

## Social science methods to improve community participation in weed management programs in New South Wales

Birgitte Verbeek<sup>1</sup>, Elissa Van Oosterhout<sup>2</sup> and Jessica Grantley<sup>2</sup>

<sup>1</sup>Department of Primary Industries, 4 Marsden Park Road, Calala, NSW 2340, Australia

<sup>2</sup>Department of Primary Industries, Private Mail Bag 2, Grafton, NSW 2460, Australia  
(birgitte.verbeek@dpi.nsw.gov.au)

**Summary** The New South Wales State and local governments invest millions of dollars annually to engage and motivate communities to manage noxious weeds more effectively. Despite this ongoing investment it is often difficult to find evidence that people are changing their attitudes and behaviours to improve the management of weeds.

Methodologies from the behavioural sciences have not been applied to weeds management programs in New South Wales. Community-based social marketing is a structured framework founded by Dr McKenzie-Mohr, which incorporates the scientific knowledge of behaviour change into the design and delivery of community programs. In March 2014, weeds professionals from across New South Wales attended a workshop on community-based social marketing.

A working group has been formed to facilitate the adoption of community-based social marketing in the planning and delivery of weeds management programs across the State.

**Keywords** Weeds management, behaviour change, community-based social marketing.

### INTRODUCTION

New South Wales Department of Primary Industries and its key partners invest millions of dollars in initiatives that engage and motivate communities to manage weeds. Over the past two years \$18.8 million has been spent in NSW to increase community participation in the management of declared weeds (New South Wales Weeds Action Program Annual Reports 2012–2013, 2011–2012. [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)).

Initiatives include community awareness campaigns, advertising on television and through other media, displays, inspectorial programs, provision of information resources and training.

Common measures used in reporting success of these initiatives include weed distribution maps, numbers of training programs or field days conducted, numbers of hits to websites, numbers of properties inspected, and numbers of information resources produced and distributed.

Given this significant investment the ability to document or measure the desired behaviour change

in the community is limited. While extensive effort is applied to performance management, monitoring, evaluation and improvement principles and existing programs have brought significant weed management outcomes for the State, we often cannot say whether behaviour has changed.

Are our programs too reliant on raising awareness of weeds and disseminating information about weeds, based on the assumption that knowledge of weeds will actually influence behaviour? Many studies document the fact that education or knowledge alone often has little or no effect on actual behaviour (McKenzie-Mohr 2011).

Stemming from the merger of sociology and psychology, behaviour change methodologies have been used extensively across the globe, particularly for programs aiming to reduce CO<sub>2</sub> emissions, and for energy or water conservation ([www.cbsm.com](http://www.cbsm.com)). These programs are solidly grounded in research, field-tested and their outcomes scientifically measured.

This paper describes the process of weeds professionals in NSW improving their knowledge of behaviour change, and designing their programs using the community-based social marketing framework.

### BACKGROUND

New South Wales is currently undergoing significant changes with regard to weed management, including the restructuring of government agencies, the formation of eleven Local Land Services areas, the review of current institutional arrangements on how weeds are funded and managed in New South Wales (Natural Resource Commission Weeds Review, [www.nrc.nsw.gov.au](http://www.nrc.nsw.gov.au)) and the development of a new over-arching Biosecurity Act. This new Biosecurity Act will replace fourteen existing pieces of legislation in New South Wales including the *NSW Noxious Weeds Act 1993*. The Biosecurity Act will support the national agreed principle that biosecurity is a shared responsibility.

These changes provide opportunities to incorporate new programs that support improved community participation in weed management.

## WHAT IS COMMUNITY-BASED SOCIAL MARKETING?

Community-based social marketing is a structured framework made up of five steps: selecting behaviours; identifying barriers and benefits to the behaviours; developing strategies to create the behaviours; piloting the strategies; and broad-scale implementation of successful strategies and evaluation

For over two decades, community-based social marketing has been used extensively in an array of government and non-government programs to improve community participation with environmental issues. There are many examples and strategies that are shared worldwide through the Fostering Sustainable Behaviour website ([www.cbsm.com](http://www.cbsm.com)).

Despite the extensive use of community-based social marketing for environmental issues there are few examples of how the framework could be used to improve the management of weeds. Cardinia Shire Council in Victoria has had a community-based social marketing project for weed control operating since 2005 (Alexander *et al.* 2012).

## SELECTING BEHAVIOURS

At two recent forums of weed professionals held in Sydney during March 2014 participants were asked the simple question ‘What behaviours are needed to improve weed management?’.

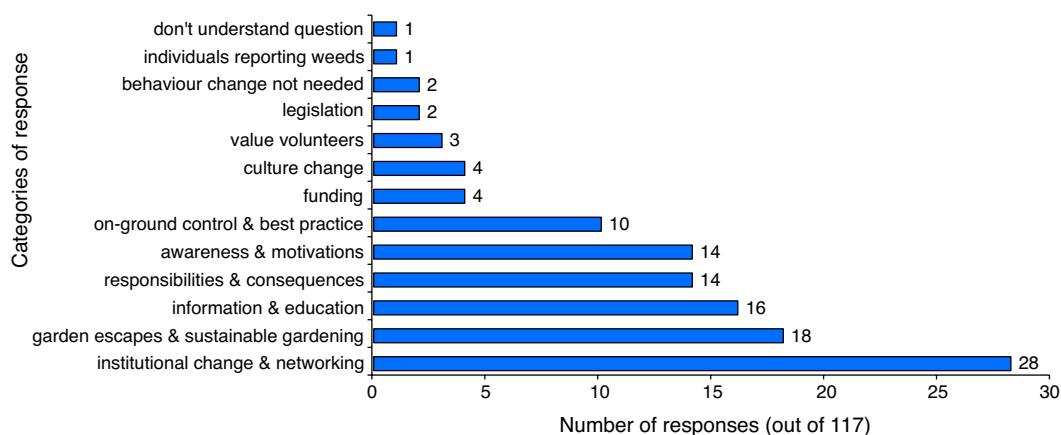
Thirteen categories emerged from the responses (Figure 1). These can be used as a benchmark for the current understanding of the behavioural changes that are needed to improve weed management in NSW.

One of the initial concepts that participants were taught at the Community-Based Social Marketing Workshop (see Training below) was that selecting behaviours is the first step to designing effective interventions or programs to change desired behaviours. Selected behaviours must be non-divisible end-state behaviours.

Drilling back to this level of detail is critical because the associated barriers and benefits are behaviour specific. When stating a behaviour that a program is trying to create or promote, there can be no unstated variables that influence how or when or where a specified behaviour is carried out.

This identification and selection of the end-state behaviours to target within a program is quite difficult. From a subset of the responses to the previously mentioned question, only five statements out of 31 were close to end-state behaviours (shown in italics in Table 1).

None of the responses in the community/individual responsibility group are specific enough to be considered behaviours. One statement in the knowledge/understanding group comes close to an end-state behaviour – to keep controlling the weed by carrying out follow up treatment. One statement in the awareness/motivation group is close to an end-state behaviour – to see and report weeds on the Look Learn Act website. None of the statements in the institutional changes group are specific enough to be considered behaviours. The garden escapes/sustainable gardening group contains the most behaviours (three), relating to buying, replacing and planting particular plants.



**Figure 1.** Weed professionals’ responses to ‘What behaviours are needed to improve weed management?’, grouped in emergent categories.

**Table 1.** Weeds professionals' responses to what behaviour/s need to change to improve weed management. Italicised responses are almost end-state behaviours, but need further reduction to become non-divisible. Non-italicised responses are more representative of strategies.

Community/individual responsibility	Personal responsibility Raise public awareness and responsibility More responsibility Stop blame game – take responsibility Increase priority on weeds and responsibility Responsible Ownership of risk Whole of community ownership of weeds
Knowledge/understanding	Community to understand and own problem of weeds Landholders know history of weeds on land New landholder resourcing information about weed on land they buy Community understand and value ecosystem health, sustainability <i>Keep controlling weed not one spray only (carry out follow-up)</i> People place greater emphasis on hygiene – i.e. not move seeds on clothing
Awareness/motivation	People look and notice environment Community look and ask questions People general public engaging in web and Facebook <i>See and report – look at Look Learn Act website</i> Weed management is seen as an issue Pro-action from farmers Collective action to manage weed spread
Institutional changes	Regulators use power Reduce fear of talking to government, local or state Less reluctance to report new incursions Preventative weed strategies Community empowerment valued by council Attitude change in organisations such as rail Nursery being responsible and take lead Focus away from pet weeds Landholder is glad to see weed officer
Garden escapes/sustainable gardening	Interested in recognising weed or native <i>Plant native plants</i> <i>Replace undesirable garden plant with natives</i> <i>Stop buying invasive plants</i> Nursery being responsible and take lead Town land holder not treating government land as a dump

## TRAINING

In March 2014 thirty-seven weeds professionals representing eleven Regional Weeds Advisory Groups (groups of stakeholders that facilitate weed management across an area of New South Wales and provide a forum for the exchange of information), Local Land Service regions, and other weed management stakeholders in NSW attended an introductory Community-Based Social Marketing Workshop in Sydney with Dr McKenzie-Mohr. Participants also analysed an existing program by retrospectively applying the community-based social marketing steps to it.

Senior executives from Department of Primary Industries Biosecurity Division attended a briefing

session with Dr. McKenzie-Mohr, where he made five recommendations about how community-based social marketing could be supported within New South Wales for weed management. The recommendations are: coordinating activities at a state level and through all stages drilling down to a local level for community-based social marketing; compile and group end-state behaviours; tie funding to piloting strategies – then fund proven strategies; developing and promoting proven strategies that can be applied in multiple locations; and employing in-house social marketers to help build capacity within the organisation.

WORKSHOP FEEDBACK

**What participants learnt** Participants provided positive feedback about the workshop.

Most attendees had little or no knowledge of community-based social marketing or social marketing principles prior to the workshop, with 100% of participants rating their level of knowledge below 4 on a scale where 1 is novice to 7 is expert (Figure 2).

Participants reported they learnt a great deal at the workshop (100% agreeing that their knowledge had improved by rating above 4 on a scale of 1 disagree to 7 agree) however, they also reported a lack of confidence in their level of expertise after the workshop, with the majority (81%) of responses sitting in the middle of the rating scale at 3,4 or 5 on a scale of 1 is novice and 7 is expert (Figure 2).

No negative comments were received regarding the content of the workshop. However feedback shows there was a lack of relevant examples of community-based social marketing being applied in relation to weed management. Not surprisingly many participants found it challenging to fully absorb how to apply this new knowledge to their current programs.

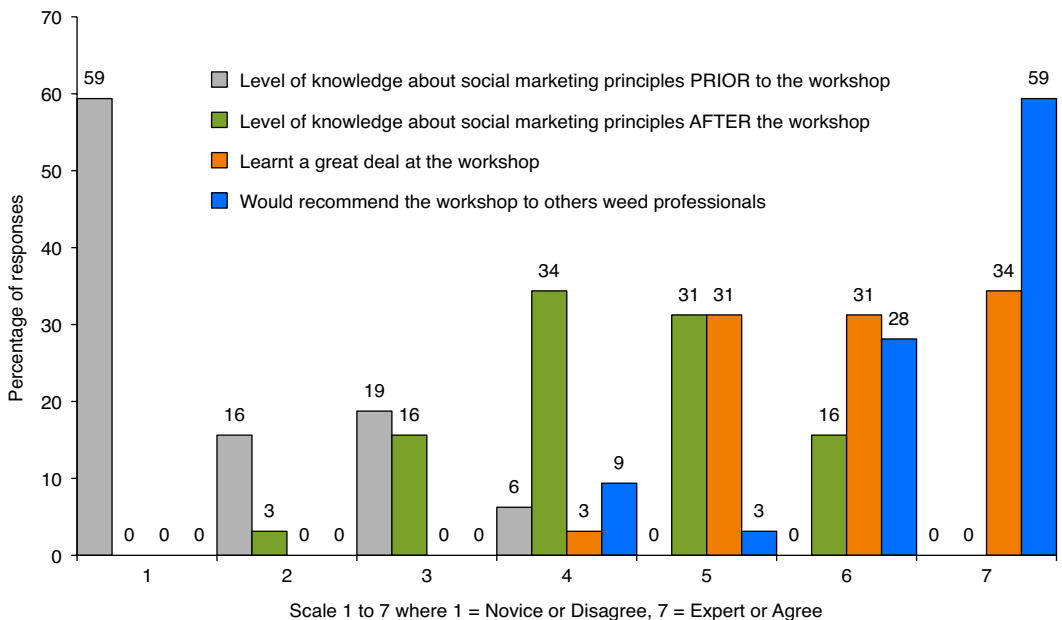
WHERE TO FROM HERE

During the Community-Based Social Marketing Workshop attendees discussed how they would like to see its use facilitated across the State, centering on the recommendations made to the senior executives from the Department of Primary Industries Biosecurity Division by Dr McKenzie-Mohr.

**State wide coordination** Workshop participants agreed that a state-lead approach to building capacity to use community-based social marketing would be preferred.

The community-based social marketing working group met in May 2014 to commence the process of compiling and grouping end-state behaviours, and defining categories that could be populated by the rest of the workshop attendees and their regions.

Behaviour change programs must be driven at a local level and barriers to adopting desired behaviours can vary significantly between localities, different weeds and various segments of the community such as urban or rural residents. For this reason at every stage of the state-lead approach, consultation will drill down to the local level, facilitated by the regional representative that attended the Community-Based Social Marketing Workshop.



**Figure 2.** Summary of responses from participants when asked about their knowledge of social marketing principles and what they learnt at the Community-Based Social Marketing Workshop.

#### DISCUSSION

Weeds professionals in New South Wales have not previously accessed the behavioural sciences for proven approaches when designing their weed management programs.

Acknowledgement is given to the considerable efforts that are currently being applied across the State. However, the question we need to ask is how successful are these efforts? Collectively we struggle with how to measure and prove that our programs are achieving the behavioural outcomes we desire.

The Community-Based Social Marketing Workshop has provided new insights into how we may improve our current programs.

The network of Regional Weed Advisory Groups and their experiences at the workshop is conducive to the introduction and use of community-based social marketing in planning, program design and resource allocation in the future.

#### ACKNOWLEDGMENTS

We would like to acknowledge the Regional Weed Advisory Groups and other key agencies for allowing their representatives to participate in the Community-Based Social Marketing Workshop.

These activities are supported with funding from the New South Wales Weeds Action Program.

#### REFERENCES

- Alexander, K., Thompson, J., Sawyer, M. and Cooper, R. (2012). Why don't they manage their weeds? 'Behaviour Change' research. Proceedings of the 18th Australasian Weeds Conference, ed. V. Eldershaw, p. 293. (Weed Society of Victoria Inc., Melbourne).
- McKenzie-Mohr, D. (2011). 'Fostering sustainable behaviour – an introduction to community-based social marketing, 3rd edition'. (New Society Publishers, Canada).