37   COMMUNITY EDUCATION

37.1 INTRODUCTION

Typical education programs to promote housekeeping and educational water quality control might include:

- Primary school curriculum (including videos, books and coordinated study units).
- Secondary/tertiary school program and involvement.
- Community education (leaflets, posters, media, etc.).
- Council staff training.
- Business/commercial education.

A range of such programs exists in several overseas, many of them having a strong interactive component.

Most of the more successful projects appear to be those where the level of community involvement is also matched by goals and targets that seem achievable.

These initiatives appear to be at their most effective when they involve students/school children, local authorities, business and the community.

All education initiatives should be coordinated so that the themes are consistent across all levels, resulting in a consistent message.

The guidelines in this section have been adapted from "Managing Urban Stormwater: Source Control" produced jointly by NSW Environment Protection Authority and NSW Department of Land and Water Conservation in draft form in August 1997. The incorporation of this material is gratefully acknowledged.

37.1.1 Principles

Education is not the only factor those influence peoples' behaviour. So education projects may not result in an immediate change for the better - particularly in the short term. This is because people's behaviour is also influenced by:

- The social values and standards passed on in the home, at school, through social groups and the media;
- Age, gender, ethnicity, income and occupation;
- Recent events;
- Infrastructure such as the availability of technology, products and services;
- Economic factors such as financial incentives or disincentives; and
- Laws, regulations and policies - and how these are monitored or enforced.

Education should therefore be considered as one of a number of complementary mechanisms to address issues that arise from people's actions. Other useful mechanisms for change are:

- Enforcement: policy, legislation and regulation.
- Economics: monetary incentives and disincentives.
- Engineering, science and technology.
- Evaluation monitoring and research.

This section provides a brief summary of the steps that can be followed in preparing a community education project and provides additional information on preparing a community education project for stormwater quality management. These programs can be developed by local government, catchment management committees and community groups.

37.1.2 What is Community Education?

Pollution from diffused sources such as roads, residential, industrial and commercial areas, result from millions of actions at thousands of locations within a catchment. Individual acts such as allowing a can to leak oil, washing paint brushes into drains, not cleaning up after dogs, or inappropriate use of household chemicals may appear harmless, but when carried out across a number of homes or across the whole of a state, these actions become a significant source of pollution. Stormwater quality management needs to be addressed by the community, as well as by state and local government. It is important that a team approach to protecting the quality of stormwater is established. Community education can play a significant role in the improvement of stormwater quality.

Community education is a process used to:

- Create awareness of an issues and enhance people's knowledge, understanding and skills
- Influence peoples values and attitudes
- Encourage more responsible behaviour

Community education incorporates aspects of:

- Public involvement
- Adult education
- Vocational education and training
- School and tertiary education
- Community development
- Communications or social marketing (mass media, public relations and campaigns)

Effective community education projects have the following characteristics:

- Involvement of stakeholders and learners in decisions about the planning, management, content, style and delivery of the project
- Creation of a supportive environment for influencing behaviour
- Support and strengthening of existing community networks; help create new ones

- Motivation

- Provision of opportunities for examining beliefs and values

- Identification and promotion of positive actions, rather than discouragement of undesirable actions

- They are relevant, accessible and affordable, recognising the differing circumstances and constraints in a community

- They use two-way communication methods

- They respond to the diverse needs of the community

Collaboration is the key to successful community education projects.

37.2   STEPS IN DEVELOPING AN EDUCATION PROGRAM

This section describes the steps that can be followed in developing an education program.

By way of example, a listing of overseas examples of Education Programs is included in Appendix 37.A of this chapter.

37.2.1 Analyse the Issue or Problem

Find out what is causing concern in the community and break the issue down into its components. Issues and problems may include:

- Oils and grease in waterways, with potential sources including roads, shops and other commercial premises, light and heavy industrial premises

- Litter in waterways, with potential source areas including shopping centres, commercial premises, recreation areas,

- Algal growth in waterways or depressed dissolved oxygen levels due to excessive nutrients, with potential sources including residential areas, parks and gardens

- Sedimentation of waterways, with potential sources including building or construction sites, roads, eroding river banks

- Heavy metals in waterways and sediments, with potential sources including roads, industrial areas and contaminated sites

- Reduced fish population, with potential causes including over-fishing, loss of aquatic habitat or riparian vegetation, water pollution, changed flow characteristics or a barrier to fish movement.

- Weed infestation of urban bushland, potentially caused by nutrients in stormwater and the transport of seeds from urban areas by stormwater.

- Bank erosion, with potential causes including the removal of riparian vegetation or changed flow characteristics

37.2.2 Identify Stakeholders

Identify the stakeholders, involve them and find out where they stand in relation to the issue.

Potential stakeholders who have an interest (or stake) in a stormwater education project include:

- Local residents and their political representatives

- Local conservation and community groups

- Local shops, possibly represented by a local Commerce Groups

- Schools, colleges and Universities.

- State or nation-wide interest groups, representing recreational, environmental, industrial or commercial interests.

- Local authorities

- National and State Government agencies, such as the Department of Irrigation and Drainage and the Department of Environment.

37.2.3 Know Your Target Group

Identify and get to know the target group early in the project.

Potential target groups for an education campaign include:

- Residents and landowners

- Builders or construction workers

- Local businesses (owners and staff), particularly small businesses. These can include food stalls, convenience stores, service stations and car repair businesses, and light industrial premises. Business or industry organisations can also be targeted.

- Land and property developers.

Education programmes for particular sectors are discussed in Section 37.3.

37.2.4 Determine Objective and Outcomes

Determine the result you want from the community education project.

It is important to be realistic about your goals and objectives, and how you can evaluate the extent to which they have been met. Be clear and specific about what you want from your project. The objectives may be both short and long-term.

Potential objectives for a stormwater education project may include:

- Increase knowledge about the environmental impacts of urban stormwater

- Highlight the connection between activities undertaken by the target audience and the resulting environmental impacts

- Identify potential ways to change actions to minimise environmental impacts.

- Develop an understanding of the benefits of improved environmental management to the audience, which may be economic or publicity.

Possible outcomes related to these objectives may include:

- Evidence of improved management practices by the target audience

- Evidence of a reduction in the magnitude of the problem that has initiated the education campaign

- Educational products including brochures, posters

- Positive media feedback

- A report on the project, which shares the experiences gained on this project with other groups planning similar projects.

Consideration can also be given to both short and long term goals:

- Short-term goals **-** these can focus on changing general community understanding of how streets, gutters, stormwater systems, and waterways interconnected

- Long-term goals - these goals can focus on changing specific polluting behaviours that result in stormwater pollution. Long-term goals focus on influencing values and behaviour change by encouraging a sense of responsibility for and appreciation of our waterways.

To be effective in meeting pollution reduction goals, the majority of a program's resources may initially be spent on short-term goals. As the program succeeds in changing specific behaviours and in addressing all identified problems, greater resources could be allocated to the long-term goals of increasing community understanding, appreciation, and values.

37.2.5 Design Your Methods

Investigate the methods, tools and techniques you could use to achieve your goal, objectives and outcomes.

(a) Methods

A brainstorming session with stakeholders could be undertaken to identify potential methods for a particular program.

It is important to keep in mind the target group and the techniques likely to be most effective for this group. These methods can range from informing techniques used to increase knowledge and awareness, to demonstration methods for improving skills. People learn differently, so a

variety of methods could be considered to increase your effectiveness. Community education projects which use only "information giving" methods rarely have long term success. Budgetary considerations may influence the methods chosen.

Possible methods for a stormwater program may include:

- Audio-visual tools such as video recordings, audio recordings and slides.

- Awards to encourage and recognise achievements & highlight case studies of innovative projects or good practice.

- Curricula and courses through schools, universities, and community colleges. This could include certification of participants who have attended training courses.

- Demonstrations such as water quality monitoring, which could be part of a community water quality monitoring program.

- Exhibitions, displays and models. These can be displayed at events such as trade shows, community days, festivals, shopping centres or field study centres

- Permanent displays and signs can be erected adjacent to waterways.

- Stormwater inlets can be stencilled with pictures (icons) such as a fish – more effective than writing

- A tagged litter survey can be carried out.

- Targeted grants can be provided to groups to encourage community involvement.

- Individual advice, communication or instruction to members of the target group on appropriate management practices.

- Interactive computer packages including the Internet and CD ROMs.

- Launches of products or projects

- Mass media, including advertising and publicity.

- Meetings and discussions - steering, advisory and consultative groups.

- Peer education.

- Print material, e.g. brochures, posters, booklets, letters, newsletters, stickers, bookmarks.

- Talks, presentations and seminars.

- Tours, open days and field days.

- Training, train-the-trainer and training modules.

- Workshops.

(b) Messages

There are two basic concepts that can form the basis of the messages in a stormwater education program:

(i) Understanding the stormwater system

The key element to the success of the program will depend on making the connection between people's daily activities that create pollution, and stormwater quality. People need to understand that stormwater inlets and open drains are the entry points for many pollutants which flow to nearby waterways through the stormwater system.

The stormwater system should only carry stormwater; not waste or wash-down water, rubbish, litter, or any other contaminant that can practically be prevented from entering the system. Most urban areas are served with sewerage (or septic tank) systems and waste collection services, so there is no need to dump wastes in the stormwater system.

(ii) Housekeeping and source control are the most effective and economic means of solving the problem.

Refer to the listing of Housekeeping Practices in Chapter 36.

It is important that the message(s) in an education program are communicated effectively. The following points can assist with more effective communication:

- Model the education program after programs prepared by government bodies and other local authorities, such as the "Love Our Rivers" program developed by the Department of Irrigation and Drainage. Where possible, integrate stormwater public education and participation into existing programs operated by other council departments (e.g. precinct committees).

- Implement public education as a coordinated campaign in which each message is related to the last.

- Present a clear and consistent message and highlight to the public how they contribute to stormwater pollution and what they can do to reduce it.

- Small businesses that often possess the same limited awareness of the problems, regulations and solutions as the 'general' public. As a result small businesses need the same level of technical assistance (education) and participation in the stormwater management process as the 'general' public.

- Use local languages to reach all elements of the population.

- Create an awareness of local catchment issues, to encourage identification by the public of impacts on an area that they are familiar with (e.g. a popular swimming beach).

- Encourage community involvement in the preparation of the educational material. This has the potential to create better educational material and encourages them to take more responsibility.

- Use 'plain language' in all educational material and reduce the technical terms, acronyms and jargon.

- Ensure that all statements have a sound technical basis to avoid the spread of misinformation.

- Break down complicated messages into simpler concepts. These messages can be presented to the public in an organised way to avoid 'overloading' and confusing the audience.

37.2.6 Sources of Funding

Identify possible funding sources and the benefits for potential funding organisations.

Funding may be either financial or in-kind contributions. Potential sources of funding may include:

- Grants from local authorities.
- State Government grants.
- National Government grants
- Private sponsorships.

37.2.7 Make an Action Plan and Implement it

Prepare an action plan to ensure that you achieve your project's goal and objectives.

An action plan identifies who has to do what by when, and what resources will be needed. The plan is designed to keep all participants on track.

37.2.8 Monitor and Evaluate

Monitor and evaluate the project and tell people about it. This may be the most difficult step in education project planning and is therefore left out of many project designs.

It is very rare for all aspects of a project to be successful, so it is as important to identify opportunities for improving your project as it is to report on the project's success.

With broader community participation there may be distinct advantages in all of the local authorities, involved in a particular catchment, funding a coordinator education officer whose principle tasks should involve as much facilitation (co-ordinating programs, putting schools in touch, sourcing resources and funds) as it is in direct education. The appointment of such a person may achieve greater net benefit than leaflets, posters, etc.

37.3   SECTORAL EDUCATION PROGRAMS

37.3.1 School Education

School education should be primarily targeted at encouraging a positive attitude towards maintaining ecologically viable waterways. This can be done through providing an understanding of the role of waterways and the ways people positively and negatively influence those waterways.

This can be achieved through units of study contained in the curriculum, as well as interaction with community, government and business organisations.

As an example, a number of successful programs have been put in place in Australia that involve school children in assessing and monitoring the health of local streams. These schemes can provide valuable scientific information whilst educating children on the interactions of society and the environment. A list of these programs is included in the Appendix for reference.

37.3.2 Business or Commercial Education

There are three main areas that should be addressed with respect to business/commercial education. These are:

- Awareness of the impact of commercial activity on the environment.
- Understanding of Best Management Practices.
- Increasing awareness of the financial benefits of appropriate design.

Financial benefits can include:

- Better land values for developments that include wetlands and "natural watercourse" style drainage.
- Recycling/reuse of industrial chemicals rather than discharging them.
- Retention of riparian land values through adequate control measures.

Community education can be used to help with general business awareness of stormwater pollution issues, however more specific education can be effected through Building Controls and Best Management Practice guidelines. These are discussed in more detail in Chapter 36.

37.3.3 Internet

Use of the Internet can also be a powerful measure in increasing liaison. This may provide opportunities for:

- Information sharing on programs.
- Questionnaires.
- School children's questions and answers format.
- Sharing of results of information collection schemes, etc.
- Educational games.
- News on Awards results.
- Accessing information from similar programs in other countries.

An example of this use is given by Brashear, Promise and Roesner (1999). The authors note that almost anyone can access the World Wide Web. "Literally thousands of web sites exist for the purpose of public outreach. Without a doubt, the Web will evolve to be the future of communication amongst those developing and needing guidance on urban water resources management."

APPENDIX 37.A   EXAMPLES OF COMMUNITY EDUCATION PROGRAMS

NAME OF PROGRAM	AGENCY/PROMOTER	GENERAL GOALS	DETAILS	CONTACTS
COMMUNITY/ENVIRONMENT AND BUSINESS GROUPS				
Kids, Companies and Creeks	Oz Green with Local Councils	School education and participation intended also to achieve improvements in industry stormwater management	Has been run in various localities in Sydney including Manly, Warringah and Cattai	Oz Green Tel +61 (2) 9971 4098
Ocean Care	Surfrider Foundation	Non-profit organisation protecting beaches and surf through education activism and research	Exhibitions and demonstrations	http://www.surfrider.org.au
Backyard to Bay	Queensland Master Builders	Objective of improving building practices and reducing impacts on stormwater quality	Includes management guideline	QMBA
Clean Up Australia	Clean Up Australia	Annual clean up day with nationwide community involvement	Also funding for specific clean up projects	http://www.cleanup.com.au
BOOKS, VIDEOS, CDs, GUIDELINES				
Stormwater Industries Association Newsletter	Stormwater Industries Association Inc.	Monthly bulletin on Stormwater Management Initiatives	includes news and technical articles from Australia and 0/S	SIA Inc Tel +61 (2) 98107805 FAX 1800 659 382
Gould League Educational Kits	Gould League, Victoria	Publications and programs	Includes teacher led half and full day marine and catchment programs	http://www.gould.edu.au
What We Need is a Community Education Project	NSW EPA/DLWC	Guidelines on preparing and running community based environmental education programs	Includes 5 project test cases in NSW	EPA Tel +61 (2) 9795 5000
Interactive Urban Stormwater CD-ROM	Drummoyne Council	Interactive CD with focus on school education	EPA Streamwatch funded	Drummoyne Council Tel +61 (2) 9819 6555
Texas Non-point SourceBOOK	Texas Chapter, American Public Works Association	Internet site	On-line database of BMPs, management practices, legal and funding issues and water quality information	http://www.txnpsbook.org

NAME OF PROGRAM	AGENCY/PROMOTER	GENERAL GOALS	DETAILS	CONTACTS
LOCAL GOVERNMENT				
Let's Clean Up Winding Creek	Lake Macquarie City Council, EPA and community	Community education on impacts and participation in improving the creek environment	Included a range of initiatives and actions involving community schools TAFE and Business	Lake Macquarie City Council Loren Morgan, enven@lakemac.nsw.gov.au
Restoring the waters	Fairfield City council	Long term program to restore the original creek alignment and character clear Paddock Creek	Involved extensive community involvement and land art interpretation	
Litter Awareness	Waverley Council	Education Program: raising of community awareness of litter impacts	EPA Storm watch funded	Waverley Council
Don't dump on Dee Why Lagoon	Warringah Council	Improvement in the water quality in Lagoon system	EPA Stormwatch funded	Warringah Council
Soil and Water Management on Building sites	Waverley Council	Guidelines for improved sediment control from building sites	EPA Stormwatch Funded	Waverley Council
Gross Pollutant Trap Education Program	Hurstville Council	Aimed at educating community on roles of GPTs	EPA Funded	Hurstville Council Tel +61 (2) 9330 6214
Alexandra Canal Catchment Environmental Education and Review Program.	South Sydney Council with Botany and Marrickville Councils	Contact council for details	EPA funded	South Sydney Council
Streets to Rivers	Marrickville and Canterbury Councils	Community education campaign to increase awareness of impacts of the individual and business	Including graphic posters and leaflets in a number of languages	Marrickville Council
Healthy Waterways Melbourne, Victoria	Melbourne Water Corporation	Installations Studies Programs and education initiatives to improve the cities waterways	Programs include Drains to the Bay Education Kit developed with Rotary	Melbourne Water Corporation Tel +61 (3) 9235 7100
Yellow Fish Road Drain Marketing	Pittwater Council	Stickers on drains based on successful Canadian Program. Involves business sponsorship	Bright Yellow Fish Stickers used to attract attention	Pittwater Council
Feral Trolleys	Georges River CMC and EPA	School program to raise awareness of abandoned shopping trolleys	Includes mapping and identification of source of trolleys	Georges River CMC, EPA
Art of the river	Cooks River Foreshores Working Party	Increases community knowledge and feedback through ephemeral artworks	Included art postcards with brief question on stormwater	Marrickville Council

NAME OF PROGRAM	AGENCY/PROMOTER	GENERAL GOALS	DETAILS	CONTACTS
		CMCs AND NGOs		
Gutter and Guardians	Torrens Catchment Water Management Board	Internet site promoting better water management in industry and the home	Board and the community	http://www.cvmb.sa.gov.au/index.htm
Streamly Clean	Upper Parramatta River Catchment Trust			Upper Parramatta River Catchment Trust
Why Down The Drain	Georges River CMC	Educational program on litter / pollution impacts		Georges River CMC
Auto Repair Business Survey	Centennial Park Trust and EPA	To inform auto repairers on possible practice impacts and means of reduction of pollutants entering pond system	Included guidelines and questionnaire	EPA
Streamwatch	EPA	Stormwater monitoring program and associated education for school children	Also involves councils, DLWC and CMCs	http://www.streamwatch.org.au
Harbourwatch	EPA	Similar to Streamwatch but related to harbour foreshores	As above	EPA
P.I.T.S Drain Stencilling	Waterwatch Victoria	Pollution in the streams program aimed at primary and secondary school students	Includes education kit	Cbarnes@chw.net.au
Investigating your Catchment	Waterwatch SA	To improve water quality monitoring through school education and sharing information	Internet site includes homework Hotline and "Q and A's"	http://www.cnbw.sa.gov.au/kwc