

An example of how Bennett's Hierarchy can be used for Reporting

by

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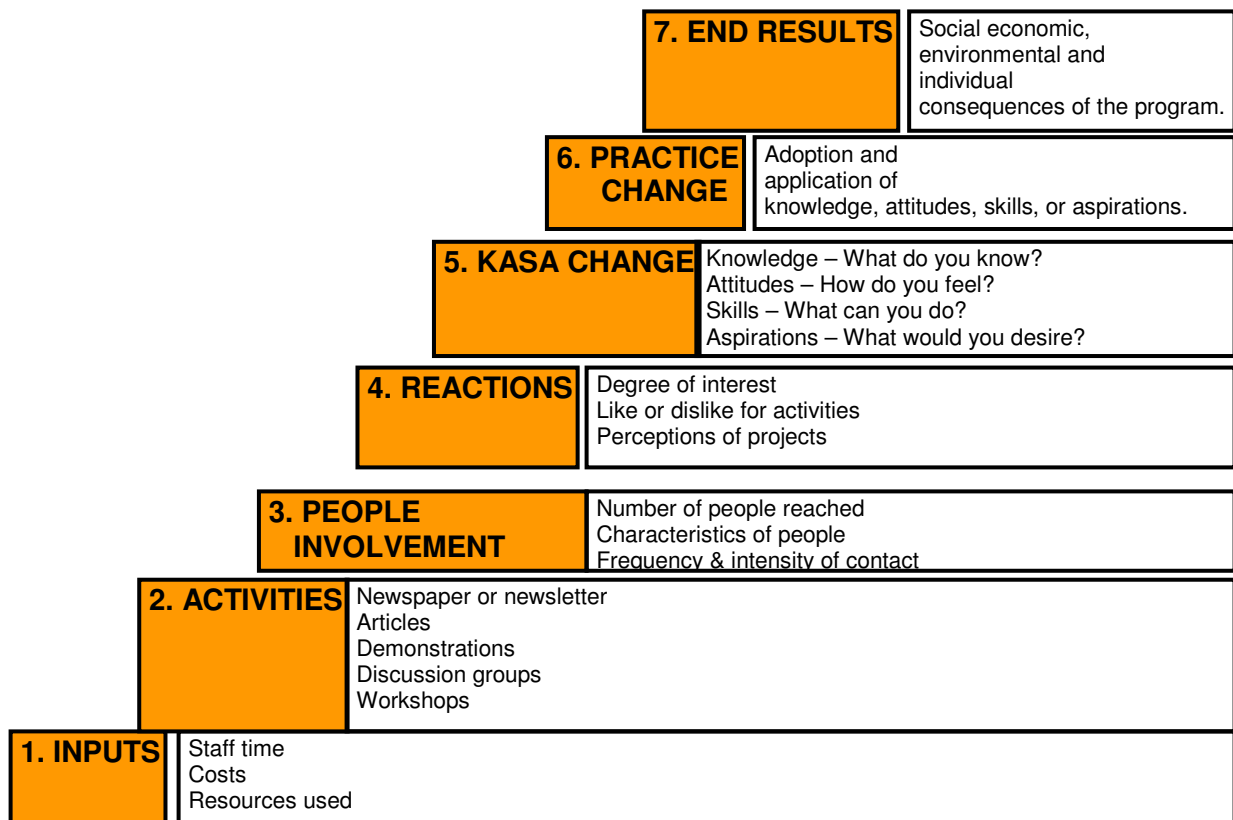
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BENNETT'S HIERARCHY

Claude Bennett from the United States Department of Agriculture developed a hierarchy of cause and effect in the early 1970s in response to a need to justify spending on extension programs. Funds had been expended but their impacts were sometimes not seen until long after the programs ended.

To be able to measure incremental change during the program, Bennett came up with the hierarchy that showed the causal links between the steps from inputs to outcomes and where along the continuum of change an extension program reached or was likely to reach in its funded life. Bennett continues to work with his hierarchy and to be amazed that its value has been so long lasting to so many people (pers comm. 1996). His hierarchy is widely used in Australian agriculture.

This is Bennett's hierarchy



Bennett, C. F. 1979, *Analyzing Impacts of Extension Programs*. Washington, DC, U.S. Department of Agriculture.

REPORTING AGAINST BENNETT'S

Here follows a very simple and short OUTLINE of how Bennett's hierarchy can be used for reporting the effects of an extension program. The case study used as the example is real but the details are hypothetical.

Example: Extension program on water use efficiency for dairy farmers

INTRODUCTION

The aim of rural water use efficiency program is to continue to help irrigators in each industry improve their on-farm management of natural resources, and reduce their off-farm impacts, particularly through efficient irrigation and management of nutrients. This will improve their productivity and help them meet the challenges of water reform.

To date, funding of \$6.5m over four years has been set aside to deliver the program of which \$1m is for the dairy industry. The program includes adoption/extension activities, on-farm trials, demonstrations and system assessments, and financial incentives to upgrade irrigation and effluent management systems.

1. INPUTS

Funds

\$1 million dollars over 3 years.

Cost of 3 full time staff and associated vehicles and running costs.

Costs of supervisor/manager's time

Costs of hiring venues, printing, telephone costs

Accommodation and travel costs

Time

Three staff full time some of which is evening work

Time from administrative staff to take phone calls and organise venues

Time from technical staff to calibrate water use and assess water quality from bores for long term use

Time to travel to and from events

Personnel

Three staff full time

5 technical and administrative staff on an as needs basis

Supervisory staff on an as needs basis

2. ACTIVITIES

- 1. A promotional campaign in local media, 15 advertisements for the workshops and field days, 10 stories.*
- 2. Set up demonstration farms in each district working with a local group of dairy farmers to determine parameters.*
- 3. Workshops in each of the 7 regions – using adult and experiential learning techniques.*
- 4. On farm visits assessing and demonstrating irrigation efficiency of current systems.*

3. PEOPLE INVOLVEMENT

The project targeted all dairy farmers and relevant extension and advisory personnel in nominated regions.

A total of 148 dairy farmers came to the 7 workshops. There was an average of 24 in each.

The annual field days at each of the five demonstration farmers attracted an average of 80 individuals made up of farmers, government staff and staff from the catchment management authorities.

A total of 136 farms were visited. At 95 of these, the farmers helped with the assessment.

4. REACTIONS

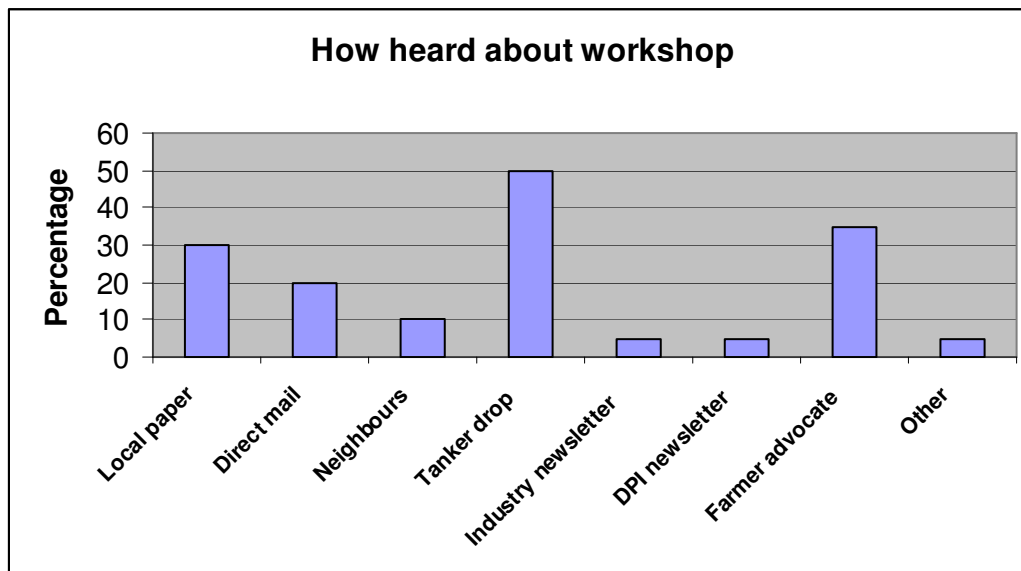
Workshops

Post workshop evaluation questionnaires were completed at all workshops.

Main messages

Participants heard about the workshop through various means. See graph.

- Participants rated the workshops 8.2 out of 10 for practicality, 8.5 for relevance and 7.5 for enjoyment.
- 75% stated that there was something from the workshop they could apply immediately such as use of a moisture probe or fitting water metres.
- 60% stated they would change to water meters at the end of this irrigation season.
- 80% stated they would change their irrigation practice in some way to become more efficient.



Field days

Main messages

Even though there were no data collected about people's reactions, there were a lot of questions asked about the water meters and moisture probes.

There were not enough brochures about different types of watering systems even though a 100 were made available.
Farmers were seen talking to each other and to extension staff about their systems and comparing notes.

Farm visits

Technical staff who carried out the systems assessments reported that farmers who helped carry out the assessments were keen to learn about how to measure the efficiency of their systems. In about half the cases, the farmers were going to carry out their own assessments with irrigation equipment across the farm. No formal assessment was made about their reactions.

5. Changes in knowledge, attitudes, skills, aspirations

Workshops

Questions about changes in knowledge, skills, attitude and aspirations can be asked asked:

What do you know now that you did not know before.....

Did you learn something new at the workshop

1	10
Learnt nothing new	Yes learnt a lot

From what you have learnt today, what can you apply:

- Immediately
- in the medium term
- in the long term about

Do you now think differently about the way you use irrigation water.

1	10
No change to thinking	Yes changed a lot

Summary of results

- Fifty six percent stated that they learnt something new compared to what they knew before the workshop
- Forty five percent state that they could apply what they learnt such as
- Fifteen percent would make an immediate change and 75% will make a change in the future
- Eighty percent stated that they now think differently about how they apply water and 20% made major changes to their thinking
- Eighty-six percent (86%) thought that the manual would be useful and fifty percent (50%) thought the moisture probe was a useful tool.
- Eighty percent of farmers are aware of alternative more efficient irrigation approaches and 50% know about the DSS.
- Sixty percent of farmers now know how to use monitoring information to make decisions about scheduling.
- All extension and advisory personnel are now aware of alternatives and urgency.

Some of the comments were:

Excellent workshop – explained very well the need to measure water use

Workshop explained why it was so important not to go beyond the root zones of crops

Diagrams about assessing water quality could have been clearer.

No formal assessment was made about learning. Attitude change, aspirations or skills for the field days or the farm visits.

6. PRACTICE CHANGES

through a survey at the end of the program, data were collected from farmers who had been to the workshops, field days and had been visited on farm and:

- *30% of dairy farmers in nominated regions switched to more water efficient irrigation methods.*
- *50% of dairy farmers installed water meters on their irrigation system.*
- *20% of dairy farmers used new computer scheduling decision support system to make decisions about optimum irrigation.*
- *All extension staff and commercial advisors are now actively promoting and assisting farmers with making changes and using the new DSS.*

Comments were:

7. END RESULTS

The aim of rural water use efficiency program was to:

- *Improve on-farm management of natural resources*
- *Reduce off-farm impacts through efficient irrigation and management of nutrients*
- *Improve productivity*

The end results of the work with farmers through workshops, field days and on farm were that:

- *The same amount of feed was grown for x% less water*
- *An increase of x% feed was produced from the same allocation of water.*
- *X% of effluent ponds were now working effectively*
- *There were x% less effluent flows into streams and rivers*
- *Cost of water was reduced*
- *X gig litres were returned to environmental flows.*
- *All farmers who took part in these events learnt a lot more about water use efficiency through the program.*
- *Some of the larger irrigators still need to be targeted.*