



SOURCE WATER PROTECTION STRATEGY

Sydney drinking water catchment 2040



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The need for source water protection

Access to safe, clean water is essential to life and human health.

There is a direct connection between the health of a catchment and the quality of water in rivers and reservoirs, and ultimately the supply of drinking water.

Poor catchment conditions can affect river health and the environment, which can lead to impacts on drinking water quality and community health. Contamination of source water can impair the effectiveness of water treatment processes. Some contaminants cannot be effectively removed from water by treatment.

Since the 1980s, the concept of 'source water protection' has increasingly formed part of the process of supplying safe, clean drinking water in Australia. Over this time, it has become

clear that there are a range of environmental, social and economic benefits associated with source water protection, including improved biodiversity, healthier communities, increased liveability, more sustainable agriculture and increased land values.

The *Australian Drinking Water Quality Guidelines* recognise that source water protection is an essential part of the multi-barrier approach to providing drinking water. These Guidelines state that '*prevention of contamination provides greater surety than removal of contaminants by treatment, so the most effective barrier is protection of source water to the maximum degree practical*'.

Source water protection is also firmly established in the regulatory framework governing Sydney drinking water catchment. WaterNSW is legislatively required "to protect and enhance

the quality and quantity of water in declared catchment areas" under the *Water NSW Act 2014*.

Sydney is recognised for its strong catchment management and source water protection, which is a major reason it enjoys high-quality drinking water. As the community expects safe, high quality drinking water, it is essential that WaterNSW continues to manage existing and emerging risks to source water.

This Strategy sets the vision, the priorities, and the goals for source water protection in Sydney drinking water catchment over the next 20 years.

Sydney drinking water catchment

Sydney drinking water catchment covers almost 16,000 square kilometres and provides drinking water to approximately 5.5 million people in Sydney, the Illawarra, Blue Mountains, Southern Highlands and the Shoalhaven – around 60 percent of the NSW population.

Sydney drinking water catchment encompasses the Warragamba, Shoalhaven, Upper Nepean, Woronora and Blue Mountains catchments, which drain into 11 major dams that store raw water (see Figure 1). This water is released through a network of rivers, pipes and canals to water filtration plants before being distributed to consumers.

Sydney drinking water catchment area supports a wide range of community needs. The catchment provides raw drinking water for approximately 5.5 million people, but it also contains over 125,000 residents and features a diverse mix of land uses, including agricultural production, mining and other industry, native forests and recreation.

The river and raw water supply systems of the Sydney catchment area are shown in the map right.





Sydney's catchment management

Given the various pressures on Sydney drinking water catchment, the NSW government has made significant efforts to manage the catchment and protect Sydney drinking water catchment, particularly since the McLellan Inquiry in 1998 and the establishment of the former Sydney Catchment Authority (SCA).

The first 20 years of Sydney's catchment management were largely focussed on 'point source' pollution and minimising the risks to public health, such as sewage treatment plants, dairy farms, chemical collections, and large-scale new urban developments.

During this period, the NSW government established a robust regulatory framework to manage the catchment. In addition, WaterNSW (and the former SCA) undertook extensive scientific research and investigations into water quality risks in

the catchment, and the best methods to address those risks.

As a result, many of the water quality risks from point sources now have adequate control measures in place, and can continue to be managed (subject to ongoing monitoring and maintenance). There is also a much better understanding of 'diffuse sources' of pollution in the catchment, and the likely effectiveness of catchment interventions.


With the foundations for catchment management and source water protection in place, the focus for the next 20 years of catchment management is moving towards the broader range of diffuse sources of pollution.

Diffuse sources are inherently more difficult to manage, as they involve a larger number of stakeholders, and often require a longer timespan to achieve results. In addition,

there are a range of emerging risks to water quality in the catchment, particularly in relation to climate change, increased risk of bushfire, and population growth in urban centres.

The focus on diffuse sources and emerging risks in the catchment will require integrated solutions across various portfolios and stakeholder groups. The future of source water protection in Sydney drinking water catchment should therefore be based on shared management and greater collaboration across the full range of stakeholders.

This Strategy recognises and addresses the new challenges facing the catchment over the next 20 years.



Our vision is:
A healthy catchment that delivers safe, clean water through world-class source water protection and shared responsibility across the community.

Scientific approach

Over the past 20 years, WaterNSW (and the former SCA) has developed a very strong scientific knowledge and understanding of water quality risks in Sydney drinking water catchment. This is based on extensive water quality monitoring and data analysis, detailed field observations, spatial data analysis, and a variety of comprehensive risk assessments and trend analyses.

WaterNSW continues to carefully monitor and analyse water quality and quantity across Sydney drinking water catchment as a core component of its work. WaterNSW

also continues to undertake scientific research into water quality risks and emerging issues (e.g. climate change) in the catchment, which is consistent with its statutory responsibility to *“undertake research on catchments generally, and in particular on the health of declared catchment area”*.

Based on this strong scientific foundation and careful risk assessment, WaterNSW has established a set of six key priorities for source water protection over the next 20 years.

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Priorities and goals

The six priorities, and associated goals, for source water protection over the next 20 years are summarised in the following table, and described in further detail below.

Priority	Goal
01 Creating water sensitive towns	Improve the urban water practices of 5 major councils to a ‘water sensitive city’ score of 70%
02 Ensuring water quality compatible development	All new developments have a neutral or beneficial effect on water quality
03 Integrating water quality policy and practice	All councils and major developers formally commit to source water protection
04 Increasing regenerative agriculture	50% increase in regenerative agriculture practices across the catchment
05 Fulfilling land management responsibilities	30% reduction in water quality risks from fire, pests and weeds in the Special Areas
06 Enforcing catchment protection laws	Halve unauthorised activities in Special Areas and pollution incidents in catchment

Priority 1: Creating water sensitive towns

Issues

Over 125,000 people live in 36 urban areas in the Sydney catchment area. Risk analysis studies have identified that the highest loads of pollutants come from the largest urban centres located across five local government areas. The current approach to urban water management taken by many councils is to focus on flood prevention and conveyance of water away from development areas as quickly as possible. This legacy approach can lead to polluted runoff during storm events, erosion, and degraded waterways.

Goal

Improve the urban water practices of the five major local councils to a 'water sensitive city' score of 70%.

Approach

The embrace of water sensitive design principles and practices is steadily becoming a foundation of urban growth and management across Australia. WaterNSW partners with councils and other stakeholders to support and power the transition of urban management to water sensitive design.

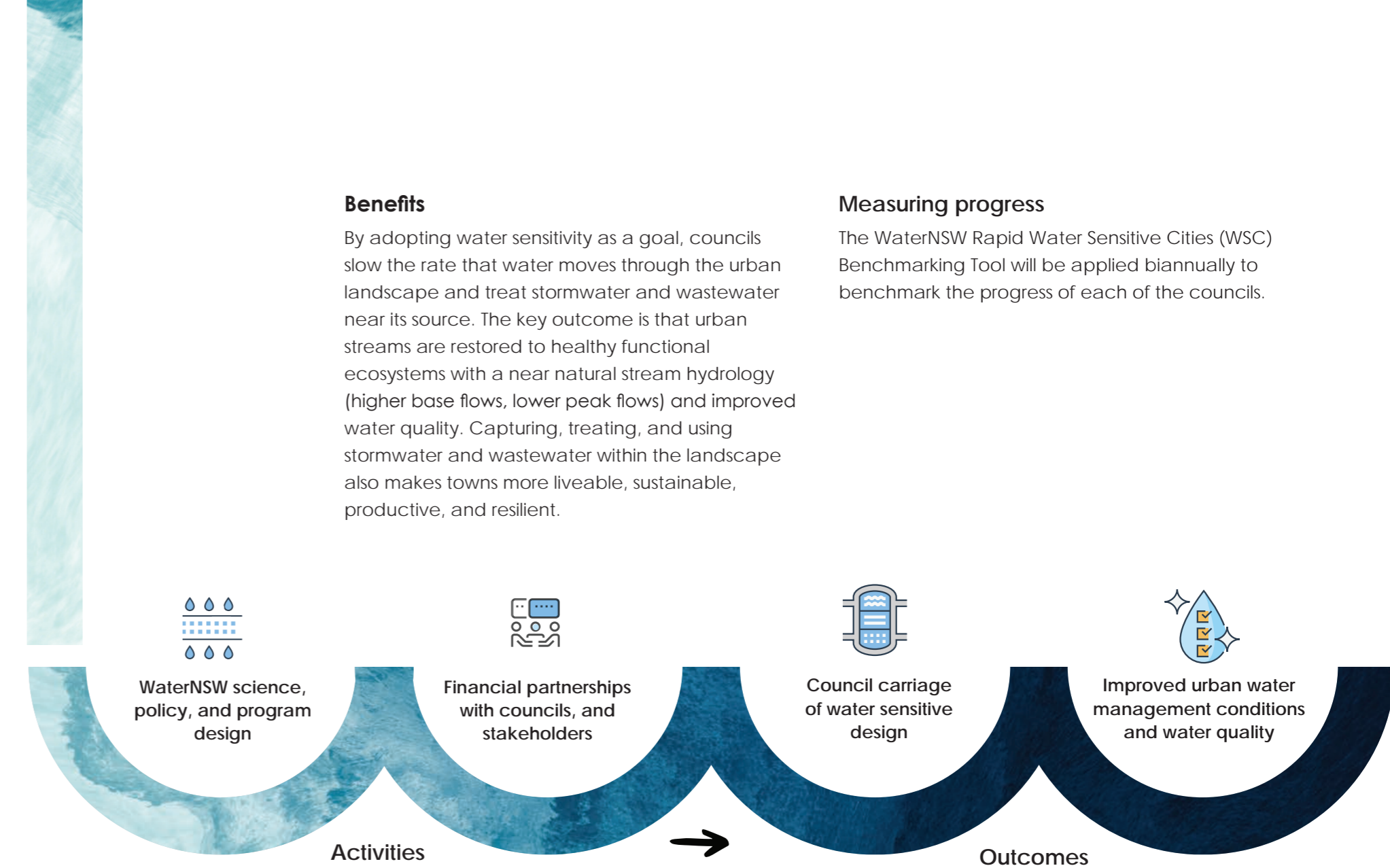
In 2020, the progress of the five councils with significant urban areas, were measured using the WaterNSW Rapid Water Sensitive Cities Benchmarking Tool. Scores between 48-61% were achieved. This Tool was developed by the Co-operative Research Centre (CRC) for Water Sensitive Cities, and customised for the Sydney catchment area.

Benefits

By adopting water sensitivity as a goal, councils slow the rate that water moves through the urban landscape and treat stormwater and wastewater near its source. The key outcome is that urban streams are restored to healthy functional ecosystems with a near natural stream hydrology (higher base flows, lower peak flows) and improved water quality. Capturing, treating, and using stormwater and wastewater within the landscape also makes towns more liveable, sustainable, productive, and resilient.

Measuring progress

The WaterNSW Rapid Water Sensitive Cities (WSC) Benchmarking Tool will be applied biannually to benchmark the progress of each of the councils.



Priority 2: Ensuring water quality compatible development

Issues

New residential, commercial, and industrial developments can potentially impact water quality in local waterways and/or groundwater if not designed and managed to contemporary standards and practices.

Goal

All new developments have a neutral or beneficial effect on water quality.

Approach

Development in the Sydney catchment area is regulated by State Environmental Planning Policy (Biodiversity and Conservation) 2021. The SEPP requires new developments and activities under the *Environmental Planning and Assessment Act 1979* to meet (Part 4) or consider (Part 5) a neutral or beneficial effect (NorBE) on water quality.

WaterNSW produces guidelines and tools to assist in the NorBE assessment process such as standard conditions, an online assessment tool (NorBE tool), and Current Recommended Practices.



Priority 3: Integrating water quality policy and practice

Issues

The health of a drinking water catchment is dependent on the condition of the land and the management practices used on that land. Poor land use and development practices and standards can contribute to a range of contaminants and degradation that impact water quality.

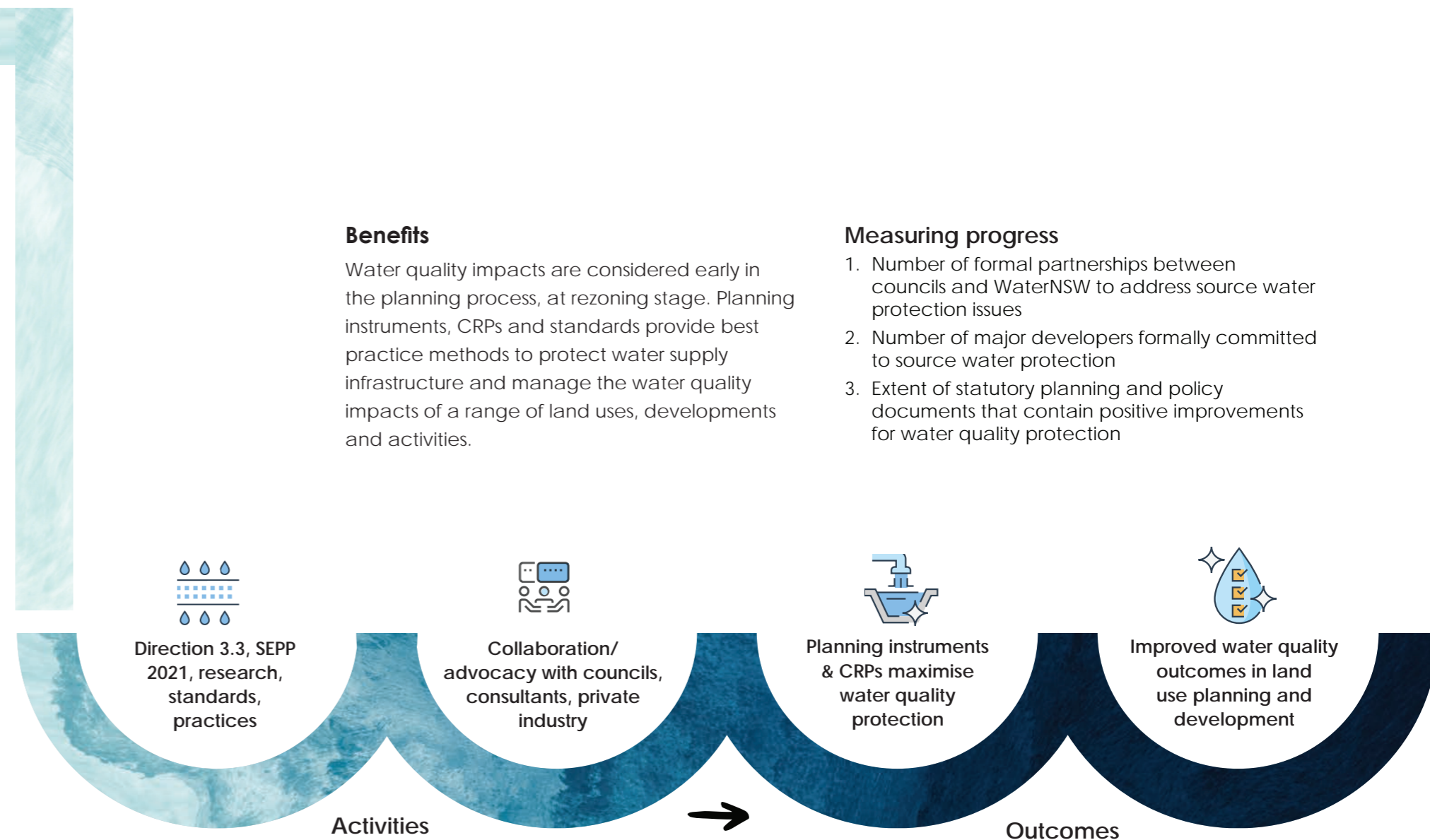
Goal

All councils and major developers formally commit to source water protection.

Approach

WaterNSW works with councils to ensure planning instruments, strategic planning policies, and proposals are consistent with a special Ministerial direction (Local Planning Direction 3.3), the State Environmental Planning Policy (Biodiversity and Conservation) 2021, strategic land and water capability assessments, and other zoning requirements.

WaterNSW also works closely with councils, consultants, and private companies to protect key water supply infrastructure from new development and to support the application and integration of recommended practices, standards and guidelines, which are key to managing water quality impacts from a range of land uses.



Priority 4: Increasing regenerative agriculture

Issues

There are 485,000 hectares of agricultural land across Sydney drinking water catchment. Landscape degradation and poorly managed grazing practices are common and have resulted in vulnerable soils and rivers which are significant sources of sediment, nutrients, and pathogens.

Goal

50% increase in regenerative agriculture practices across the catchment.

Approach

WaterNSW partners with Local Land Services (LLS), the Australian River Restoration Centre (ARRC) and Greening Australia (GA) to work with graziers and land managers. This partnership drives change by supporting landholders to design and improve farming practices, landscape and waterway conditions, and water quality in creeks and rivers.



Priority 5: Fulfilling land management responsibilities

Issues

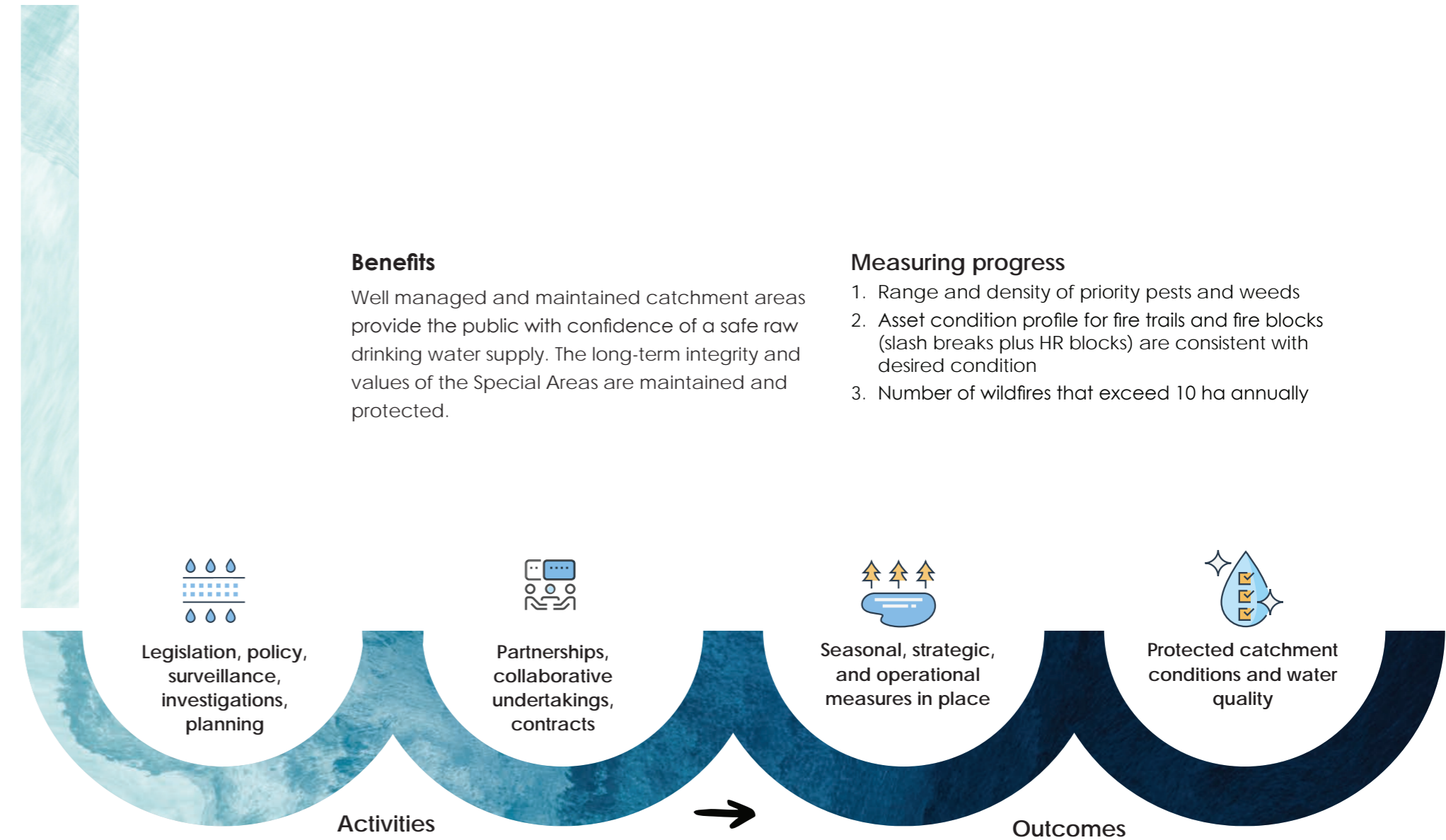
WaterNSW has various land management responsibilities across Sydney's drinking water catchment, including the Special Areas, public recreation areas, and a range of leased or licensed land. Fulfilling these responsibilities demands both high level strategic planning and complex daily operations, with an underlying focus on the ongoing protection of water quality. The key risks to water quality are from bushfire, pests and weeds, and erosion, particularly within the Special Areas, which surround the reservoirs.

Goal

30% reduction in water quality risks from fire, pests and weeds in the Special Areas.

Approach

WaterNSW works with many stakeholders to accomplish its objectives as a landowner and manager, including the National Parks and Wildlife Service (NPWS), the Rural Fire Service (RFS), Local Land Services (LLS), the Department of Primary Industries (DPI), local councils, neighbouring landowners and Aboriginal stakeholders. WaterNSW and NPWS jointly manage Special Areas under the Special Areas Strategic Plan of Management.



Priority 6: Enforcing catchment protection laws

Issues

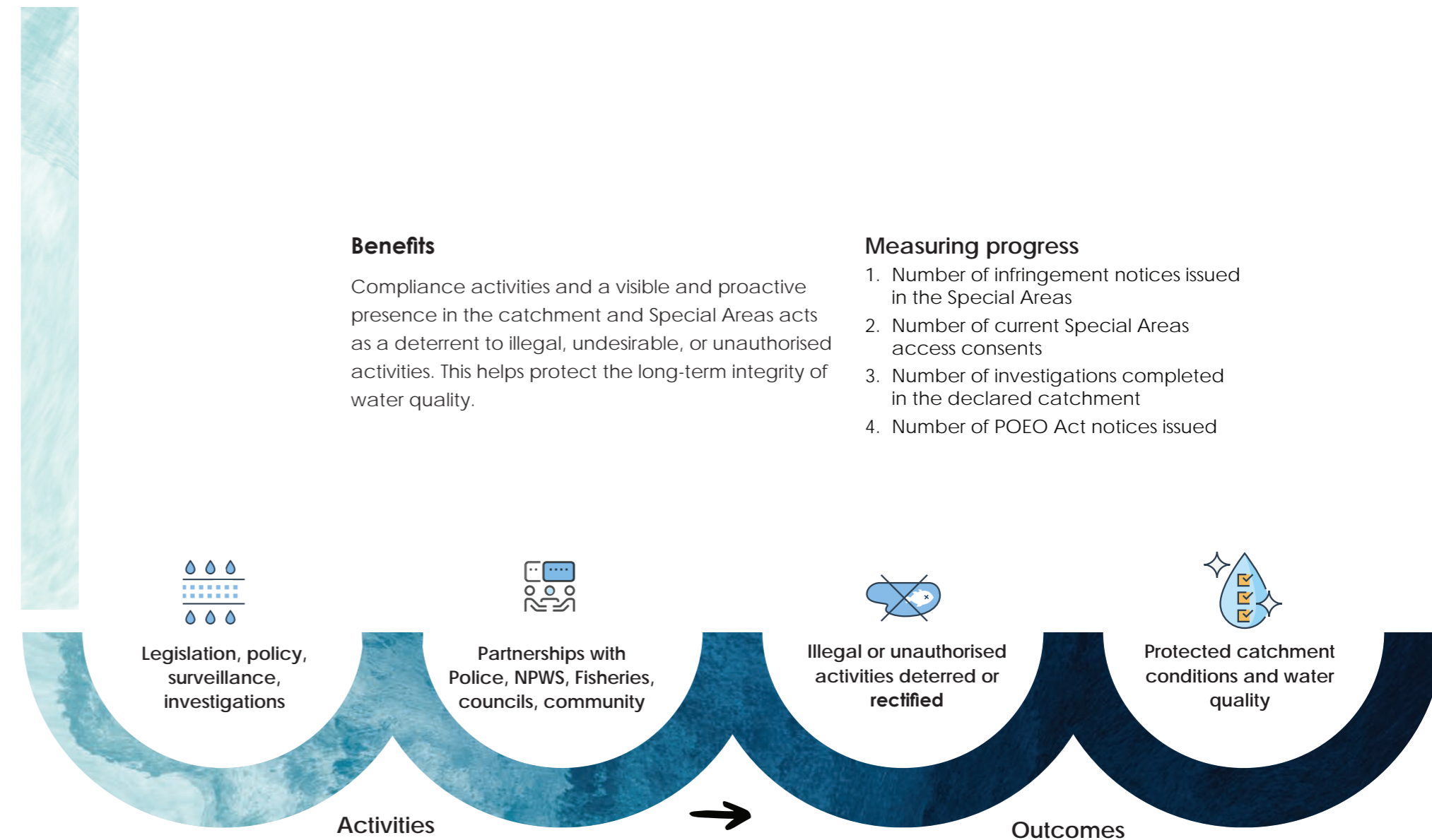
WaterNSW has responsibilities under the *Water NSW Act 2014*, the *Water NSW Regulation 2020* and the *Protection of the Environment Operations Act 1997* to protect water quality in the Sydney Catchment Area, including the Special Areas. Illegal and unauthorised activities can compromise the integrity of the Special Areas and the broader catchment area and threaten water quality and management objectives.

Goal

Halve unauthorised activities in Special Areas and pollution incidents in the catchment.

Approach

WaterNSW works with its partners including NPWS, NSW Fisheries, local councils, NSW Police and the community to undertake enforcement actions, which involves investigations, strategic intelligence, surveillance, and a compliance presence in the community.





Review and reporting

Each year, WaterNSW publishes a 'Catchment Protection Work Program' (CPWP) that details the specific work and activities that will be delivered. At the end of the year, WaterNSW then reports on the progress in an 'Annual Catchment Management Report' (ACMR).

The annual activities within these CPWPs and ACMRs will be linked to the long-term priorities and goals under this Source Water Protection Strategy. The ACMR will specifically track the annual progress of each of the six priorities and goals of this Strategy.

While this Strategy has a long-term focus, it is acknowledged that new issues and risks are likely to emerge over the next 20 years. Consequently, it is necessary to periodically review the Strategy and allow adjustments to be made if required. The priorities and goals will therefore be reviewed every four years in alignment with the IPART price determination cycle.

Ongoing delivery of the Source Water Protection Strategy will be supported by two strategic projects: the review and development of new catchment health indicators, and the Greater Sydney integrated water quality model. Both projects will help quantify and measure the state of the catchment and progress against our goals.

