Communicating water conservation: how can the public be engaged?

D. Howarth and S. Butler

National Water Demand Management Centre, Environment Agency of England and Wales, Guildbourne House, Chatsworth Road, Worthing BN11 1LD, United Kingdom

Abstract In 2001 the Environment Agency and Thames Water completed a collaborative research project "The Effectiveness of Marketing Campaigns in Achieving Water Efficiency Savings". The project attempted to assess the effectiveness of a water efficiency campaign in a residential area of 8000 properties. The results showed that the campaign had no significant effect on water demand both at the individual property level and the total flow into the area. Responses to direct questions about the campaign indicated that at most 5% had noticed it despite the fact that 25% claimed to read the local newspaper and listen to the local radio station used for the campaign, and the fact that a leaflet was sent to all households. The market research provided some clues as to why the customer response to this campaign was so disappointing, principally because the public regard water as low priority compared to other environmental issues. Other research is reviewed that provide additional reasons for the unwillingness of the public to engage on this issue. This paper reviews "success stories" from Phoenix, Arizona and Singapore and identifies the main learning points from these programs. Article 14 of the Water Framework Directive calls for active involvement in water policy. An assessment is made of what this might mean for public participation in water conservation programs.

Keywords Communication; public participation; water conservation

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Communication principles

The aim of any water conservation communication strategy will be to move a proportion of water users from a position of wasting water to one of using it efficiently. This can be thought of as consisting of the following approach, commonly adopted in commercial sector marketing:

1. **Ignorance** of the need to reduce water use
2. **Awareness** of the need to reduce water use
3. **Interest** in reducing water use
4. **Desire** to take action to reduce water use
5. **Action** to reduce water use

At the start of any communication program the majority of individuals will be unaware of a real need to reduce water use. Some people will move through the stages quickly while others will take months or even years. Also, individuals will be already at different stages of engagement; those already at interest or desire will not need much encouragement to move to action. Others will need a lot of persuading to move out of the "ignorance" stage. Table 1 shows an example of applying this model to household customers using a series of messages.

Effectiveness of marketing campaigns in achieving water efficiency savings

Water conservation programs have been commonplace in the United States for at least twenty years and more recently in Australia, Denmark, New Zealand, Canada, Germany and Spain. Despite often large sums of money being spent on programs there has been surprisingly little evaluation of program effectiveness, particularly of marketing campaigns to

Table 1 Commercial marketing theory applied to water conservation

1	Why we need to stop wasting water: • Water is not a free commodity • Increasingly costly to provide • Over abstracted sites resulting in environmental damage • Demand cannot keep on rising • Climate change • We have less water available per head of population than many African and Middle Eastern countries	**Awareness**
2	We need to pull together • Household consumption accounts for 38% of water used, up to 25% of this is unnecessary • Water companies have made a lot of progress in reducing leakage • Government has introduced new Water regulations to limit the water use of appliances • We need to protect the environment	**Interest**
3	Dispelling the myths • Reservoirs and desalination are unlikely to offer the best solution, environmentally or economically • It is possible to reduce demand for low inconvenience/cost • Individual actions **do** make a difference	**Desire**
4	Damage to our natural environment • The damage to the countryside and wildlife that water shortages and inappropriate resource development would bring	
5	What you can do to help • Turn tap off while brushing teeth • Buy an efficient clothes washer • Don't shower for longer than 5 minutes • No need to water your lawn, even in droughts By following these simple actions you will reduce your water use (and impact upon the environment) by around 20%	**Action**

effect behavioural change. In England and Wales the development has been the other way around: the economic regulator, Ofwat, will not agree to funding significant water conservation programs unless the predicted savings can be supported by robust data gathered from pilot studies. As a result a number of such studies have taken place in England and Wales, including a project jointly funded by the Environment Agency and Thames Water in 2001 to assess "The Effectiveness of Marketing Campaigns in achieving water efficiency savings".

Project objective and design

The objective of the project was *to determine the effectiveness of promotional campaigns on water-use attitudes and behaviour*. In Spring 2001 the area of Tilehurst, Reading was targeted by an intensive program involving (local) radio advertising, (local) newspaper advertising, bus stop posters and direct mail. The area of Blunsdon, Swindon acted as a control. Both areas consisted of around 8,000 households each and socio-economically and demographically they were similar.

The program

In May and June 2001 the residents of Tilehurst were subjected to the water conservation program. In detail the program consisted of the following elements.

- Radio advertising: a radio broadcast explaining the need to save water and how you can make a difference was broadcast 132 times over 4 weeks.

- Newspapers: weekly advertisements in the Friday edition of the *Reading Evening Post* for four weeks.
- Bus stop posters: 21 posters were displayed at bus stops along a main traffic route in Tilehurst.
- Direct mail: 8096 leaflets were posted to the residents of Tilehurst, explaining the "why" and "how" of saving water.

  As a control area, there was no program in Blunsdon.

Evaluation methods

Approximately one month later a leaflet was mailed to Tilehurst and Blunsdon offering customers the choice of one of four water saving free gifts: water storing crystals (for hanging baskets), a spray insert for the kitchen tap, a toilet cistern displacement device or a sponge for car washing (to be used in place of the hose). The following methods were then used to assess the effectiveness of the campaign.

- Meter readings from individual properties (1,704 in Tilehurst, 1,076 in Blunsdon).
- Total water demand into the two areas.
- Applications for free water meters (it might be expected that the applications would rise with increased awareness).
- Response to the offer of water saving devices.
- Market research (face to face interviews) repeated at different stages throughout the program.

Results

Direct measurement. For the total demand measurement, although the leakage was removed from the calculation by subtracting the minimum night flow this approach proved problematical and unreliable. Water usage is very variable and relatively small changes in water use are likely to be below the level of resolution achievable. Similarly, analysis of the meter readings from the metered properties in each area did not demonstrate that the program had any effect on water usage.

Applications for free meters. Metering is not compulsory in England and Wales, but any customer that desires a meter is entitled to have one installed, free of charge, by the water company. There was no noticeable increase in the rate of application (in either study area), during the July–August period of the program and free offer.

Response to the free offer. For the free offer there was a 10% response rate from Tilehurst and an 11% response rate from Blunsdon, suggesting that the awareness raising (newspapers, radio, bus stop posters, direct mail) had no influence on people's interest in water saving devices, although it did raise awareness of the program to 15–20%.

10% of residents accepted a free gift and a further 22% remembered it but did not respond. The most popular free gift was the sponge, chosen in preference to the more specifically water saving devices.

Awareness of the program. Responses to direct questions about the program indicated that at most only 5% had noticed it. Although awareness rose from 10% to 25% at the height of the program, the 5% increase is based on the difference in response between Tilehurst and the control area, Blunsdon. This was despite around a quarter of Tilehurst residents claiming to read the local newspaper and listen to the local radio station, in addition to a leaflet being sent to all households. The leaflet mailed directly to the home was remembered by 17% of respondents, the bus stop posters by just one of the 419 people interviewed.

Market research

- Water was not seen as an important environmental issue compared to energy, pollution, transport and recycling.
- Knowledge of water saving increased in both areas, particularly after the free offer leaflets had been received.
- The proportion of people who said that they were "always looking for ways to cut down on water use in the house and/or garden" was the most popular response (from a list of four) in both areas and throughout the program. However, the next strongest option chosen was "I'm not that interested on cutting down on water use. . .".
- Most customers felt that they were using about the same amount of water as they did before the program. Across the two areas, and different stages between 14 and 28% thought they were using less than a year ago and 2 to 10%, more.

Project conclusions

A one-month highly targeted and multi-faceted program to promote water conservation, at a cost of £73,000 reached at most just 5% of the target area's household customers. Flow measurements indicated that the campaign had no significant effect on water demand both at the individual property level and the total flow into Tilehurst. There was discernible increase in applications for free meters. There was a small improvement in people's attitude to saving water but that was not matched by actions – there being no statistically significant evidence of any change in behaviour.

With reference back to the communication principles, the program removed some of the ignorance of the need to reduce water use and there was evidence that it raised awareness. However, it failed to stimulate real interest in reducing water use and consequently there was no desire or action to do so. Hence there was no environmental benefit.

Other relevant research

Environment Agency 1998

In 1998, the Environment Agency, in devising its own water conservation communication strategy held a series of five focus groups on water resources and conservation. Some of the main findings of this research are as follows.

- Water resources were very low on a list of environmental priorities, below air pollution, climate change, waste disposal, deforestation, water pollution.
- A belief that there is no shortage of water in the UK as a whole.
- Restrictions in supply were seen entirely in terms of inadequate capture, storage and supply and the fault of the water companies for not investing.
- If water resources are a major problem, the Government should be giving it a higher profile, taking a stronger line with water companies and legislating to make meters compulsory – as they haven't done these it cannot be such a problem.
- A belief that all consumer savings are minimal compared to wastage from leaks and burst water mains and large volumes abstracted by industry.
- Resentment towards water companies making profits – *why should I help them?*

Department of the Environment, Food and Rural Affairs 2002

The Government's Department for Environment, Food and Rural Affairs (Defra) conducted qualitative research "The public perspective on sustainable development" in 2002 as part of a consultation process in its preparation of a sustainable development strategy. Eight community issues groups were conducted with members of the public in both rural and urban areas. Although the priority issues (food production, climate change, reducing waste, the rural economy) did not specifically include water the findings of the research are

revealing in terms of public attitudes to the environment and the role that they can play in solving environmental problems.

- In relation to climate change people felt it was sensible to try and reduce the amount of energy they use by turning lights off, using less water, not leaving the television on stand-by, but even making these small changes was considered unrealistic or not likely to have a significant effect.
- This could be countered by more education on sustainable development issues. A wider programme of public education was needed to convey the importance of the issues involved and to communicate the role individuals can play in tackling some of the problems.
- Government should take a greater role. Tackling climate change, developing better public transport and reducing pollution were not seen as contentious issues, but as common sense, public interest policies. The public would like to see the Government making a bold commitment to putting them into practice. Incentivising good environmental behaviour was seen as a much more positive approach than penalising bad behaviour.
- Local communities needed to be given the space to develop their own solutions to problems. Although partly about resistance to "London-based policy making" this also stems from a desire for "bottom-up" approaches of creating practical solutions more likely to obtain community "buy-in".

Further to these research findings it is disappointing that *Foundations for our Future* (Defra, 2002), Defra's Sustainable Development Strategy did not address these participation/communication issues.

Research into customer's views for the 2004 Periodic Review

A number of organisations sponsored a study (MORI, 2002) to research customer's views in advance of the five-year price setting process, the Periodic Review. The research consisted of a qualitative study among 91 respondents in ten focus groups to inform a quantitative study from a sample of 2,076 respondents. The aim of the research was to "inform decision makers on customers' priorities for the water industry by providing a better understanding of customers' views on the scope and pace of potential improvement programmes during 2005 to 2010". The study covered a wide range of environmental issues. In response to the question:

> *To what extent do you agree or disagree that consumers should use water more wisely, in order to conserve supplies and maintain the water environment?*

50% of respondents "strongly agreed" and 41% "tended to agree".

Another important finding was that from a list of environmental issues, 36% consider "the water environment – streams, rivers, canals, wetlands and coastal waters" – as the aspect of the environment in most urgent need of attention. "Taking too much water out of rivers/streams and wetlands" was seen as the fifth (out of six) water environment issues most in need of attention. With reference back to the commercial marketing model this demonstrates the existence of both awareness and interest. The challenge for the water companies and its regulators is to move the public to desire and action.

Cultural beliefs and values about water quality, use and conservation

Veronica Strang (2001) conducted qualitative research for a number of water companies that attempted to provide a detailed and holistic picture of our particular cultural relationship with water, focusing on the Stour Valley in Dorset. A wide range of water issues were considered; findings relevant to this paper follow below.

- Most of those interviewed, although they said they knew they "ought" to do all sorts of things to conserve water, admitted that in reality they did very few of them.

- Although participants in the study found the idea of some domestic conservation technologies acceptable, they would much rather see large scale technological investments [but did not appreciate the cost implications].
- Water technology is, in general, designed in such a way that it actively encourages a vision of infinite supplies.
- Privatisation itself is a major stumbling block to demand-side management. Resentment about the loss of public ownership and distrust of those involved appears undiminished.
- A fear of insufficiency tends to engender a "get it while you can" approach to water resources.

Strang goes on to say that a widespread effort to conserve resources depends upon the following three elements.

1. People need to believe that conservation is genuinely necessary, and that modifying their behaviour will not result in reduced access to a vital resource. This requires a certain level of trust in their water suppliers and their Government, and a sense that these bodies are truly speaking and acting on behalf of all water users.
2. It depends on a strong sense of collective identity – a perceived membership of community – strong and stable enough that people are willing to resist the temptation to compete for resources individually.
3. It requires material culture which emphasises the collectivity of resources: forms of delivery which are communal rather than alienating – a symbolic equivalent of the village well.

Communicating complexity and uncertainty: a challenge for the media

Gee (2000) considers the challenges arising from the focus of environmental policy shifting from "end-of-pipe" solutions to sustainable production and consumption and the role that information plays in raising awareness and contributing to behaviour change. The following have some relevance to this paper.

- Water resources is an example of what Gee calls a "pipeline problem" – in the absence of short term damaging effects there is a false sense of security which means people are less likely to reduce consumption.
- There is increasing interest in "demand-side" environmental measures that entail the willing co-operation of many more people than was ever needed for "supply-side" measures. This further increases the need for widely shared public understanding of the reasons for particular policies; Gee quotes the Declaration of Thessalonika (UNESCO, 1998):

  ". . . appropriate education and public awareness should be organised as one of the pillars of sustainability, together with legislation, economy and technology".

Summary of research

- It is clear there is a willingness to modify individual water using behaviour for the sake of the environment, but this appears to be conditional upon Government taking a strong lead, thereby emphasising the national importance of the issue, adding credibility and urgency to any individual action.
- A lack of belief that individuals can make a difference despite the obvious fact that the collective effect of millions of small actions will be significant. There is an interesting parallel here with voting numbers declining at successive general elections – people don't believe that their vote will make a difference.
- An approach of providing information to people about the seriousness of the issue and how they can contribute, but without any attempt to involve them prior to this, with an

expectation that they will then act accordingly does not seem to work. In order to respond people need a sense of collective identity: difficult under the current ownership and regulatory arrangements.
- The public distrust of privatised water companies is a barrier to water company initiated conservation programs involving their customers.
- The issue of water resources is a "pipeline problem" – it is difficult for people to make the link between their actions and the environment, because changes (environmental degradation or improvement) happen so slowly.

The need for a new approach

The need to engage the public

In England and Wales leakage has declined from its all time high in 1995 and the majority of companies are at or close to their economic level of leakage. Non-household use is declining due to closure of high water-using industries and the implementation of more water efficient processes. The water companies predict that household demand will continue to rise. The south-east of England, facing development pressures due to its proximity to mainland Europe, currently supports rates of abstraction that are not environmentally sustainable (Environment Agency, 2001). Per capita consumption is 150 litres/head/day (Ofwat, 2002) considerably in excess of per capita use in Germany, Netherlands and Denmark with similar northern European climates. Technological developments such as low-flush toilets, high efficiency clothes washers, aerating taps can only achieve so much, and unless wasteful fixtures are regulated out of existence people have to "buy-in" to the environmental objective of saving water to purchase water efficient appliances in the first place. Clearly for a position of demand stabilisation (or reduction) to be reached the public will need to engaged far more than they have been to date. The challenge facing water policy makers in England and Wales is therefore "how can the public be engaged?" The following international examples provide some useful learning points.

Phoenix, Arizona

The Water Conservation Plan for the city of Phoenix, Arizona (Water Conservation Office, Phoenix Water Services Department (1998a)) sets out its inclusive approach to water conservation and sets it in a historical context. The city has had a water conservation program since 1982 and a published water conservation plan since 1986. That particular plan was expert driven with staff and consultants identifying problems and devising solutions guided by research and expert opinion. With such an approach customer participation may be encouraged at the stage of identifying solutions, but was largely one of government (in this case the public sector water utility) acting and the customer reacting, it is assumed that the customers are passive consumers: known as the "customer service model". This approach was not particularly successful in Phoenix, for the following reasons: firstly as customers, water users focus on their own desires and wishes and how these can be satisfied. Secondly, if water is seen as a shared resource, it is rational, for water users to want to maximise their share (especially when the cost of doing so is relatively minor) and thirdly the responsibility for long term planning is seen to rest wholly with the water provider.

Applying the customer service model to a water conservation plan assumes that customers will make rational decisions about their water use to reduce the size of their water bill, despite the fact that the savings are likely to be small in comparison with the effort required to do so.

In recognising that this model had failed the city of Phoenix Water Services Department sought a new model and conducted research among its citizens to determine what activities they would support (and participate in) to achieve a sustainable long-term water resources

future. The result is the "citizen-centred" Water Conservation Plan 1998, proposed as a partnership between the citizens of Phoenix and the city. The following paragraph is taken from the introduction to the plan on the City's website (Water Conservation Office, Phoenix Water Services Department (1998b)):

> *Water conservation cannot be imposed on people; it must be voluntarily and willingly accepted, and be a shared responsibility between the City and the citizens of Phoenix. Only when citizens embrace and practice a conservation ethic and adopt water conservation as part of their southwestern lifestyle, can the city succeed in meeting its long-term water supply goals. The 1998 Water Conservation Plan is proposed as a partnership between the citizens of Phoenix and the city to exercise proper stewardship over our water future.*

The plan contains three significant new elements: 1) a renewed, broadened and comprehensive school programme; 2) a strong, well focused mass media-effort; and 3) a very basic grassroots public outreach and involvement effort, neighbourhood by neighbourhood. These new elements have been added to existing programs from the original plan (e.g. water pricing, education, water efficient landscaping, industrial and commercial water uses, residential conservation). There is no information to date on the success of the plan, but the approach has to be commended.

Copenhagen, Denmark

Water supply and distribution in Copenhagen is the responsibility of Copenhagen Energy. Since the 1970s household water consumption has reduced by one third, primarily as a result of higher water prices and targeted advice to companies and customers. Copenhagen is dependent on groundwater supplies – over abstraction results in environmental degradation or worse salt-water intrusion of the aquifer. From 1989 to 2001 per capita consumption has fallen from 168 to 129 l/person/day, with a target of reducing it to 110 l/person/day by 2010. Copenhagen Energy has worked with their customers (stakeholders) in the following ways:

- ongoing dialogue with customers and companies about the environment;
- schoolchildren are taught about eco-friendly use of energy and water;
- co-operation with authorities on eco-friendly solutions;
- participation in Copenhagen's Environmental Network, in which companies exchange experiences on environmental management and environmental dialogue.

Singapore

The Economic and Social Commission for Asia and the Pacific (2001) report on the "Turn it off" campaign. A save-water campaign was launched in 1998 to effect behavioural change in the way that water is used, so that people would of their own accord make saving water a way of life. The campaign was targeted at all sectors and focused on activities involving public and community participation in conserving water. A multi-agency committee was formed to lead the campaign with several subcommittees to work on various campaign activities, including publicity, launching ceremony, talks and visits, exhibitions, competitions, events and the campaign highlight – the "turn it off" exercise.

There were photographic and art competitions, mobile exhibitions, seminars, talks on water conservation to schools and community organisations and visits to water treatment plants. Save-water leaflets were printed in several languages and sent directly to over 153,000 foreign workers in Singapore. The "turn it off" exercise was a call to action by the public to conserve water, highlighting that water is a strategic and precious resource. The exercise involved turning off the supply to about 30,000 customers for several hours to give

Table 2 Learning points from case studies

	Main learning points
Phoenix	• Active involvement from citizens sought as opposed to passive response from consumers • Citizens asked what sort of conservation measures they would be willing to adopt and brought into the process early • Multi-faceted approach supported by pricing, technical assistance and inter-agency co-operation
Copenhagen	• Well publicised target set for per capita consumption giving customers and the water department a collective goal • Involvement of Copenhagen Energy in ongoing dialogue and city wide environmental initiatives
Singapore	• "Turn it off" campaign brought home the reality of water not being conserved – it ceased to be an abstract concept • Very high profile and comprehensive communication campaign that, although varying in content and intensity has been in existence for several years • Campaign led by multi-agency committee (i.e. not just the water utility or the government)

the public an understanding of what it would be like if the taps ran dry. Wide media publicity of the campaign message was carried by all local newspapers, television channels and radio stations. Public Utilities Board Officers were interviewed by the media, promoting the message "Water is precious, make every drop count". Save water mailshots were sent to all household and non-household premises and posters were distributed to all schools, government departments and large water users. The overall cost of the campaign was US$600,000. A subsequent survey showed that:

- 93% of the respondents were encouraged to save water;
- the public felt that television commercials contributed most to their awareness of the need to conserve water, followed by newspaper articles;
- 80% of household water users felt that the "turn-off" exercise was useful.

The "turn it off" campaign was preceded by awareness campaigns in 1995 and 1996. A 1996 survey showed that although 91% were aware of the need to save water only 43% made a conscious effort to do so in their daily activities. As a result of these findings a decision was taken to shift the aim from creating awareness to effecting behavioural change in the way water was being used.

Main learning points

Table 2 summarises the main learning points from these examples.

The European Water Framework Directive

Introduction to the Directive

The Water Framework Directive (2000/60/EC) came into force with its publication in the Official Journal of the European Commission on 22 December 2000. The Directive will provide a common framework across Europe to address water issues. The overall aim of the Directive is to protect and enhance "ecological status" of surface waters and groundwater in the European Union through a framework with a common approach, based on the river basin as the management unit. Each river basin district will have a river basin management plan that will contain a "programme of measures" to resolve any problems identified in the river basin characterisation process. The key objective is to achieve *good ecological status* for all waters by 2015.

Water conservation and the Directive

Article 11 of the Water Framework Directive (WFD) states that 'each programme of measures shall include the "basic" measures specified in paragraph 3, and where necessary, "supplementary measures"'. The third of the four "basic measures" is: measures to promote an efficient and sustainable water use in order to avoid compromising the achievement of the objectives specified in Article 4, i.e. it is expected that the efficient use of water will have a role to play in river basin management plans. And although generic to the process as a whole, covering all water related issues, Article 14 states that member states should:

> *". . .encourage the active involvement of all interested parties in the implementation of this directive, in particular in the production, review and updating of River Basin Management Plans".*

The key phrase here is "active involvement". Active involvement has been defined as (WFD Public participation working group, 2002):

> *A higher level of participation than consultation. Active involvement implies that stakeholders are invited to contribute actively to the planning process by discussing issues and contributing to their solution.*

whereas consultation is defined as:

> *The lowest level of public participation if we consider information supply as being the foundation. The government makes documents available for written comments, organises a public hearing or actively seeks the comments and opinions of the public, through for instance surveys and interviews.*

Guidance on public participation in relation to the Water Framework Directive (WFD Public participation working group, 2002) defines three main forms of public participation:

- information supply
- consultation
- active involvement

where, according to the Directive, the first two are to be ensured and the latter should be encouraged. In terms of who should be involved in the process, the Directive is prescriptive in stating that at least stakeholders (i.e. interested parties) should be involved when dealing with active involvement and also the public when dealing with consultation. Background information should be available at any time for anyone.

The guidance also states that "to avoid disappointing the parties involved it is very important to make clear which form of public participation is dealt with and what the role of those involved is". It also states that there is no blueprint for public participation and the approach adopted needs to be organised and adapted to national, regional and local circumstances.

From the guidance it is not entirely clear whether it will be mandatory to ensure active involvement with the public on the issue of water resources and conservation. The public are entitled to consultation but not active involvement which is reserved for stakeholders (although the guidance is a little unclear as a member of the public who has a "stake" or an interest in an issue, can also be an "interested party". This is further complicated in England and Wales by the likelihood of the Environment Agency being nominated as the competent authority to produce the river basin management plans. Whilst the Agency has a direct relationship with many of the stakeholders who abstract from and discharge water to, the catchment (industry, agriculture, water companies) it does not supply water directly to the public. This raises the question of whether the water companies or the Environment Agency are best placed to lead the public participation process in relation to water

conservation. The public are customers of the water companies, but the water companies need to think of them as more than that. It may be deemed the task of the Environment Agency, as the likely competent authority, who may also find it easier to relate to the public as stakeholders or "citizens". A partnership approach, involving others is likely to offer the way forward.

However, paragraph 7.1.5 of the guidance, entitled "Reaching beyond organisations to the individual citizens and companies" states:

> *A significant part of a participation strategy should be prioritised to consider reaching beyond organisations and institutions to individual citizens. Reaching beyond organisations to individual citizens and companies is crucial for water management, due to the large share of water use and water pollution held by individual households, dispersed settlements, small and medium enterprises and small agricultural units.*

The guidance therefore is suggesting active public participation is necessary in relation to water use (and therefore conservation) to meet the requirements of the WFD.

Where next for England and Wales?

Where water companies have attempted to influence the water using behaviour of their customers they have largely followed the commercial marketing approach. As vividly demonstrated by the pilot study in Tilehurst, Reading (Environment Agency and Thames Water, 2003) this does not work. Marketing water conservation is very different animal to marketing a new shampoo. An alternative model has been proposed for social marketing:

1. **Awareness** of the need to reduce water use
2. **Attitude** change to the use of water
3. **Behavioural change** to reduce water use
4. **Benefit to the environment** of reducing water use

The difference being that the marketing stage does not end with the sale of product, but with the consumer (or stakeholder, or citizen) "buying-in" to the end benefit.

This social marketing approach needs to be combined with public participation to bring about stakeholder or citizen involvement. With reference to Arnstein's (1971) ladder of participation (see Table 3), in England and Wales, on the issue of water conservation, the highest level that has been attained is level 3. Although the Environment Agency has consulted on its national and regional water resources strategies the consultation has largely been with "interested parties" rather than the public or their representatives. A legitimate aim for the institutions involved with water resources management would be level 6, partnership.

It is clear that for water conservation to be successful as a means of balancing supply and demand, and limiting environmental damage, public participation is required. Article 14 of the Water Framework Directive has reinforced the need to do so.

Table 3 Arnstein's ladder of participation

Level 1	Manipulation	Assumes a passive audience which is given information that may be partial or constructed
Level 2	Education	"
Level 3	Information	Tells people what is going to happen, is happening, or has happened
Level 4	Consultation	People are given a voice, but no power to ensure their views are heeded
Level 5	Involvement	People's views have some influence, but institutional power holders still make the decisions
Level 6	Partnership	People negotiate with institutional power holders over agreed roles, responsibilities and levels of control
Level 7	Delegated power	Some power is delegated
Level 8	Citizen control	Full delegation of all decision-making and actions

Conclusions

- For a communication program to be successful it has to move people through a five-stage process: from ignorance to awareness to interest to desire to action.
- A multi-faceted water conservation communications campaign targeted at an area of 8000 residents in the Tilehurst area of Reading, despite costing £73,000 failed to produce any tangible water saving results.
- The principal reasons for this seem to have been a lack of national profile for the issue, distrust of private water companies and a feeling of "helplessness" i.e. my individual action won't make any difference. People support vague generalities but run away from the reality of taking action.
- Faced with rising demands there is a pressing need, in England and Wales, to engage the public on water conservation issues if future environmental problems are to be avoided.
- Case studies from Copenhagen and Singapore have demonstrated that communication programs can positively influence water using behaviour, but as part of a multi-faceted campaign (communication alone is unlikely to achieve significant savings) – Phoenix promises to do so.
- Article 14 of the Water Framework Directive calls for the encouragement of active involvement in its implementation – this can be interpreted as involving the public in decisions about water use and conservation. For demand management to work the public need to co-operate willingly.
- For England and Wales a social marketing approach needs to be combined with attaining level 5 or level 6 on Arnstein's ladder of participation.

Note. The views expressed are those of the authors and not necessarily those of the Environment Agency.

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