

2.3 Educational and participatory practices

2.3.5 Focused stormwater education involving new estates

Description

This best management practice involves engagement of a temporary Stormwater Management / Environmental Officer for a large residential estate land development. The officer may be employed on a part or full-time basis (depending on the size of the estate) and may play a role in:

- ensuring stormwater quality during construction/building (e.g. helping to maintain the integrity of structural controls such as infiltration systems, educating builders and sub-contractors while they are on-site, monitoring erosion and sediment controls, and monitoring construction practices);
- promoting water sensitive gardening practices, as new landowners begin to landscape their properties;
- educating new landowners about sustainable practices for washing cars, car maintenance (e.g. changing oil), composting, disposing of animal wastes, disposal of swimming pool discharges, bin washing, and how to keep materials such as lawn clippings and sediment out of the stormwater management system;
- undertaking manual litter collections in areas such as parks (as psychological studies indicate that if you keep a public place clean it promotes reduced rates of littering);
- promoting positive stormwater initiatives that occur on the estate via local media (i.e. provide positive feedback to reinforce desired forms of behaviour);
- educating mobile businesses about stormwater management when they are on-site (e.g. dog washing franchises, external house and roof cleaners and car servicing businesses); and
- explaining to new landowners about the purpose of, and how to look after, permanent water sensitive urban design features in the estate (e.g. not driving on grassed swales).

Applicability

This practice is suitable for large residential estates/land developments, particularly in the following situations:

- areas with sandy soils that have low nutrient and moisture retention capabilities;
- areas draining to sensitive water bodies (e.g. conservation category wetlands, or catchments that are under stress from nutrient inputs, such as the Peel-Harvey and Swan-Canning);
- drinking water catchments;
- areas where gardens are close to water bodies;
- areas subject to erosion (e.g. due to steep slopes); and
- areas with large gardens and lawns.

The role could be valuable in protecting infiltration systems during construction and educating residents on water sensitive management practices at the building stage, when there is the greatest potential to adopt measures such as waterwise and fertilise wise gardening, and the reuse of shallow groundwater or roof water.

Recommended Practices

Use proven *behaviour change* techniques, such as commitments/goal setting, prompts (to address forgetting), develop social norms and consider incentives. Refer to the Additional Information section for a list of recommended behaviour change resources.

This role could be undertaken by a local environmental group (e.g. staff from the group may be funded by the developer and/or local government), which would help to build expertise and skills in the region. Developer funding may be applicable if the Stormwater Management / Environmental Officer is exclusively engaged for a particular development. However, funding or employment by local government or a catchment management authority may be advantageous, so that the officer could be engaged over a much larger area.

The role would start immediately prior to construction and continue for at least six months after the development has effectively finished (i.e. the vast majority of potential residents are living in the estate).

A specific 'role description' should be developed for the position by the developer and local government as part of a site-based stormwater management plan. The role description would be specifically worded so that an enforcement officer could easily check that each element of the role had been delivered.

To engage the community, it may be advantageous for the officer to address a range of *sustainable living* issues, e.g. stormwater management, water conservation, water sensitive gardening, waste minimisation and energy efficiency. Examples of sustainable living programs are provided in the Examples / Case Studies section.

Benefits and Effectiveness

The officer may provide valuable marketing benefits to the developer and help to build human and social capital by:

- welcoming new residents to the estate;
- fostering a positive sense of community (e.g. psychological studies show that if you can foster a positive sense of community it promotes reduced rates of littering);
- running basic education and participation events (e.g. stormwater-related training courses like the Swan River Trust's gardening workshop program in Western Australia and the Master Gardener Program in the United States), activities for children, clean-up events and drain stencilling); and
- helping to establish an *ongoing* environmental group for the catchment area (i.e. to keep the momentum going after the officer's tenure expires).

In terms of potential pollutant removal efficiencies, the effectiveness of this best management practice is currently unknown. A conservative estimate of the post-construction 'pollutant removal efficiency' is approximately 20% for typical stormwater pollutants in a residential development¹⁹.

¹⁹ That is, the BMP can be expected to reduce the event mean concentration of typical pollutants in stormwater by approximately 20% during the post-construction stage of the development.

Challenges

This best management practice is difficult to evaluate and success is largely dependent on the skills and commitment of the Stormwater Management / Environmental Officer.

The program would operate for a limited period only. After this time, continuing education should be undertaken via local or State government initiatives.

Cost

The cost should be determined on a case-by-case basis. However, it is relatively easy to estimate. Principal costs include the officer's time, transport, and consumables (e.g. educational products, advertisements).

When the many potential benefits are compared to costs on a 'life cycle cost basis' and compared to structural alternatives, this BMP represents an attractive option particularly for large greenfield estates.

Additional Information

Enforcement would need to occur to ensure the BMP was *fully* implemented. This could occur via the development's approval conditions and through regular site inspections by local government officers.

Refer to Section 2.1.1 for further information about best management practices on construction sites. Refer to Section 2.2.7 for further information about best management practices for gardens.

Section 2.3.2 addresses intensive training of landowners on aspects of stormwater management and Section 2.3.3 has information about encouraging participation by the community in stormwater management. Refer to Section 2.3.4 for useful information about the benefits of community participation programs versus traditional education programs.

The Examples / Case Studies part of Section 2.3.3 has information about the South East Regional Centre for Urban Landcare's Clean Drains - River Gains campaign to reduce nutrients and other contaminants in receiving water bodies. For further advice, contact the South East Regional Centre for Urban Landcare (SERCUL), 69 Horley Road, Beckenham WA 6107, via <www.sercul.org.au> or by telephoning (08) 9458 5564.

Chapter 8: *Education and awareness for stormwater management* provides guidance on how to design an education and awareness program.

The following *behaviour change* resources are recommended when designing the program:

- Community Change (Victoria, Australia) via <www.communitychange.com.au>.
- Social Change Media (New South Wales, Australia), the home page is available via <<http://media.socialchange.net.au>> and *The Seven Door Social Marketing Approach* (Robinson, undated) is available via <<http://media.socialchange.net.au/strategy>>.
- Community Based Social Marketing (Canada) via <www.cbsm.com>.
- *Fostering Sustainable Behaviour: An Introduction to Community-Based Social Marketing* (Mckenzie-Mohr & Smith, 1999). Further information is available from Community Based Social Marketing via <www.cbsm.com>.

The *Facilitation Toolkit: A practical guide for working more effectively with people and groups* (Keating, 2003) is a recommended resource to use when facilitating workshops, seminars or group meetings. The

toolkit is available via <www.environment.wa.gov.au> or by telephoning (08) 9278 0300. See also the Coastal Cooperative Research Centre's *Citizen Science Toolbox* (Australia) for advice about particular facilitation techniques (available via <www.coastal.crc.org.au/toolbox/index.asp>).

The *Sustainable Living in Western Australia* website, available via <www.sustainableliving.wa.gov.au> (Government of Western Australia, 2004-2005), contains links to Western Australian resources for sustainable practices including water conservation, household waste management, gardening and growing local native plants.

Examples / Case Studies

No detailed case studies are available for residential estates. However, the initiative has been applied in the United States. A similar initiative has been successfully applied in an industrial estate in Manly, New South Wales (Taylor and Wong, 2002c). Refer to the Examples / Case Studies part of Section 2.3.4.

Examples of sustainable living programs in Western Australia include: the Living Smart Program developed by The Meeting Place Community Centre, City of Fremantle, Murdoch University and Southern Metropolitan Regional Council (SMRC) (contact (08) 9432 9914 or <www.freofocus.com/projects/html/living_smart.cfm>); the Creating Communities program (contact (08) 9284 0910 or <www.creatingcommunities.com.au>); and the Green Houses Program (energy and water conservation only) by SMRC and Murdoch University (contact (08) 9316 3988 or <www.smrc.com.au/greenhouses>).

These programs use proven goal-setting techniques and recognise that information alone is not enough to achieve sustained behaviour change. For example, as a result of attending the Living Smart pilot program:

- Participants significantly increased their environmental knowledge and the number and frequency of sustainable behaviours.
- 63% of participants said it was very important for them to reach their goal and the majority thought setting goals increased their motivation and made them more likely to act.
- In all topics, participants increased their effort towards sustainable practices by 17-22%.
- 68% said that the program changed the way they think about lifestyle and environmental issues.
- Half of the participants felt that what they learned in the program would influence them for a very long time and 41% said it would influence them forever (Sheehy, 2004).

Sustainable living programs provide additional benefits for communities. For example, as a result of attending the Living Smart pilot program, 91% of participants felt more a part of the community, 95% increased their knowledge of community resources and services and 82% increased their sense of wellbeing (Sheehy, 2004).

Communication techniques include workshops, self-paced learning via booklets, ongoing dialogue (newsletters and meetings) and/or websites.

References and Further Information

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