



The Secret of the Disappearing River



A Share-Net Resource Book

Reading-to-learn curriculum materials to support
Life Orientation, Social Sciences, Language and
Economic & Management Sciences learning areas



Acknowledgments

The Handprint resource books have been compiled by Rob O'Donoghue and Helen Fox of the Rhodes University Environmental Education and Sustainability Unit. Lawrence Sisitka was responsible for coordination and review, and Kim Ward for editorial review and production for curriculum and Eco-School use. Development funding was provided by CAPE. Cover illustrations are by Tammy Griffin.

Knowledge and activity support materials have been adapted from various sources including the Internet, and web addresses have been provided for readers to access any copyright materials directly.

For this particular resource book, a big thank you to the Kowie Catchment Campaign (KCC). Their excellent work, monitoring the Kowie River, provided the inspiration for this story and some of their materials were used.



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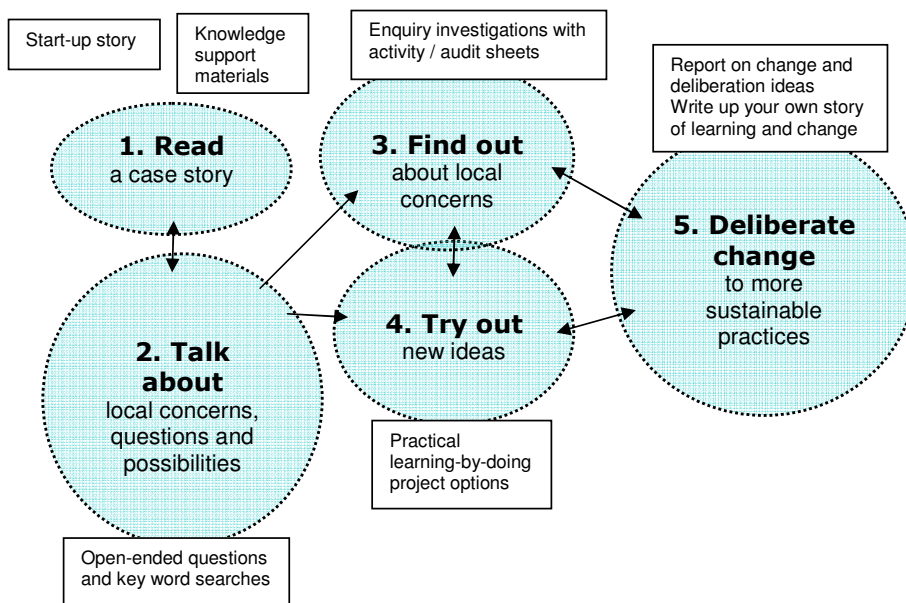
RESOURCE BOOKS

The **Handprint Resource Books** have been designed for creative educators who are looking for practical ideas to work with in the learning areas of the National Curriculum. The focus is on **sustainability practices** that can be taken up **within the perspective that each learning area** brings to environment and sustainability concerns.

The resource books are intended to provide teachers with authentic start-up materials for change-orientated learning. The aim is to work towards re-imagining more sustainable livelihood practices in a warming world. Each start-up story was developed as a **reading-to-learn** account of environmental learning and change. Included are copies of the knowledge resources that informed those involved in the actual learning experiences described here. Working with local cases of learning and change has allowed us to develop the resource books around **locally relevant knowledge resources** and **practical learning activities** that relate to our African context. We are grateful to teachers and Eco-School support groups who have willingly shared their learning experiences and activities.

The **Handprint Resource Books** are an attempt to work from authentic cases of environmental learning and change. They combine some of the best teaching and learning tools that are being used to support change-orientated learning in the everyday realities of our South African schools. The resource books include:

1. **Start-up stories** with **knowledge support materials** (*Reading for information to build up a picture*)
2. Questions to **talk** about (*Talking to clarify issues and to plan local enquiry*)
3. Tools to **find out** about local concerns (*Writing about and reporting on local issues*)
4. Things to **try out** (*Writing up and reporting on what has been tried out*)
5. Ideas to **deliberate** (*Discussing, weighing up and recording decisions that will allow us to 're-imagine and re-write' our sustainability practices in a warming world*).

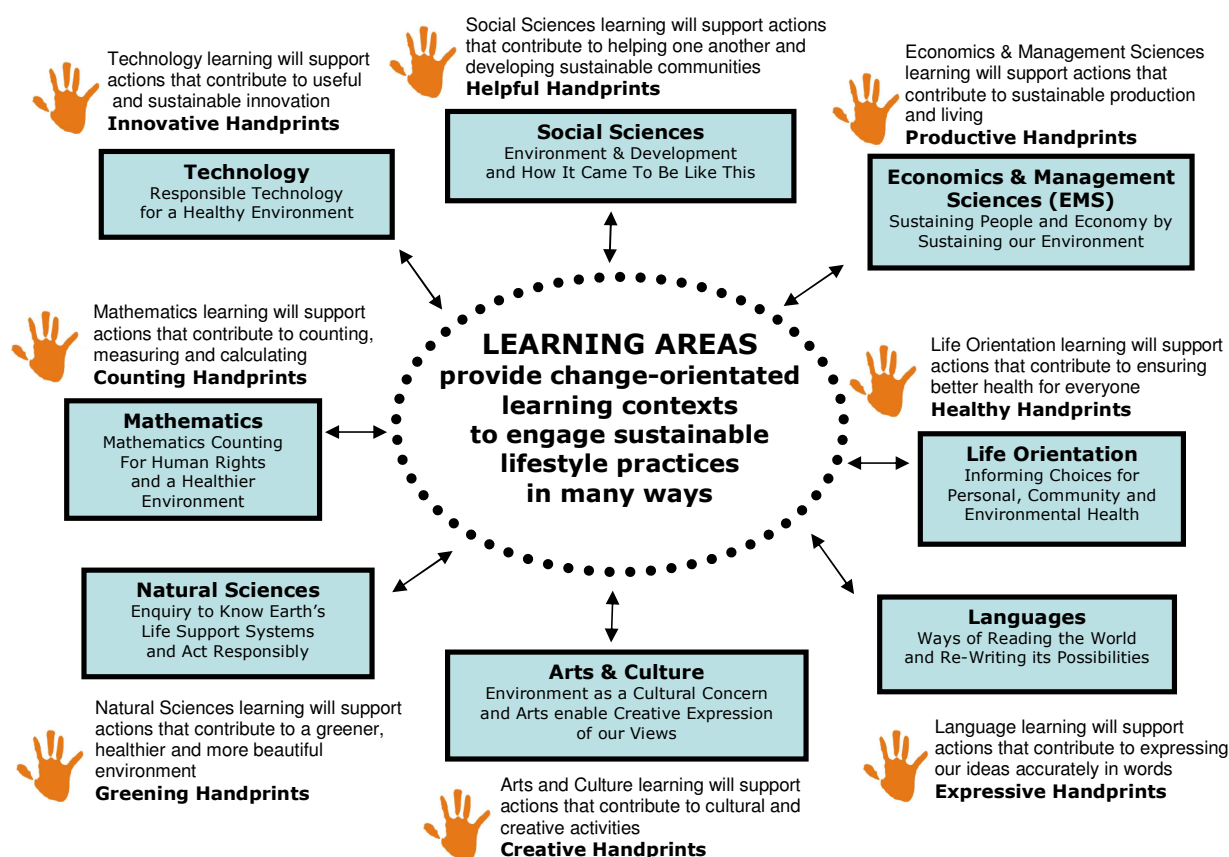


1-2 Start-up story to situate

2-4 Local learning engagement

5. Reporting and reflection

Change-orientated learning & the curriculum



The activities in this book can be used to support learning in the **Life Orientation, Social Sciences, Language** and **Economic & Management Sciences** learning areas, and can contribute to the development of **Healthy, Helpful, Expressive** and **Productive Handprints**.

Teachers should consult the learning outcomes and assessment standards and should adapt the activities to suit their grade requirements.

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The Secret of the Disappearing River

Key words

Biological Indicator

Invasive

Nutrients

Monitor

Weeds



Our Social Sciences teacher often takes our class out into the local environment. Each time she does this she gives us a puzzle to solve and challenges us to look and learn. The excursion I remember best is our first encounter with the disappearing river in our city Grahamstown/Rhini.

We started at Grey Dam and walked down through The Bots (Botanical Gardens) with its small dams and green lawns. Our challenge was to look and learn so we undertook a river health survey of the stream **(SM 1)** and wrote down all of the organisms we could identify using our water organism worksheet **(SM 2)**. We concluded that the environment was clean and healthy.

The river disappeared into the University so we had to walk around and down Grey Street to the bridge next to the Cottage. Here the river was still clean but was

now more like a furrow and the water was collected by three young guys who had started a car washing business in the street. To our surprise the river was nowhere to be seen on the other side of the road so we walked on down the valley assuming that it had been built over when the city expanded and the roads were tarred.

Then we found an old bridge in the middle of Howse Street with no river at all, either upstream towards the Bots or downstream towards the hardware store.

The developing town had totally covered the stream which now ran underground for over a kilometre through the southern side of the town. We asked some people passing by if there was a river. One person said yes but not here, on the other side of town between the village green and the township.

Nikki Kohly, a member of the



A healthy stream in the Botanical Gardens



In town the river runs in a concrete furrow before disappearing completely.

Kowie Catchment Campaign (KCC), joined us as our guide for the second half of the field trip. She told us about the KCC's river monitoring project and we joked about having nothing to monitor in town because the river had disappeared under tar and concrete. She took us to four of their photo monitoring sites. The river was not in a good condition. There was a lot of rubbish in the water and along the banks of all the sites we visited. Our teacher suggested that we do some research on water pollution when we got back to the classroom. We found an article that gave us some useful information **(SM 3)**. Another problem that we discovered at the sites was that people were using the river as a toilet. Nikki showed us filamentous algae in the stream which is



a biological indicator of a high nutrient load and pollution. The banks of the river also had a variety of invasive weeds.

We asked Nikki what we could do as a class to help. She told us about the KCC's *Adopt a River* campaign and gave us a letter and a pamphlet on the KCC that invited us to join them by adopting a stretch of river **(SM 4)**. She explained that our responsibility would be to keep our stretch clean of litter, remove any invasive weeds that were growing there, possibly plant some indigenous trees, and monitor the condition of the river. She gave us a website (<http://www.grahamstown.co.za/kowie/index.html>) which would give us access to a range of simple materials the KCC have developed to help people easily monitor their rivers. This includes the turbidity test **(SM 5)** and the sniff test **(SM 6)**.

Now that we have some tools to help us and people to work with, ten of us in the class have decided to form a River Club. We are going to adopt a stretch of river, monitor the water quality and keep it clean. No-one can live without water, and we need to look after our precious rivers.

Glossary

Biological Indicator: A plant or animal that if present in an ecosystem helps you understand whether the ecosystem is in a healthy or unhealthy condition.

Invasive (plant): A plant that is not indigenous, or does not originally come from the place it is now growing, and one that is able to invade and take over natural communities.

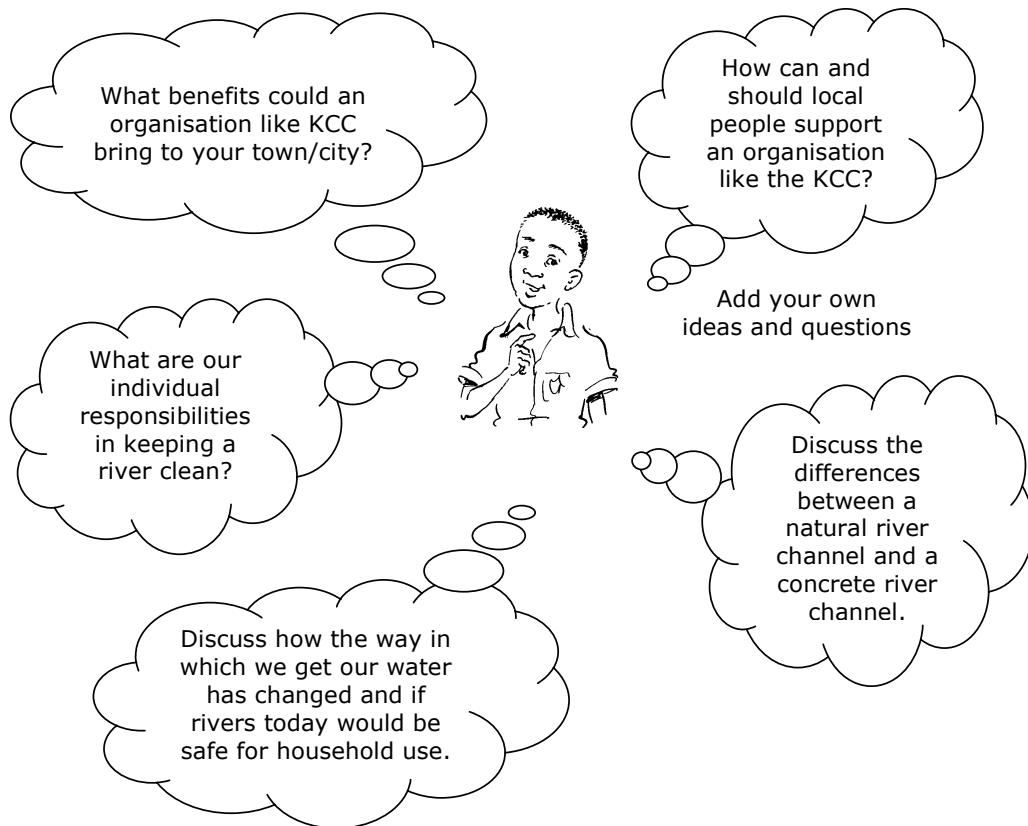
Monitoring: Observing the condition of something over time.

Weed: A plant that is seen as undesirable or troublesome, because it is growing in a place where it is not wanted.

Comprehension Questions

1. Was the Kowie River healthier upstream or downstream? Why do you think this is the case?
2. What were the three problems that had an impact on the river that the learners found out about?
3. Name four things you can observe to help you learn about the health of your river **(SM 1)**.
4. Name two animals that you can only find in healthy rivers, and two animals that you can find in degraded rivers **(SM 2)**.
5. How can you help reduce pollution in your river? **(SM 3)**
6. How would you feel about joining an initiative like the KCC *Adopt a River* campaign? Why would you join such an initiative? What reasons are there for not being part of something like this? **(SM 4)**
7. What does turbidity measure and why do you think it is important to know the water's turbidity? **(SM 5)**
8. What do you think is the usefulness of the sniff test? **(SM 6)**

Discussion Points



FINDING OUT ACTIVITIES

Activity 1: Investigate potential sources of water pollution in your catchment

Take your learners on an observational walk to key areas in the catchment, noting pollution and activities that may be causing it. In the field or back in the classroom, facilitate a discussion with your learners on the different things that could cause water pollution. This includes point and non-point sources. Examples of point sources of pollution include:

- effluent flow from factories
- sewage leaks.

Non-point sources include:

- agricultural activities that use pesticides and fertilizers
- a settlement dependent on the river for washing clothes, bathing, and drinking
- livestock defecating in the river
- litter
- contaminants from traffic such as lead in petrol.

Additional activities your learners could do include:

- Interviewing experts on the subject, to find out what sources of water pollution occur in their catchment. (An expert could include a local environmental NGO, a municipal official responsible for environmental health, a geography lecturer.)
- Undertake a map reading exercise of the local catchment to identify possible pollution sources. A 1:10 000 scale map will give you enough detail to identify possible sources.

Activity 2: Undertake a river health survey of your local river

Support material 1 provides a survey for the learners to undertake. Investigate whether the water is safe to drink using the SASS (**SM 2**), turbidity (**SM 5**), sniff (**SM 6**) and coliform tests (For a 'Testing for E. Coli bacteria' kit or a miniSASS kit, contact Share-Net (033) 330 3931 or Ethekeweni Environmental Centre (031) 577 1605).

TRYING OUT ACTIVITIES

Adopt a stretch of river near your school

Use **support material 4** to inspire your learners to adopt a stretch of river, tidy it up and monitor water quality. Identify a suitable place. You may consider where it is located, ease of access, safety of learners, need for rehabilitation. There are many things you could do when adopting a stretch of river including: keeping it free from litter, monitoring its health, removing invasive weeds, planting indigenous trees, and stabilising the river banks. Be creative.

← - - - - **Formatted:** Bullets and Numbering

DELIBERATION IDEAS



To deliberate is to think carefully about, to consider, to discuss in a focused way, to weigh up and debate. Here are some ideas to support this process in your learners.

Debate what impact litter has on an ecosystem. Is it the key problem that needs to be addressed or is there a deeper problem (i.e. the invisible contaminants and enriching nutrients that kill organisms and increase disease risks).

Note to the teacher:

There are valid points to both sides of the argument:

1. Litter is unsightly and needs to be cleaned up. Findings also suggest that if people start to work on making the place look nice and inviting, the river will come back to life in many ways. Firstly, crime often decreases when places are clean and attractive; secondly, people start visiting the area and notice other problems. In becoming aware of these problems the chances of them getting involved in civic action is higher and they will be motivated to put pressure on the municipality and other authorities to look after things better. This process is similar to the 'broken windows' theory, advanced by George Kelling and James Q. Wilson. They found "that if a window in a building is left unrepaired all the other windows will soon be knocked out. Why? Because damage left untended, [or in this case litter], sends out a message that no one cares, that no one is in charge and that further vandalism [or pollution] won't incur a penalty" (Colson 1999: 364).
2. Bottles and rubbish don't really do much damage to a river system. In some cases the extra bottles can actually mean that more water cleaning animals are able to naturally live in the river because they can hide from predators. The real problem in the river is normally the invisible – namely the enrichments and pollutants that kill organisms and allow microbial diseases to increase.

Reference

Colson, C. 1999. *How Now Shall We Live?* Illinois: Tyndale House Publishers.



RIVER HEALTH SURVEY

River health survey by:		Site visited:		Date:		
	<i>Choose one column and tick</i>	Tick here		Tick here		Tick here
WATER QUALITY	Yucky – polluted! Slimy, oily, green or grey water. Would NOT swim in this.		Muddy or cloudy with sediment		Clear (transparent)	
ANIMAL LIFE	No life in water		A few species, but mostly worm-like animals		Lots of life – small insect larvae, snails and fish etc.	
LITTER IN RIVER AND ON BANKS	Lots of litter		A small amount of litter		Little or no litter	
STATE OF THE RIVER BANKS	Banks concreted or walled – canalised		Earth banks steep, and straight, maybe overgrown with alien plants, weeds or grasses		Banks natural with rich indigenous vegetation	
* STATE OF THE RIVER FLOODPLAIN, WETLANDS AND MARSHES	Urbanised – mostly filled in or drained and covered with houses and roads		Agricultural – many fields, lawns or gardens, but some wetland areas still present		Natural – wetlands and floodplains mostly unaffected by people	
*ALIEN TREES AND PLANTS IN THE RIVER OR ON THE BANKS	Most plants are aliens		A mixture of alien and natural vegetation		Mostly natural vegetation with few aliens	
EROSION OF RIVER BANKS	River bank collapsing – many heavily eroded dongas		Some erosion in places		Banks stable with very little or no erosion	
* STATE OF THE CATCHMENT	River flows through large towns and heavily populated areas – greatly affected by people		River flows through a mix of wilderness areas and small towns and farmlands		River flows mostly through wilderness areas with few people present	
HOW TO SCORE	Count 1 point for every tick in this column and write it in the shaded block.		Count 2 points for every tick in this column		Count 3 points for every tick in this column	
* Ask an adult to help with this information SUM OF ALL POINTS:						
Your catchment health score 21-24= Lucky you! Your river stretch is in good condition. What can you do to help make sure it stays that way? 13-20 = Your stretch is not as healthy as it could be. With a bit of help, parts of it could be restored. 8-12 = Your river stretch is sick and needs help urgently. You definitely need to 'adopt' your river and do what you can to help.						

**miniSASS SCORE SHEET**

miniSASS **UMGENI**
A community river health monitoring tool for South Africa. March 2000

SCORE SHEET
Circle the score of each group found
(Scores in brackets- to be used in Western Cape)

GROUPS	SENSITIVITY SCORE
FLAT WORMS	3
WORMS	2
LEECHES	2
CRABS OR SHRIMPS	6
STONEFLIES	14 (26)
MINNOW MAYFLIES	5
OTHER MAYFLIES	13
DAMSELFLIES	4
DRAGONFLIES	6
BUGS OR BEETLES	7
CADDISFLIES	9 (16)
TRUE FLIES	1
SNAILS	5
TOTAL SCORE	
Number of groups	
AVERAGE SCORE (divide total by number of groups)	

Caddisflies SCORE 9 (16)

True Flies SCORE 1

Crabs or shrimps SCORE 6

Other mayflies SCORE 13

Damselflies SCORE 4

Minnow mayflies SCORE 5

Worms SCORE 2

Stone flies SCORE 14 (26)

Leeches SCORE 2

Dragonflies SCORE 6

Snails SCORE 5

Flat worms SCORE 3

Bugs or Beetles SCORE 7

Calculating your river's miniSASS score

- For each of the groups found in your sample, circle the score on the table.
- Total the scores and divide by the number of groups found. This will give you an average score. miniSASS produces a single score which is similar and comparable to the average score which is produced by the more complex version of SASS.

Interpretation

- 0 - 2 Highly impacted stream (poor condition)
 2 - 4 Impacted stream (fair condition)
 4 - 6 Slightly impacted stream (good condition)
 > 6 Good quality stream (probably approaching natural condition)

Contact Share-Net, tel (033 3303931)
 or email sharenet@wessa.co.za for a
 miniSASS kit or download from
www.ground-truth.co.za



STOP KILLING OUR RIVERS

It must be remembered that water is part of a deeply interconnected system. This means what we pour on the ground ends up in our water, and what we spew into the sky ends up in our water. By depleting and polluting rivers, lakes and wetlands, we are destroying ecosystems that play an essential role in filtering and assuring freshwater resources.

WHERE DOES WATER POLLUTION COME FROM?

Sometimes water pollution is manmade objects that we can see, like bottles and cans, plastic bags, fishing line and even rags and shoes. It can also be invisible. Wastewater from industries such as mines, and fertilizers and pesticides from farms are types of water pollution that are hard to see. Water pollution comes from several sources and is connected to the water cycle. Water pollution can come directly from human activities, such as dumping trash and chemicals into the water, or it can be picked up through the water cycle, for example, the stormwater rushing down the street after it rains.

If sewage treatment plants are not working properly



raw, untreated sewage could spill into rivers and streams. This can cause an increase of bacteria in the water. People downstream who then use this water can get sick with, for example, cholera and diarrhoea.

Many industries use substances such as oil and chemicals in their manufacturing processes. If these get into the waterways they can cause great damage to the environment by destroying water life, for example, certain types of oil form a film on the surface and this prevents plants and animals in the water from getting oxygen. Did you know that just four-and-a-half litres of oil can cover an area of water the size of eight football fields?

HOW CAN YOU HELP?

- ☐ Do not litter
- ☐ Reduce your use of pesticides and fertilizers and look for safer alterna-

tives to control weeds and bugs.

- ☐ Take part in local river clean-up campaigns.
- ☐ Always throw unwanted fishing line in a trash can, not in the water.
- ☐ Do not use toilets to dispose of trash of any kind.
- ☐ Notify your parents or the authorities if you see someone dumping trash in a river or stream.

DID YOU KNOW?

☐ According to Guinness World Records, the worst **river pollution** in the world occurred in November 1986 when firefighters tackling a blaze at the Sandoz chemical works in Basel, Switzerland, flushed 30 tons of agricultural chemicals into the Rhine River, killing 500 000 fish.

☐ Every year, **200-500 million tons** of heavy metals, solvents, toxic sludge and other wastes accumulate in water resources from industry.

☐ More than 80% of the world's **hazardous waste** is produced in the United States and other industrial countries.

☐ About two million tons of waste are **dumped** every day into rivers, lakes and streams. One litre of wastewater pollutes eight litres of freshwater.

Reference

WESSA. 2008. *Water pollution (how you can help)*http://www.wrc.org.za/publications_education.htm



KOWIE CATCHMENT CAMPAIGN

INVITATION LETTER TO BECOME A CHAMPION



Kowie Catchment Campaign
WORKING TOGETHER FOR A HEALTHY RIVER CATCHMENT

Dear _____

The Kowie Catchment Campaign (KCC) is aware that your organisation/home is situated close to one of the stream beds that is part of the upper catchment of the Bloukrans River – which flows into the Kowie River. **We are looking to extend our network of ‘champions’, and would be delighted if you would join us.**

As a community environmental initiative run by volunteers, the KCC welcomes participation and collaboration. A number of active citizens help champion our cause by engaging members of the community in their area, and the Municipality, in caring for the health and cleanliness of the environment and streams that run through their areas. **The KCC provides support to its champions in the form of a network of expertise, educational materials, and credibility – it is an acknowledged lobby group in Makana.** A champions’ get together is held on an annual basis to celebrate our successes.

The aim of the KCC is to promote better care for the health of the Kowie catchment and environment – this has a direct bearing on the health of our community and people living downstream. We believe we can achieve this by fostering strong civic engagement and leadership within our community and municipality. We recognise that each of us has responsibilities as well as rights. **Citizens play an important role in keeping councillors, municipal officials, and each other, accountable** – as part of keeping our town clean, healthy and sustainable.

The KCC would be glad if you would help champion its cause by engaging members of your organisation/home, as well as the community, in **caring for the environment and stream in your area.**

As you may know, Grahamstown is built on the headwaters of the Bloukrans River. **Many of its streams (often called the “Kowie ditches”) are unacceptably altered and polluted.** Part of the problem is that many people are unaware of the existence of these streams, or the impact of various human activities. The other part of the problem is that town planning has not made allowance for the sensitive nature of the headwaters, resulting in serious damage through development and waste disposal. Some areas in Grahamstown are also overgrown with invasive alien plants, many of which use up vast amounts of groundwater, and push out indigenous plants which would otherwise cover the soil and prevent the impacts of erosion.

Grahamstown is a special place with special people – it is worth making the effort to improve the health of our environment and our community. **Join us in being part of the solution!**

Attached, please find a pamphlet which provides further information about the KCC's efforts.

We look forward to hearing more about your activities and collaborating with you. Please let us know if you, or a caring person in your area, would be prepared to be a KCC champion.

Best wishes,

Kowie Catchment Campaign committee



Structure and Strategy

Vision: Working together for a healthy Kowie catchment.

Aim: To improve our care for the health of the Kowie Catchment and its community by:

- Raising awareness through education of the vital relationship between the Kowie catchment's health and the health of the community.
- Fostering strong civic engagement¹ and leadership within Makana Municipality and the community in supporting the KCC's vision.

Kowie Catchment Campaign Strategy:

1. The KCC is a **community environmental initiative** led by volunteers under the auspices of the Makana Environmental Forum.
2. The KCC's cornerstones are its **champions** – individuals and groups who take on responsibility for engaging the community and Municipality in caring for the health and cleanliness of their chosen sections of the Kowie catchment.
3. The KCC **committee** holds regular meetings to review progress and plan its activities, and circulates the minutes to champions in the community and Municipality in order to maintain communication and provide encouragement.
4. The KCC provides support to its champions, the community and the Municipality through sharing of **materials** and **expertise**.
5. The KCC encourages **collaboration** with other environmental groups and individuals.
6. The KCC **celebrates** its successes through an annual champions' get together.

Note 1: "Civic Engagement". This means, for our purposes, involving the community in democratic action, with particular reference to the Kowie River system and its tributaries. It will require the willing support and activity of both volunteers and volunteer groups, and Councillors and paid officials of Makana Municipality. Civic success depends upon an understanding of democratic responsibilities as well democratic rights.

WATER CLARITY (TURBIDITY)



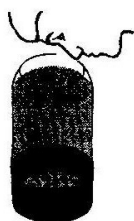
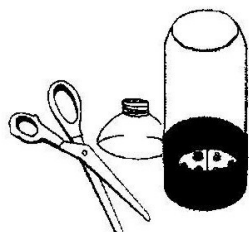
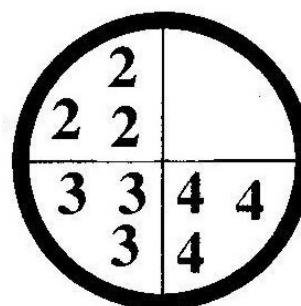
Turbidity refers to the relative clarity of water. Murky water stops light penetration and inhibits water life with a consequent loss of plant and animal diversity. Plants need light to grow and both large and small animals may suffer growth retardation or death because they cannot see to hunt and breed, or their gills may become clogged with particles of silt and organic matter. Suspended solid pollution can be caused by silt from soil erosion, by sewage and industrial waste or by excess microscopic life in the water.



Note: Some rivers are naturally turbid and many organisms can only live in turbid conditions. The key is to know the natural levels in your area especially in Cape and forest 'black water' streams and rivers.

How the test works:

The turbidity sighting disk is based on an early technique of lowering a black washer into a long glass tube of water and noting the depth at which it is no longer visible. The turbidity disk has a circular washer (outer ring scored as 1) and numbers of differing density (scored 2-5). A measure of clear or murky water (turbidity) can be obtained by noting the image density visible in a 20 centimetre column of water.



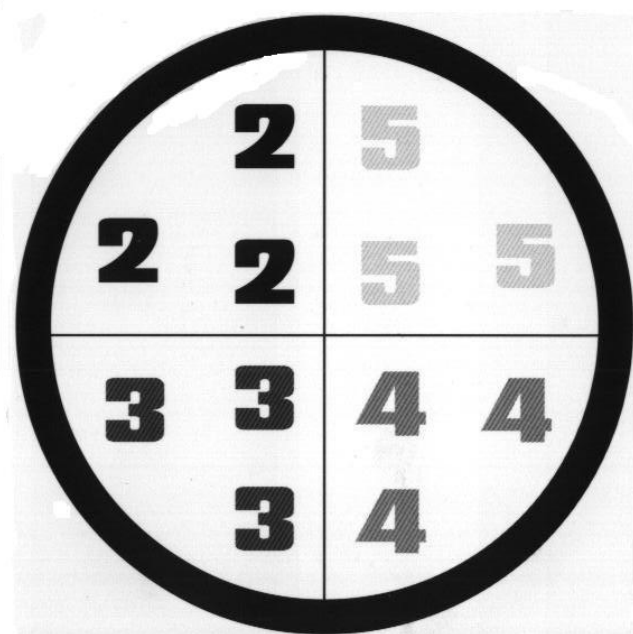
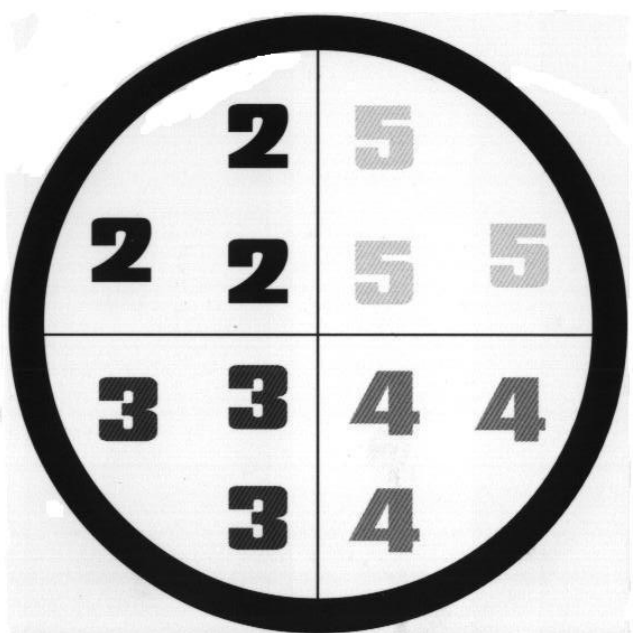
Testing water clarity/turbidity:

1. Cut the lid off a 1.5 or 2 litre plastic cool drink bottle.
2. Fix the disk (see next page) to the inside bottom of the bottle.
3. Fill the bottle to 20cm with a debris-free sample of water.
4. Look into the bottle and pick out the water clarity number that is visible (outer ring [1], 2, 3, 4 or 5).
5. Repeat to get a reliable result.

The water clarity is:

Disk not visible	1-3 visible	All visible
BAD	NOT SO GOOD	OK

TURBIDITY DISK - to make copies and cut out





SNIFF TEST ACTIVITY

What do we need?

- 4 clean glass plastic containers
- Plastic dropper
- Pure bottled water
- Different liquids, e.g.:
 - Jik
 - Urine
 - Dishwashing liquid
 - Diesel

Here, we are starting out by using our senses – to get a sense of what is in the water. This helps us get an idea of what kinds of environmental issues and risks we may encounter in our water.

Sniff test activity: a comparative sense-making challenge!

- Put pure bottled water (from the shop) into four clean containers.
- Keep one as pure water, and label (A).
- Use the dropper to add different liquids to the other four containers of water (each time, rinse the dropper afterwards). Label (B), (C), (D), (E). For example, you may use:
 - 1 drop Jik (chlorine)
 - 1 drop urine (from a volunteer)
 - 1 small drop of dishwashing liquid
 - 1 drop diesel
- Let everyone sniff each container.
- What odour could you smell?
- Did your sense of what was there match with what was actually added into each container?
- You may also wish to test the pH of each sample (how acid or alkaline it is).
- For fun, someone else in the group may like to put a drop of one or two secret liquids (e.g. perfume, insecticide), or even cow dung, into a container of water. Then see if the rest of the group is able to identify it.
- What happens if two or three smells are combined?
- Discuss how our sense of smell can help us test water.
- Take a careful look at the contents of each container. Can you see any difference between each one?
- Are there any links between what you smell, and what you see?
- Does it help to use a combination of different senses?
- Is it wise to use your sense of taste to check the water?

Looking at our own water: take a look, have a smell, listen ...

- Now take a sample of water from your river/stream/pond and do the same sniff test activity.
- Check the pH of the water.
- How does the water look?
- Can you see litter in the river or on the banks? What kinds of litter can you see? Where do you think it comes from?



Handprint resource books available from Share-Net

TITLE	LEARNING AREAS COVERED (BROADLY)
 1. Reusing Shower and Bath Water	Language Natural Sciences Technology
 2. The Buzz on Honey Bee Economics	Language Natural Sciences Social Sciences Technology Economics & Management Sciences
 3. Have you Sequestered your Carbon?	Language Natural Sciences Technology Mathematics
 4. Did you Grow your Greens?	Language Natural Sciences Social Sciences Life Orientation Arts & Culture
 5. Clearing Invasive Weeds	Language Natural Sciences Technology
 6. The Secret of a Spring	Language Natural Sciences Social Sciences Life Orientation Technology Mathematics
 7. The Secret of the Disappearing River	Language Life Orientation Social Sciences Economics & Management Sciences
 8. Creative Garden Design	Language Natural Sciences Technology
 9. Recycling, Waste Reduction and Creative Re-use	Language Social Sciences Life Orientation Arts & Culture Technology Economics & Management Sciences
 10. Worming Waste	Language Natural Sciences Technology
 11. Growing Mother-tree Seedlings	Language Natural Sciences Technology
 12. Rooibos: a Biodiversity Economy at Risk	Language Natural Sciences Economics & Management Sciences

Many more Handprint resource books are in the planning stages. These resource books and many others for teacher educators and teachers are available electronically in pdf format on www.tessafrica.net. The Handprint resource books can also be downloaded from www.handsforchange.org.

The adaptive use of these resource books for educational purposes is encouraged. Anyone wishing to develop their own resource or adapt one, can contact Share-Net sharen@wessa.co.za for a version in Microsoft Word.



HAND PRINT™
action towards
sustainability

This handprint is of a 10-year-old girl, Srija, from a school in Hyderabad, India, who was involved in a project taking action for sustainability. Her handprint can be taken as a symbol for positive action.

Increase your handprint. Decrease your footprint.

Human impact on the Earth has tripled since 1961 and our human footprint is now 25% bigger than the planet can support. In other words we are using 25% more natural resources and services than the planet can create and provide. The 'Ecological Footprint' is one way to measure what area of land and water the whole human population requires to produce the resources it consumes and to absorb its wastes, and we now need 25% more area than is available on the whole planet. This means that the planet is simply being damaged beyond what it can repair, and this cannot continue without causing very serious threats to all life, including our own.

Education is a key way to achieve the changes we need to live in a manner that the planet can support. Environment and Sustainability Education (an environmentally focussed approach to Education for Sustainable Development – ESD) is a move away from seeing education just as a means of producing the skills to carry on doing what we are doing. It develops the abilities needed to address the big issues affecting the planet, and builds the capacity in communities to make important decisions about their future. Environment and Sustainability Education calls for action.

The Handprint is one measure of Environment and Sustainability Education action. The idea is to decrease the human footprint and to make the world more sustainable. The Handprint is a new approach or 'tool' being developed by the Centre for Environment Education (CEE), in Ahmedabad India, with many partners across the globe. The purpose of the Handprint is to help measure **positive action for change** at different levels. We all need to decide **what we can do** at the individual, community, national and global level in order to increase our Handprint, and decrease our Footprint.

"Through our actions, we add substance and vigour to the quest for sustainable living."

The Ahmedabad Declaration 2007: A Call to Action, 4th International Conference for Environmental Education



www.handsforchange.org