

## Partnerships to Promote Best Practice in Water Education in Schools

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### Abstract

Schools in Western Australia are increasingly being asked to address more and more social, economic and environmental issues in their already crowded curriculum. As an organisation we face a challenge in gaining the support for our program over the many programs or initiatives that are being promoted to schools. It is therefore essential that we identify opportunities to partner with other programs or initiatives to present a united or coordinated approach to implementing water education in schools.

It is also essential that water education programs are able to make the linkages to the school curriculum to ensure that it is not seen as an extra – but rather an integral part of the learning experiences that students participate in.

The Water Corporation's Waterwise Schools Program has successfully partnered with Ribbons of Blue/Waterwatch WA and other organisations to implement water education in schools across the state. The Waterwise Schools Program is a whole of school, long term approach to water education. It acts as an umbrella for water education, with students exposed to issues across the key themes of water and the natural environment; stormwater and drainage; water and health; water supply; water conservation and wastewater. The program has teacher resources directly linked to the WA Curriculum Framework across all major learning areas.

Waterwise Schools Program and Ribbons of Blue/Waterwatch staff are working closely together to promote and provide water education services and resources to schools. Utilising the relationships both programs have developed with schools we are able to achieve our common goals by combining resources and personnel in delivering our programs and providing ongoing support and motivation to schools.

Future opportunities in integrating water education programs with Natural Resource Management Plans are currently being investigated as another way of achieving beneficial outcomes in the area of Education for Sustainability.

### 1. INTRODUCTION

Many challenges face us as we attempt to understand and manage the effects of climate change, population growth and increased urban demand for water. The Water Corporation sees total water cycle management and the sustainability of our water sources as priorities, and water education is crucial to achieving these goals.

Water education benefits from a partnership approach. If we are ensure a sustainable future, all of us must contribute towards looking after the planet. As David Suzuki (*Time to Change*, Allen

& Unwin, Sydney, 1993, p.163) has said: 'Perhaps the greatest attitudinal change we need to make is to learn to look at our surroundings in their totality rather than as separate fragments'.

There are also practical reasons for pursuing partnerships. Schools in Western Australia are increasingly being asked to address social, economic and environmental issues in an already crowded curriculum. The Water Corporation faces a challenge in gaining support for the introduction of water education curriculum materials and its Waterwise Schools Program over the many other programs or initiatives that are being promoted to schools. It is therefore essential that we identify opportunities to partner with complementary programs or initiatives, or with education institutions on curriculum development, to present a coordinated approach to implementing water education in schools.

Two programs that play a key part in water education in Western Australian schools are the Water Corporation's Waterwise Schools Program and the Department of Environment and Conservation's Ribbons of Blue/Waterwatch WA.

The Waterwise Schools Program was developed in Western Australia in 1995 to educate students, their families and wider communities about the need to value, protect and conserve our precious water resources. The program takes a long-term, whole-of-school approach to water education and is structured around six water-related themes: water and the natural environment, stormwater and waterways, water and health, water supply, water conservation and wastewater.

The program complements the Ribbons of Blue/Waterwatch WA program, which has been operating for 18 years and involves local communities learning about and protecting environmental water quality, and sharing responsibility for managing waterways, wetlands and groundwater.

On a larger scale, these programs educate students about water and sustainability—e.g. the relationship between climate change, water and biodiversity. Water education is recognised as an important component of the national Sustainable Schools Initiative (WA), coordinated through the Department of Education and Training.

This paper focuses on the benefits of partnerships—in particular, the one between the Waterwise Schools Program and Ribbons of Blue/Waterwatch WA—in promoting best practice in water education in schools. It also identifies opportunities to build on the relationships that have already been formed, especially in the area of natural resource management.

## **2. IMPORTANCE OF WATER EDUCATION**

The long-term goal of water education is to nurture more knowledgeable and thoughtful future citizens, as it is today's students who will have to make decisions for future generations of Western Australians. We hope that, through education, they will be able to contribute to decisions about water issues such as the development of new water sources and water recycling. It is also essential that young people adopt Waterwise behaviours now and take these into their future lives.

There are many reasons why water education will become increasingly important as we head further into the twenty-first century:

- The community is facing a variety of water-related issues—e.g. climate change, sustainability and biodiversity
- It is important that students see how water and sustainability issues are interconnected.
- An understanding of water issues helps a community to make informed decisions rather than decisions based on emotion.
- Water education deals with ‘real-life’ situations.
- Water education takes a long-term approach, with students being taught concepts at an early age and having these reinforced throughout all levels of schooling.
- Water education is an important way of counteracting misinformation through the media.
- Education (i.e. providing knowledge, skills and attitudes) is the foundation for behavioural change. Awareness (as in the case of public relations) of water and infrastructure issues, while necessary, will not lead to behavioural change—in the long term, it will always be education.
- Teachers play a crucial role in the life of a community, and the provision of high-quality curriculum materials supports their ability to have a positive impact on our future citizens.
- Through water education we can demonstrate the relationship between health and conservation.
- Water education can complement ‘on-ground’ programs within the school—e.g. the development of Waterwise gardens.

### **3. GAINING SUPPORT THROUGH COLLABORATION**

The Water Corporation recognises that as a provider of water, drainage and wastewater services to its customers and the wider community, it needs to be a responsible environmental manager, and to ensure, in collaboration with the Department of Water, Department of Environment and Conservation and other organisations and community groups across Western Australia, the sustainability of our water sources.

In water education, community partnerships achieve the best results. The Education section of the Water Corporation has over many years collaborated with organisations and community groups to reinforce important water messages. These partnerships are described in the following sections.

#### **Partnerships with the Education Sector**

When there are a multitude of issues competing for teachers’ attention, it is essential that we work together in a cooperative ways with the education sector to implement water education in schools.

The Water Corporation has long recognised the importance of educating young people about the value of water in their lives and the need to protect and conserve water. In 1994 we entered into a partnership agreement with the Department of Education and Training to further our water education goals. A key objective of this partnership was ‘to provide Western Australian schoolchildren with the knowledge and understanding they will need to make a balanced contribution to future decisions concerning the care and use of water’. Development of the Waterwise Schools Program was an important outcome of that agreement.

The program is now also an integral part of the national Sustainable Schools Initiative (WA); the Water Corporation is on the steering committee for this initiative, which is run through the Department of Education and Training. The Corporation works closely with many sections of the department, including its curriculum, schools resourcing and facilities branches.

In 2004 the Water Corporation reinforced its commitment to working collaboratively with other areas of the education sector by entering into a partnership with the Catholic Education Office of Western Australia. Although a partnership agreement has not formally been signed with the Independent Schools Association of Western Australia, many of the association’s member schools are involved in the Waterwise Schools Program and we have developed close relationships with these schools.

Linking in to the school curriculum is vital. Water education must be seen as essential learning content rather than as an added extra, and it needs to fit into the existing school curriculum structure. In the case of Western Australia, schools are mandated to use the *Curriculum Framework*, and from the beginning of 2008 Scope and Sequence Charts will determine essential content for schools to teach. The Water Corporation has provided input into these new Scope and Sequence Charts and the Waterwise Schools Program is highlighted as an important environmental program for schools to participate in.

Currently, schools participating in the Waterwise Schools Program receive curriculum materials and supporting resources. Schools receive a free ‘Waterwise Starters’ package at the Pre-primary level and a *Water is Our Future: Teacher Resource File* containing 24 Topic Booklets; these link to the *Curriculum Framework* across all eight learning areas. Schools use the file when promoting water messages and as a basis for providing class work samples for their Waterwise Schools Program submission. New teaching resources are being prepared for the beginning of 2008.

In addition, all schools across the state receive special education packages; for example, in 2007 we produced the ‘Waterwise Ways—Water Education Resource Package’ (containing four Topic Booklets on the water conservation theme), which was sent to all schools as part of new State Water Efficiency measures and to celebrate National Water Week. We also provide promotional items (posters, videos, stickers, bookmarks, badges), tours and lectures, a web site with information on water topics, a newsletter (*Waterwords*) every term, and teacher network meetings to inform teachers about new resources.

In the development of teacher resources, we work closely with organisations such as Kidney Health Australia, the Department of Health, WWF (formerly World Wide Fund for Nature), the National Trust, the Perth Zoo and community groups such as wetlands groups and the Phosphorus Action Group.

## **Collaboration with Government Departments**

The Water Corporation has formed partnerships with other organisations to reinforce water education messages. We support and participate in activities such as the joint Department of Environment and Conservation/Water Corporation Catchment Carers' Trail, which is offered to students at upper primary and lower secondary levels. We also undertake joint projects with Ribbons of Blue/Waterwatch WA, the National Trust and the Perth Zoo.

## **Collaboration with Councils**

We have developed strong relationships with several metropolitan local government councils that are keen for all schools in their areas to become Waterwise schools; these include the City of Gosnells, the City of Belmont and the Western Suburbs Regional Organisation of Councils (WESROC). To support WESROC, we introduced a stormwater education strategy, with the aim of involving all 47 schools within the WESROC jurisdiction. School lectures were given on stormwater, and we had the Phosphorus Action Group (based at the South East Regional Centre for Urban Landcare in the metropolitan area) assist in training Water Corporation education officers to deliver these lectures.

## **Collaboration with Local Community Groups**

The Waterwise Schools Program actively supports local community initiatives aimed at raising awareness of water issues, such as the Whiteman Park Children's Groundwater Festival (major sponsor), the Herdsman Lake Freshwater Festival and the Mundaring Arts Centre's Environmental Art Award.

## **4. A COLLABORATIVE PARTNERSHIP FOR WATER EDUCATION: WATERWISE SCHOOLS PROGRAM AND RIBBONS OF BLUE/WATERWATCH WA**

### **Working Together**

In Western Australia, staff of the Waterwise Schools Program and Ribbons of Blue/Waterwatch WA work closely together to promote water education services and resources to schools. We are able to achieve our common goals by using the relationships both programs have developed with schools and by combining resources and personnel to deliver our programs and provide ongoing support and motivation.

The Waterwise Schools Program has become the umbrella under which water education is implemented in schools, as it takes a whole-of-school approach. Among many innovative features of the program are its focus on promoting behavioural change, its encouragement of learning through enjoyable practical work, and the way it encourages schools to reach out into the community.

Ribbons of Blue/Waterwatch WA provides teachers with an opportunity to actively engage their students in fieldwork dealing with water and environmental issues.

The national Sustainable Schools Initiative (WA) has established a unifying link between the two programs, creating an added impetus for schools to become involved in the water aspect of sustainability.

### **Achievements of the Two Programs**

Both the Waterwise Schools Program and Ribbons of Blue/Waterwatch WA can demonstrate success in achieving their objectives.

### *Waterwise Schools Program*

A school must meet six criteria to become a Waterwise school; these criteria include developing a water education policy and a Waterwise curriculum overview and providing work samples from each class on their Waterwise activities. As of the beginning of November 2007, 350 schools across the state had been recognised as Waterwise schools, with many more working towards recognition. The program has also been successfully implemented in four local government councils in northern New South Wales, and a school from each of these councils was recognised during National Water Week in 2007.

Parent surveys conducted as part of the program have shown that if a school has a total Waterwise focus, everyone is involved and speaking the same language when it comes to water issues. If all teachers are introducing water education activities in classrooms, there is a greater chance that these will be taken home and discussed with parents and with siblings whose teachers are dealing with water topics from a different perspective.

Significantly, 97% of parents at schools not involved in the program believed that water education should be introduced at their schools.

One of the key findings of an independent report on the program was that participants believe that the program benefits schools principally through providing quality curriculum materials to support the teaching of water conservation and caring for the environment.

Schools have commented favourably on the program. For example:

- *Participating in the Waterwise School Program provided real life student learning in the understanding of water issues.*
- *As a result of Carine Primary School's involvement in the Waterwise program students, staff and parents have become more aware of the importance of water in their lives and to this extent a 'whole of school' approach to water conservation and water studies has been adopted.*
- *It is envisaged that the philosophy underpinning the Waterwise program will become embedded in our students' day to day teaching and learning experiences.*
- *As a result of the Waterwise program the school has integrated the curriculum areas of Science, Society and Environment, and Technology and Enterprise to create an exciting, vibrant and interesting curriculum, that teachers have embraced. From kindy right the way through to year seven all classes have enthusiastically embarked upon the Waterwise Schools Program with a range of displays throughout the year in classrooms and the library.*

### *Ribbons of Blue/Waterwatch WA*

Ribbons of Blue/Waterwatch WA has had a strong relationship with schools since 1989. As of November 2007, the program had 270 schools across the state involved in a variety of activities

to do with catchment health e.g. through school curriculum activities, water quality monitoring, revegetation and community arts projects.

An independent program evaluation concluded that Ribbons of Blue had raised students', parents' and the wider community's awareness of environmental issues; resulted in the community placing a greater value on waterway/ecosystem health; resulted in a greater understanding of scientific method, scientific equipment usage and data analysis through water quality monitoring; fostered responsibility and ownership of local ecosystem by the community; created linkages between state and local government authorities, community groups, schools and environmental programs, to facilitate an integrated approach; and resulted in on-ground environmental action projects and an increase in remedial action.

## **How Does the Partnership Work?**

Examples of the partnership at work are outlined in the following sections.

### *Joint teacher in-services*

Over the past year, staff from Ribbons of Blue/Waterwatch WA staff have participated as presenters at teacher in-services for the Waterwise Schools Program. At these presentations, staff have outlined how schools can become involved in Ribbons of Blue/Waterwatch WA water quality monitoring, or have shown curriculum and promotional materials available.

Schools recognised as Waterwise schools for three years or more receive a 'Waterwise Refresher' course to update them on water issues and the latest curriculum and promotional resources. In a number of cases, Ribbons of Blue/Waterwatch WA staff have been invited to contribute to these courses.

### *Waterwise schools submissions*

When applying to be recognised as Waterwise schools, schools provide the Water Corporation with evidence of each class's Waterwise activities. These submissions demonstrate that many schools have used Ribbons of Blue/Waterwatch WA activities as part of their Waterwise programs. Examples are as follows:

- St Brigid's School (Bridgetown) became involved in caring for the local Somme Creek and catchment area.
- Mt Tarcoola Primary School studied water quality in the Chapman River through Ribbons of Blue/Waterwatch WA.
- East Fremantle Primary School visited the banks of the Swan River to study macroinvertebrates as part of Ribbons of Blue.
- Staff and students at Ashfield Primary School created a school mural depicting the Swan River, Australian native animals, Aboriginal cultural beliefs about how the river was created and Ron Courtney Island, for which they have also become recognised as 'Custodians in Principle' by the Swan River Trust.
- Wongan Hills District High School participated in the Ribbons of Blue environmental art competition, with students' artwork being displayed at Northam Boulevard during National Water Week.

- Nannup District High School became involved with a community project, sponsored by Waterwatch and the Nannup Shire, to lay a 'Reconciliation' pathway using painted concrete slabs with water themes.

The water education policies that form part of school submissions have in some cases demonstrated a focus on water in the local environment. The following example is an extract from Nannup<sup>1</sup> District High School's water education policy, which highlights the involvement of Ribbons of Blue/Waterwatch WA:

*Nannup District High School is situated in the Lower Blackwood Catchment with a population of 1211 within a 2,953 square km Shire area. Known as The Garden Village the Noongar word 'Nannup' means a place to stop/gather/rest. A strong environmental ethos exists in the school which includes: a school vegetable and chook garden; ongoing participation in the Clean Drains project highlighting the importance of litter prevention in the school grounds and frequented public areas around Nannup; and a whole school involvement in the Blackwood Waterwatch/Ribbons of Blue program.*

#### *Waterwise schools recognition ceremonies*

Schools that meet the criteria for becoming a Waterwise school hold a special Waterwise assembly at which they receive recognition certificates for themselves and each student. Recognition ceremonies are well attended by the school community and guests, and provide an opportunity to acknowledge parties such as Ribbons of Blue/Waterwatch WA for their contribution towards the school's journey in becoming a Waterwise school.

#### *Catchment activity days*

As part of working in partnership with Ribbons of Blue/Waterwatch WA, the Water Corporation has supported catchment activity days coordinated by Ribbons of Blue/Waterwatch WA through having education officers attend these events. Education officers provide background on local community water-related issues and provide promotional resources to further support the efforts of teachers.

#### *Tours and lectures*

Both organisations support each other's programs by providing tours and lectures. The Water Corporation offers tours of groundwater and wastewater treatment plants and lectures on stormwater, water supply, water conservation and wastewater. The Department of Environment and Conservation (through Ribbons of Blue/Waterwatch WA) provides hands-on activities associated with water quality monitoring and talks related to environmental water quality.

#### *New curriculum support materials*

The two organisations produce complementary resources. The Department of Environment and Conservation is about to release its new Ribbons of Blue/Waterwatch WA package, 'In and Out of the Classroom', and the Water Corporation's new curriculum support resource, *Water is Our Future: Teacher Resource Files* is due for release early in 2008.

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<sup>1</sup> Nannup is a country town in the South West of Western Australia.

## *Water-related events*

The Waterwise Schools Program and Ribbons of Blue/Waterwatch WA have conducted joint activities for water-related events—e.g. World Wetlands Week, World Water Day, World Environment Day and National Water Week.

## **5. INTEGRATING WATER EDUCATION PROGRAMS WITH NATURAL RESOURCE MANAGEMENT PLANS**

### **Natural Resource Management Plans**

Natural Resource Management (NRM) plans have been developed for 56 regions across Australia. The following national objectives have been identified for regional NRM plans:

- to promote sustainable resource use, particularly sustainable agriculture
- to protect and improve the condition of land, water (including groundwater) and vegetation resources that provide the ecosystem services that support sustainable resource use industries
- to improve water quality and environmental condition in surface and groundwater systems, including wetlands and estuaries, while maintaining the economic and social values derived from water use
- to protect our coastal catchments, ecosystems and the marine environment
- to reverse the decline in the extent and quality of native vegetation and maintain and restore habitat for flora and fauna
- to protect and manage places and values of national environmental significance, including threatened species and communities, listed migratory species, Ramsar wetlands of international importance, world heritage areas and national heritage places
- to promote Indigenous community participation in the planning and delivery of regional NRM outcomes.

Integrating water education programs—such as the Waterwise Schools Program and Ribbons of Blue/Waterwatch WA—with NRM plans in country areas across the state is currently being investigated. Through a joint approach, the two programs could contribute to a number of NRM objectives, offering flexibility in content and delivery to accommodate the needs of different NRM regional plans. In turn, participating in NRM plans would reinforce both programs and involve new schools.

As the Waterwise Schools Program adopts a whole-of-school approach, with every class participating in activities, it has the potential to involve many students in activities that would complement regional NRM plans. Ribbons of Blue/Waterwatch WA activities also target classes at upper primary and secondary levels and aim to involve at least 50% of schools in regional areas in community projects such as water quality monitoring and waterway restoration.

Outcomes targeted would include:

- improved understanding and awareness of the values, attributes and management needs of wetlands and waterways
- maintained or improved quality and quantity of existing and potential future potable water resources
- maintained or improved recreational, cultural, commercial (including fishing) and social amenity values of estuaries, rivers and foreshores

- increased understanding of values (including social and economic) of biodiversity, ecosystems and their functions, impacts of threats, degrading processes and possible management responses
- awareness of the region's natural resources and their values, with an increased understanding of their related management requirements
- a community with the capacity, resilience and willingness to adapt to change, and with confidence in their future
- increased knowledge base shared between all involved people and organisations
- achievement of a main Management Action Target of NRM programs: 'Natural Resource Management is taught in every school and educational institution by 2010'.

## **Working in Partnership**

The Waterwise Schools Program and Ribbons of Blue/Waterwatch WA operate on the principle that schools are an integral part of the community and activities undertaken involve not just students but also their families and their communities. Both programs aim to engage communities in the sustainable use of water and management of waterways. In particular, the focus is on the attitudes, skills, understandings and behaviour of participants by:

- enabling them to examine their own lives and households and make adjustments to how they use water
- examining key issues related to sustainable water use and taking appropriate action
- undertaking real-life, action-oriented projects in their local communities such as water quality monitoring and waterway restoration activities.
- participating in activities to educate other community members about the sustainable use of water and waterways.

Benefits of working in partnership in association with NRM plans include the following:

- All schools participate in joint community projects—i.e. working together to learn, and educate others, about the value of water and the need to protect and conserve water in their catchment area.
- Students learn about water issues in their local and wider community.
- Teachers can take an outcomes-based approach to water education, with a focus on 'real-life' water-related issues.
- Students and their families engage in appropriate Waterwise behaviours.
- A cooperative approach is taken, among schools, communities, local government authorities, state government agencies and private organisations, in dealing with water-related issues.
- Key water-related messages are delivered to the community through curriculum activities, newsletters, community events, etc.

## **Supporting the Approach**

Delivery of comprehensive water education by the Waterwise Schools Program and Ribbons of Blue/Waterwatch WA, as part of NRM, would require the following:

- a dedicated education specialist to visit each participating school in the district and spend a day working one-on-one with teachers to train them on using the program and curriculum resources from both groups. This would take place over a period of one to two months

- for schools adopting community waterway monitoring and restoration activities using Ribbons of Blue, a coordinator (at least 0.5 FTE) to provide access to equipment and training and to facilitate restoration project participation. This coordinator could be an NRM Officer, whose role includes Ribbons of Blue coordination
- professional development for each school: either a full teacher in-service (the preferred option) or detailed one-on-one training on using the program and curriculum resources developed by the Waterwise Schools Program and Ribbons of Blue/Waterwatch WA

NRM funding (with support from both the Water Corporation and the Department of Environment and Conservation) would be needed for an operating budget, supporting the employment of an educational professional and purchasing loan equipment.

Support from the Water Corporation and the Department of Environment and Conservation would include the provision of: training for the education specialist and the NRM Officer; curriculum resource materials to participating schools (from both programs); teacher relief (for one day) for the Waterwise Schools Program (through the Water Corporation); ongoing quality assurance and quality control procedures for water quality data collection (through Ribbons of Blue/Waterwatch WA); and access to state and national networks for Waterwise schools and Ribbons of Blue/Waterwatch WA.

## **6. CONCLUSION**

Water education is crucial to our future and it is important that we improve the processes and systems in place for delivering it in schools. Partnerships with community and other organisations strengthen water messages by taking a common and consistent approach.

In Western Australia, water education is not seen as ‘flavour of the month’. Schools over a number of years have thoroughly embraced the Waterwise Schools Program and Ribbons of Blue/Waterwatch WA. Both groups have supported schools in their endeavours to become Waterwise and to understand links between water and the natural environment.

Water education is holistic. Topics such as water supply, water conservation and wastewater should not be seen as ‘stand alone’ but, rather, integrated with other water-related themes such as water and the natural environment, stormwater and waterways, and water and health (this last from public health and environmental water quality perspectives).

The Waterwise Schools Program and Ribbons of Blue/Waterwatch WA believe that through linking their programs to NRM plans, water education can be strengthened in regions across the state and can contribute to the education aspects of NRM plans. Through building partnerships in water education, we can enhance our efforts towards achieving a sustainable water future.