonstrated by a positive benefit–cost ratio determined through a transparent and rigorous cost–benefit assessment
- costs should be recovered from users as the norm, except where government funding is provided through a transparent community service obligation payment
- governments should consider how to ensure planning for new developments is culturally responsive to the aspirations and concerns of Aboriginal and Torres Strait Islander people.

If these issues are addressed, rural water users should be even better positioned to deal with future pressures on water availability and adapt as needed.

Finally, while markets and trade have, for some communities, enabled thriving irrigation industries to develop in response to emerging market opportunities, others have had to adjust to lower levels of irrigated agricultural production — bringing additional adjustment pressures. Changes in water availability resulting from addressing past overallocation have contributed to these pressures in some instances. Adjustment — whether from reform or broader market forces (including trends in international trade, commodity prices, and technology) has been particularly challenging for some communities in the MDB. The recently completed *Independent Assessment of Social and Economic Conditions in the Murray–Darling Basin* examined in detail the social and economic impacts of water reform in the MDB, and expressed ‘significant concerns about the depth and distribution of past impacts in rural and regional Basin communities’ (Sefton et al. 2020, p. 17).

Section 2 considers the potential role of government when reforms contribute to reduced water availability and associated adjustment pressures in rural communities.

2 Community adjustment to lower water availability

Communities and economies are dynamic — continually adjusting in response to forces that include market opportunities, technological change, shifts in community preferences, a changing climate and policy reforms.

Change and uncertainty will continue to be a key feature of life for irrigators and irrigation dependent communities into the future. Given this, it is important that government policy

settings promote adaptation by rural communities in the face of changes to water availability. Indeed, the NWI expects that entitlement holders bear the risks of changes to the quantity or reliability of water allocations as a result of seasonal or long-term changes in climate, and natural events such as bushfire and drought.

The NWI recognised that water reform would lead to reduced water for consumptive use in some communities and contribute to adjustment pressures. Jurisdictions agreed to:

... address significant adjustment issues affecting water access entitlement holders and communities that may arise from reductions in water availability as a result of implementing the reforms proposed in this Agreement.²

Since 2004, concerns about significant adjustment issues associated with water reforms have mainly arisen in the MDB, where most highly developed water resources are located and there has been a substantial government water recovery effort. While governments implemented water recovery in ways they thought would moderate impacts, there have been significant distributional effects, and governments have provided some assistance in response. By 2018, government spending on specific assistance programs as part of the Basin Plan reforms had totalled \$189 million (PC 2018, p. 114). And in 2019, through the new MDB Economic Development Program, the Australian Government approved further funding of up to \$39 million for Basin communities identified as most impacted by water recovery activities (*Assessment*). The Commission notes that this program aims to support rather than impede adjustment, and that the Australian Government intends to evaluate and review the program during the 2021-22 financial year.

Monitoring, evaluation and public reporting provide essential insights into whether adjustment assistance has been effective. However, many submissions argued that this activity has been inadequate for past assistance programs³, and that these programs have been poorly implemented, ineffective or both.⁴ The Commission's *Murray–Darling Basin Plan: Five-year assessment* expressed similar concerns. Finding 3.5 (PC 2018, p. 116) summarised the Commission's view.

There is little evidence to indicate that structural adjustment programs have been effective at supporting communities adjust to the Basin Plan.

- Assistance was not targeted to those areas considered most vulnerable to the Basin Plan.
- Some projects considered to provide community assistance have not done so.

The role of government in helping individuals and communities adjust has been considered by the Commission before, including in the 2017 *Transitioning Regional Economies* and - 2001 *Structural Adjustment — Key Policy Issues* reports. Drawing on this work, the following discussion outlines general principles for provision of adjustment support.

² NWI paragraph 97.

³ NSWIC, sub. 27, p. 24; GSCC, sub. 34, p. 3; NFF, sub. 42, p. 23; Murray Irrigation, sub. 69, p. 3; RGA, sub. 82, p. 3.

⁴ NIC, sub. 13, p. 8; NSWIC, sub. 27, p. 23; NFF, sub. 42, p. 22; LBA, sub. 70, p. 5; VFF, sub. 99, p. 10.

2.1 Generally available measures are usually the most appropriate response to adjustment pressures

Irrigators and rural communities will have to adapt to changing water availability and a changing climate. However governments also need to recognise that regional communities are being shaped by factors other than, or in addition to, the availability of water, such as long-term productivity trends, international commodity prices and macroeconomic conditions. Effective community engagement is critical to understanding this wider context (*SP J Engagement*).

When major policy changes are proposed, as a first step, evaluation of the potential socioeconomic impacts can help to understand the likely impacts and identify the types of support a community might need. In the process, it is important that the expected long-term benefits that change can bring to the Australian community are recognised. While policy changes may have significant adjustment impacts on affected communities, these impacts are typically transitory, while the intended benefits of the reforms are usually more enduring.

When adjustment pressures emerge, governments have a range of regular supports targeting individual and household welfare, and skills. These measures will usually be the most appropriate vehicles for assisting the adjustment process and moderating adverse distributional impacts — whether arising from policy-induced or market-based change — because they are equally available to all and address individuals' needs. Supports include the social security and tax systems that support individual and household welfare if adjustment pressures lead to falls in income (primarily the responsibility of the Australian Government), and measures like education and training programs and advice on business opportunities assist the movement of workers into alternative employment (usually a state or territory government responsibility).

For wider communities, regional development policy and strategic planning (the realm of state, territory and local governments) is also important for identifying priorities for transition and development that leverage regional capabilities and local competitive advantages.

2.2 If more support is needed, governments should assist efficient adjustment

In some circumstances, policy changes that are beneficial to the wider community may risk high levels of permanent disadvantage for some groups of individuals that cannot be adequately addressed through generally available measures. In these rare circumstances, additional support may be warranted — particularly if more support could improve the efficiency of the adjustment process by addressing impediments to change.

Support could take the form of policy modification, but this risks conferring benefits on a few and larger than necessary costs on the broader community. For example, recovering water by modernising infrastructure in the MDB, rather than through directly purchasing

entitlements, is estimated to have increased the budgetary cost⁵ by about \$2 billion (PC 2018, p. 81). Furthermore, while this has resulted in some positive outcomes, particularly for private irrigators receiving the subsidy, it has put entitlement holders that participated in earlier water market purchases — and the communities that depend on them — at a relative disadvantage:

Farms, farming regions and towns that have more water recovered through on-farm irrigation infrastructure upgrades have gained a competitive advantage compared with farms, farming regions and towns that have sold more of their water to the Australian Government through open tender buybacks. (Sefton et al. 2020, p. 22)

Better outcomes could be achieved at lower cost by addressing adjustment separately from the main policy reform. For example, Wittwer (2020, p. 18) found that each dollar spent on human services (namely the health, education and community care sectors) creates four times as many jobs as spending on infrastructure upgrades.

Before establishing new stand-alone community assistance programs, jurisdictions should carefully consider how existing regional and economic development programs (not specific to water) could support the adjustment process. They should also consider whether policies and regulations (not directly related to water) unnecessarily impede change.

Options for assistance need to be considered on a case-by-case basis and consider all factors affecting a community (not just changing water availability). The MDB experience illustrates that efficacy of adjustment support (whether through policy modifications or separately from the main policy reform) is not a given. So the chosen option should be the one that is expected to deliver the largest benefits relative to costs.

Any further assistance should build on existing supports and be focused on helping communities adapt to a future with less water. Measures should focus on improving adaptive capacity and securing employment or business opportunities and be targeted to individuals who are most vulnerable (at risk of permanent disadvantage). For example, this could include targeted programs to help people gain new skills and find employment in more profitable and viable industries or occupations (within or outside of their community).

Industry assistance and subsidies should be avoided as they have a tendency to lead to inequitable outcomes or lock in inefficient production (which is subsidised by taxpayers and diverts resources from other uses in the region or the broader economy).

Monitoring and publicly reporting evaluations of outcomes of any assistance programs should also be part of any specific response to adjustment issues. Policy evaluation is often overlooked, but without an understanding of the outcomes of past assistance initiatives, and what drove those outcomes, it is difficult to improve future initiatives. Evaluation information from past assistance programs is also useful for community consultation as it allows stakeholders to have more informed input into the decision-making process. And,

⁵ Gross expenditure by governments through budget processes, not accounting for subsequent benefits.

project evaluations serve an important transparency and accountability function that can deter future poor decisions on adjustment assistance.

2.3 NWI renewal advice

Advice that summarises the Commission’s view on how a renewed NWI could include clearer guidance on effectively addressing significant adjustment issues follows.

DRAFT NWI RENEWAL ADVICE 12.1: HELPING COMMUNITIES DEAL WITH ADJUSTMENT PRESSURES

Inclusion of guiding principles in a renewed National Water Initiative would clarify how governments can respond to any significant community adjustment pressures resulting from policy-induced reductions in water availability.

- The socioeconomic impacts of any major potential policy change be assessed to identify possible community needs. Effective community partnerships and engagement are critical to understanding the wider context.
- Generally-available measures targeting the welfare and skills of individuals, and regional development planning and initiatives to leverage community capabilities and competitive advantages, are usually the most appropriate responses to adjustment pressures.
- In rare circumstances it may be appropriate to take additional steps to address adjustment issues if policy changes that are beneficial to the wider community impose increased risk of permanent disadvantage for groups of individuals. Where generally-available measures will be inadequate — particularly if more support could improve the efficiency of the adjustment process by addressing impediments to change.
- Where further support is warranted:
 - consideration should be given to how existing regional development programs support the adjustment process and whether policies and regulations not directly related to water unnecessarily impede change
 - options for further support need to be considered on a case-by-case basis and consider all factors affecting a community (not just changing water availability) and the chosen option should be the one that delivers the largest benefits relative to costs
 - measures that are likely to build adaptive capacity and secure employment or business opportunities should be the focus, and targeted to the most vulnerable individuals (those at risk of permanent disadvantage)
 - industry assistance and subsidies should be avoided
 - a commitment should be made to public monitoring and evaluation of the effectiveness of any assistance.

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