Responsive Management

UNDERSTANDING THE GEORGIA PUBLIC'S PERCEPTION OF WATER ISSUES AND THE MOTIVATIONAL MESSAGES TO WHICH THEY WILL RESPOND

Final Report

Conducted for the Georgia Department of Natural Resources Pollution Prevention Assistance Division

by Responsive Management

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EXECUTIVE SUMMARY

The purpose of this study was to better understand Georgia residents' attitudes and opinions toward water resource issues in Georgia, Georgia residents' willingness to participate in water conservation measures, incentives and constraints to water conservation in Georgia, as well as the educational messages to which the Georgia public will respond in a statewide water conservation campaign.

There were three phases to the project: 1) pre-survey focus groups with Georgia residents, 2) a telephone survey of the Georgia public, and 3) post-survey focus groups with Georgia residents. This executive summary describes the major findings and implications from this study. Study results are reported through a series of six reports: 1) Focus group findings (pre-survey focus groups), 2) Telephone survey findings (Volume 1), 3) Telephone survey findings with cross tabulations (Volume 2), 4) Executive summary of telephone survey findings, 5) Final report (with appendices), and 6) Final report (without appendices).

MAJOR FINDINGS

- Among Georgia residents, water quality and water quantity appeared to be two of the most important "top-of-mind" natural resource/environmental issues facing Georgia.

- Although both water quantity and water quality were important issues to Georgia residents, there was greater concern for water *quality* over water *quantity*.

- Georgia residents had mixed opinions on whether or not the State's waterways were healthy.

- Georgia residents were concerned about water quality and water quantity in Georgia because of the potential effects on human well-being more so than the potential effects on environmental well-being.

- Overall, the Georgia public had positive attitudes toward the general need to conserve water. Most importantly, the Georgia public strongly supported the statewide water conservation effort.

- The survey research showed that the top three ways that the Georgia public felt they consumed water were: taking a shower, doing the laundry, and washing dishes or other household items.

- The survey research demonstrated that Georgia residents are already undertaking and are likely to undertake a variety of water conservation measures.

- Statistical analyses showed that females were statistically more likely than males and African-Americans were statistically more likely than other races to be likely to undertake certain water conservation measures.

- Statistical analyses showed that there appears to be an important geographical component regarding Georgia residents' attitudes toward water quantity and quality as well as propensity to adopt various water conservation measures.

- Not receiving feedback on whether their water conservation efforts were working was the number one reason preventing Georgia residents from adopting water conservation behaviors.

- Georgia residents were most concerned about health-related effects/human well-being as an incentive to conserve water. Penalties were less likely to motivate Georgia residents to conserve water.

- Brochures mailed to the respondent's home were the preferred method of receiving information about water conservation.

IMPLICATIONS AND RECOMMENDATIONS

- Results from this study demonstrated that a majority of the Georgia public is concerned about water resource issues. Although both water *quantity* and water *quality* were important issues, there was greater concern for water *quality* over water *quantity*. The implication is that an effective water conservation campaign should tie water quality to water quantity in order to elevate awareness and concern about water conservation in Georgia.

- In addition to a general concern about water resource issues, the Georgia public was also concerned with specific aspects of water conservation, including following the 2000-2002 watering restrictions and conserving water even during times of adequate rainfall.

- The research suggested that Georgia residents need to be informed about household activities that consume more water than they thought they were consuming.

Constraints To Water Conservation

- Constraint #1: *There is a perception that the State should be doing more to conserve water.* The research suggested that the Georgia public needs to be shown that the State is doing its part to help conserve water.

- Constraint #2: *Residential users feel that the State does not have an overall plan for water conservation in place.* The research suggested that many residential users were interested in learning how their water conservation efforts fit into an overall statewide effort.

- Constraint #3: *There is no feedback mechanism concerning the effectiveness of water conservation efforts.* Fortunately, the survey research indicated that a majority of the Georgia public believes that they can personally make a difference in terms of water conservation. However, this belief needs to be reinforced with a feedback mechanism

showing people that they really are making a difference, such as providing quantified data regarding the number of gallons that have been conserved.

- Constraint #4: *Many residential users believe that they do not consume very much water.* Although the Georgia public acknowledged that residential users consume a substantial amount of water, there is still a need to educate Georgia residents about how significant residential water use is, as well as how individuals may waste water without fully realizing it.

- Constraint #5: *There is a general lack of knowledge and awareness about where to find information about water conservation measures.* The research suggested that the Georgia public is concerned about water resources in Georgia, but some residents will need more information on what they can do to conserve water.

- Constraint #6: *People do not generally make the connection between water quantity/water conservation and water quality/human well-being.* The research indicated that although Georgia residents would be motivated to conserve water for reasons related to human well-being, many Georgia residents are probably not clear on the link between water conservation and water quality/human well-being.

- Constraint #7: *There is a perception that water is readily available.* The research indicated that many Georgia residents do not really believe that there is a serious water quantity problem or that there will be an imminent water shortage.

Participation in and Motivation to Conserve Water

- The top water actions that Georgia residents most commonly said they had *already undertaken* were washing only full loads of clothes and dishes, not letting water run unnecessarily, watering the lawn infrequently, and washing the car less frequently or not at all.

- The survey results indicated that the Georgia public is *most likely* to: install water efficient hose nozzles for outside garden hoses, practice drought-tolerant landscaping, routinely check fixtures for leaks, and install water efficient washing machines and dishwashers.

- The water conservation measures with the highest percentages of the Georgia public having said they would be *not at all likely* to implement related to irrigation systems and toilets.

- As part of the water conservation campaign, Georgia residents that are not already participating in water conservation behaviors should be encouraged to adopt one or two small measures.

- An effective water conservation campaign will educate the Georgia public about the link between water quantity, water quality, and health issues.

- The survey research suggested that the Georgia public will be motivated to conserve water if they know how it personally affects them, especially regarding their personal well-being and the well-being of their children.

Message and Communications Development

- A major umbrella campaign is necessary to increase awareness and concern about water quantity and water conservation in Georgia. All water conservation information, education, and outreach efforts should be developed and coordinated so that they fall under the umbrella campaign. *This is especially important for consistency and to ensure that the campaign is widely recognized in Georgia.*

The research indicated that the water conservation campaign will be successful if it includes the following elements:

- A water conservation message that specifically encourages people to act by saving water.
- Promotes the links between water quantity/water conservation and human well-being.
- Provides numerous water conservation tips to the public rather than focusing on only one or two. (Note that specific water conservation efforts can and should be promoted such as lists that contain numerous water saving tips but not in the overall message of the campaign.)

In addition to these elements, the water conservation campaign must incorporate the following:

- The public needs assurance that the State is doing its part to conserve water and that other entities are also doing their part (agriculture, business, etc.).
- The public needs feedback on whether their water conservation efforts are working. This will reinforce the water conservation messages and promote long-term behavioral changes.
- Georgia residents must be educated regarding how significant residential water use can be.
- The public needs to be provided with simple, readily available information on water conservation and measures that can be taken to conserve water. The public needs to be reminded about water conservation at regular intervals.
- Encouragement needs to be provided to those individuals who are already taking water conservation measures – especially to encourage those individuals to implement a few more measures in addition to what they are already doing.
- Georgia residents that have not taken any measures to conserve water should be encouraged to adopt one small, inexpensive measure to initiate them into the water conservation process.

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INTRODUCTION

The purpose of this study was to better understand Georgia residents' attitudes and opinions toward water resource issues in Georgia, Georgia residents' willingness to participate in water conservation measures, incentives and barriers to water conservation in Georgia, as well as the educational messages to which the Georgia public will respond in a statewide water conservation campaign.

In August 2002, a series of meetings were held on behalf of the Georgia Department of Natural Resources (GDNR), Pollution Prevention Assistance Division and its partners to identify and prioritize the key water issues in the state of Georgia and to apply this information toward the development of in-depth, values-based educational messages to motivate the public to take appropriate conservation action. Findings from these meetings indicated that the two priority communications issues were that 1) water management is a responsibility shared by all Georgians; and 2) water limitations are an immediate issue for the region. Based on these meetings and the goals of the GDNR Pollution Prevention Assistance Division, this study focuses on issues related to water quantity and water conservation. It is recommended that other studies be conducted regarding the opinions and attitudes of agricultural establishments, businesses, and/or government toward water resource issues in Georgia.

This report summarizes the major findings and implications of this water conservation messaging study. There were three phases to the project: 1) pre-survey focus groups with Georgia residents, 2) a telephone survey of the Georgia public, and 3) post-survey focus groups with Georgia residents.

Results from this study are presented in a series of six reports: 1) Focus group findings (pre-survey focus groups), 2) Telephone survey findings (Volume 1), 3) Telephone survey findings with cross tabulations (Volume 2), 4) Executive summary of telephone survey findings, 5) Final report (with appendices), and 6) Final report (without appendices).

MAJOR FINDINGS

NATURAL RESOURCE/ENVIRONMENTAL ISSUES PERCEIVED TO BE IMPORTANT

- **Among Georgia residents, water quality and water quantity appeared to be two of the most important "top-of-mind" natural resource/environmental issues facing Georgia.**

When asked to name the most important natural resource/environmental issues facing Georgia in an open-ended question, water quality and water quantity were named the two most important issues. Forty-two percent of respondents said that water quality was the most important natural resource/environmental issue facing Georgia, and 30% said water quantity. Although both of these issues appeared to be "top-of-mind" issues to the Georgia public, it is important to realize that these were *not* "top-of-mind" issues to large percentages of the Georgia public (ie., 58% of respondents *did not* name water quality as the most important natural resource/environmental issue facing Georgia, and 70% *did not* name water quantity).

AWARENESS AND CONCERN ABOUT WATER RESOURCE ISSUES

- **Although both water quantity and water quality were important issues to Georgia residents, there was greater concern for water *quality* over water *quantity*.**

In a series of questions regarding whether specific issues were important or unimportant in Georgia, water quality was the top issue deemed to be very important (90% said that water quality was very important), and water quantity was the third issue in the ranking (70%) behind air quality. Also, 64% of respondents were very concerned about water quality compared to 41% of respondents who were very concerned about water quantity.

- **Georgia residents had mixed opinions on whether or not the State's waterways were healthy.**

Slightly more respondents thought that Georgia's waterways were somewhat or very unhealthy (38%) than thought they were very or somewhat healthy (36%). Statistical analyses showed that males were statistically more likely than females to have the opinion that Georgia's waterways were very or somewhat *healthy*, while females were statistically more likely than males to have the opinion that Georgia's waterways were somewhat or very *unhealthy*.

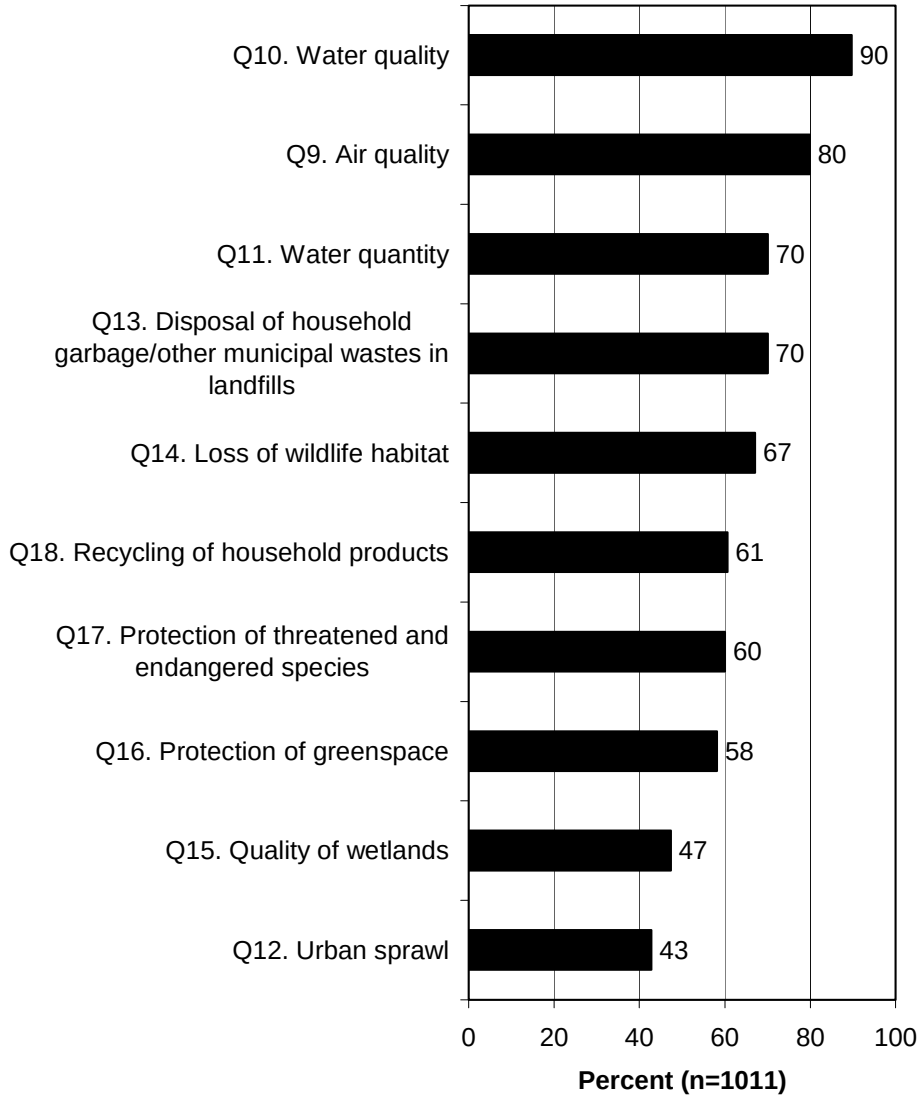
- **Georgia residents were concerned about water quality and water quantity in Georgia because of the potential effects on human well-being more so than the potential effects on environmental well-being.**

The top reasons why respondents were concerned about water quality in Georgia related to its effects on human well-being: the top three answers were drinking water (46% said this was a reason they were concerned about water quality), their own health/safety (27%), and public

health/safety (23%). Answers relating to fish and wildlife habitat and the environment were lower in the ranking: fish and wildlife resources (14%) and to maintain natural beauty/for the environment (7%).

The top reasons that respondents were concerned about water quantity also related to its effects on humans: water shortages (69%) and watering restrictions (18%). Concern for the environment (9%) had a much lower percentage saying it was a reason for their concern about water quantity.

Q9-18. Percent who think the following issues are very important.



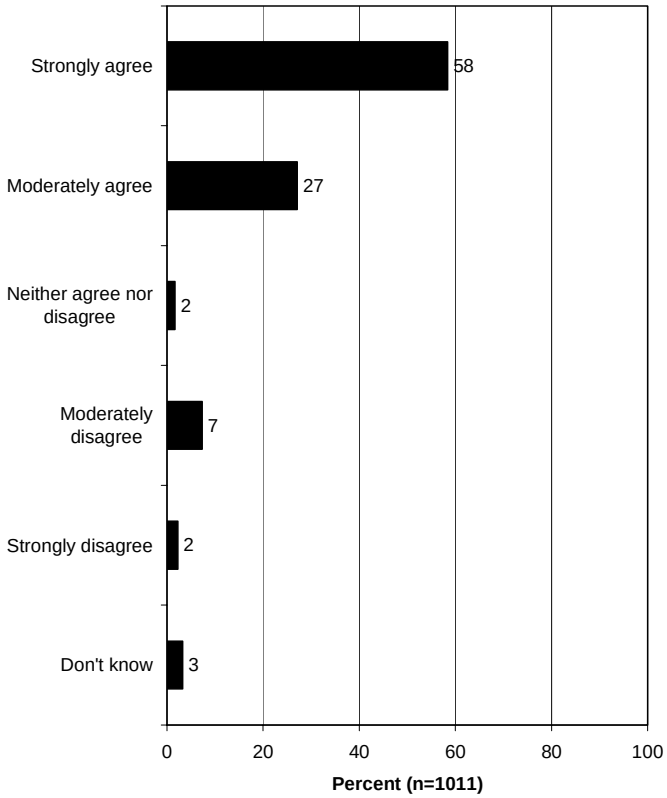
OVERALL EFFORTS TO CONSERVE WATER AND ATTITUDES TOWARD WATER CONSERVATION

- **Overall, the Georgia public had positive attitudes toward the general need to conserve water. Most importantly, the Georgia public strongly supported the statewide water conservation effort.**

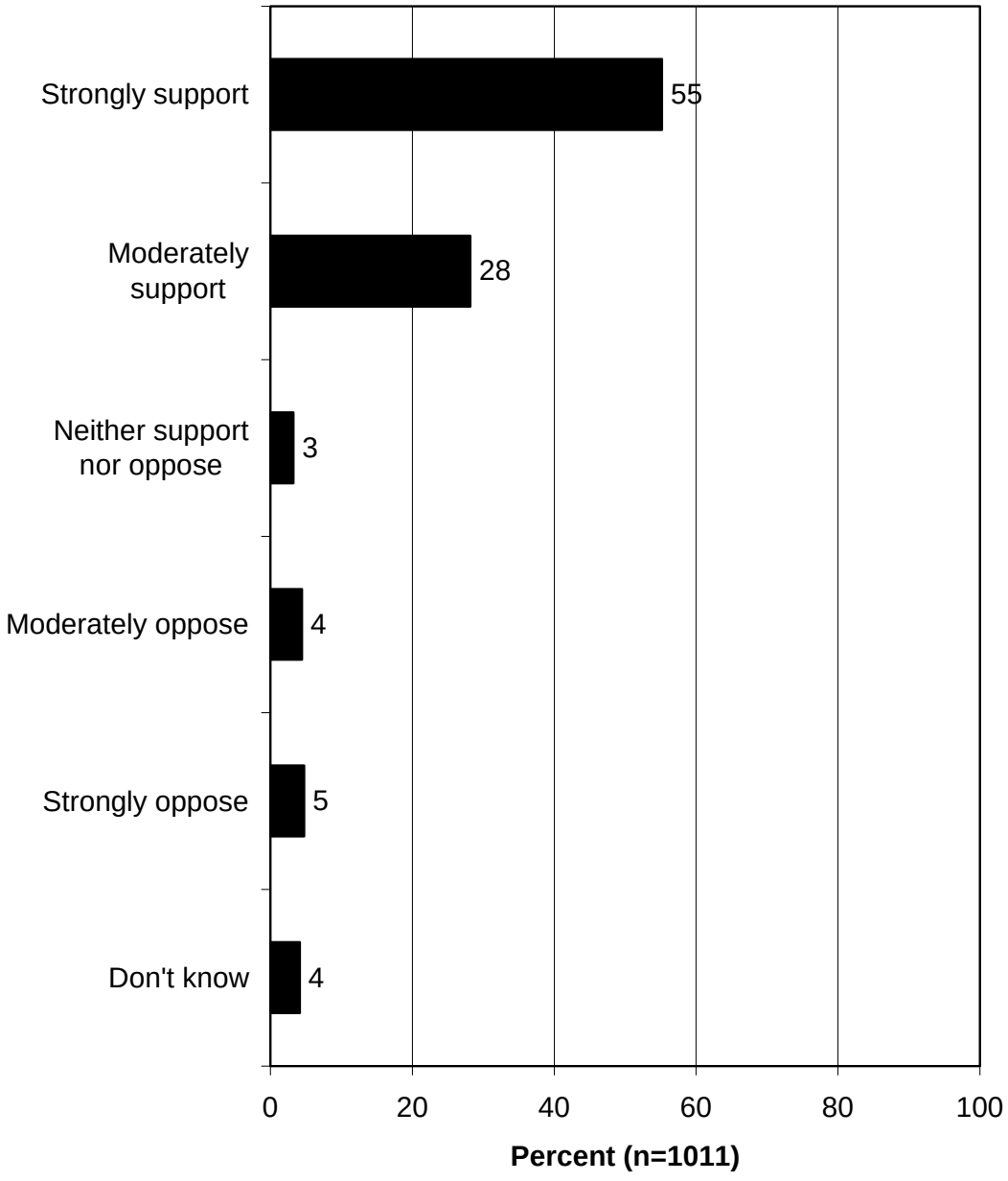
Even though Georgia residents may not yet be doing everything they can to conserve water, the survey results indicated that the Georgia public supported the need to conserve water. For example, a large majority of respondents (85%) strongly or moderately agreed that water should be conserved, even when no drought conditions exist, with a majority (58%) having strongly agreed. Also, a large majority of respondents (83%) said that they strongly or moderately supported the statewide water conservation effort, with a majority having strongly supported (55%). Most respondents (77%) were very or somewhat concerned about trying to follow the 2000-2002 watering restrictions in Georgia during those years of drought.

A majority of respondents (86%) strongly or moderately agreed that they can personally make a difference in conserving water, and 57% strongly agreed that they can make a difference. Only 10% moderately or strongly disagreed that they can personally make a difference.

Q52. Do you agree or disagree that water should be conserved when there are not drought conditions and when there is plenty of rain?



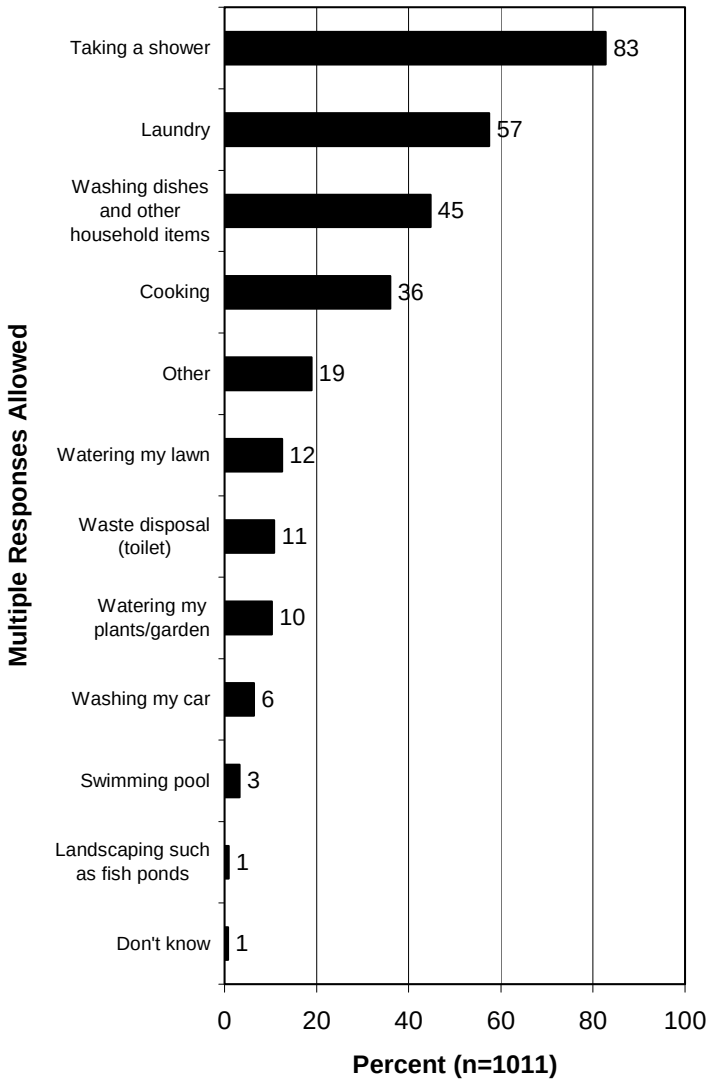
Q67. [Respondents were read elements of the statewide water conservation effort for Georgia and were then asked the following question.] Overall, would you support or oppose this statewide water conservation effort?



- **The survey research showed that the top three ways that the Georgia public perceived they consumed water were: taking a shower, doing the laundry, and washing dishes or other household items.**

In the general population survey, respondents were asked to name the top three ways that they used water. When asked about the top three ways that respondents used water, 83% said taking a shower, 57% said laundry, 45% said washing dishes and other household items, and 36% said cooking.

Q39. What are the top three ways that you use water?



PARTICIPATION IN AND WILLINGNESS TO PARTICIPATE IN WATER CONSERVATION EFFORTS

- **The survey research demonstrated that Georgia residents are already undertaking and are likely to undertake a variety of water conservation measures.**

The top measures that respondents most commonly said they have *already undertaken* were to wash only full loads of clothes and dishes (75%), not let water run unnecessarily (65%), water the lawn infrequently (59%), and wash the car less frequently or not at all (59%).

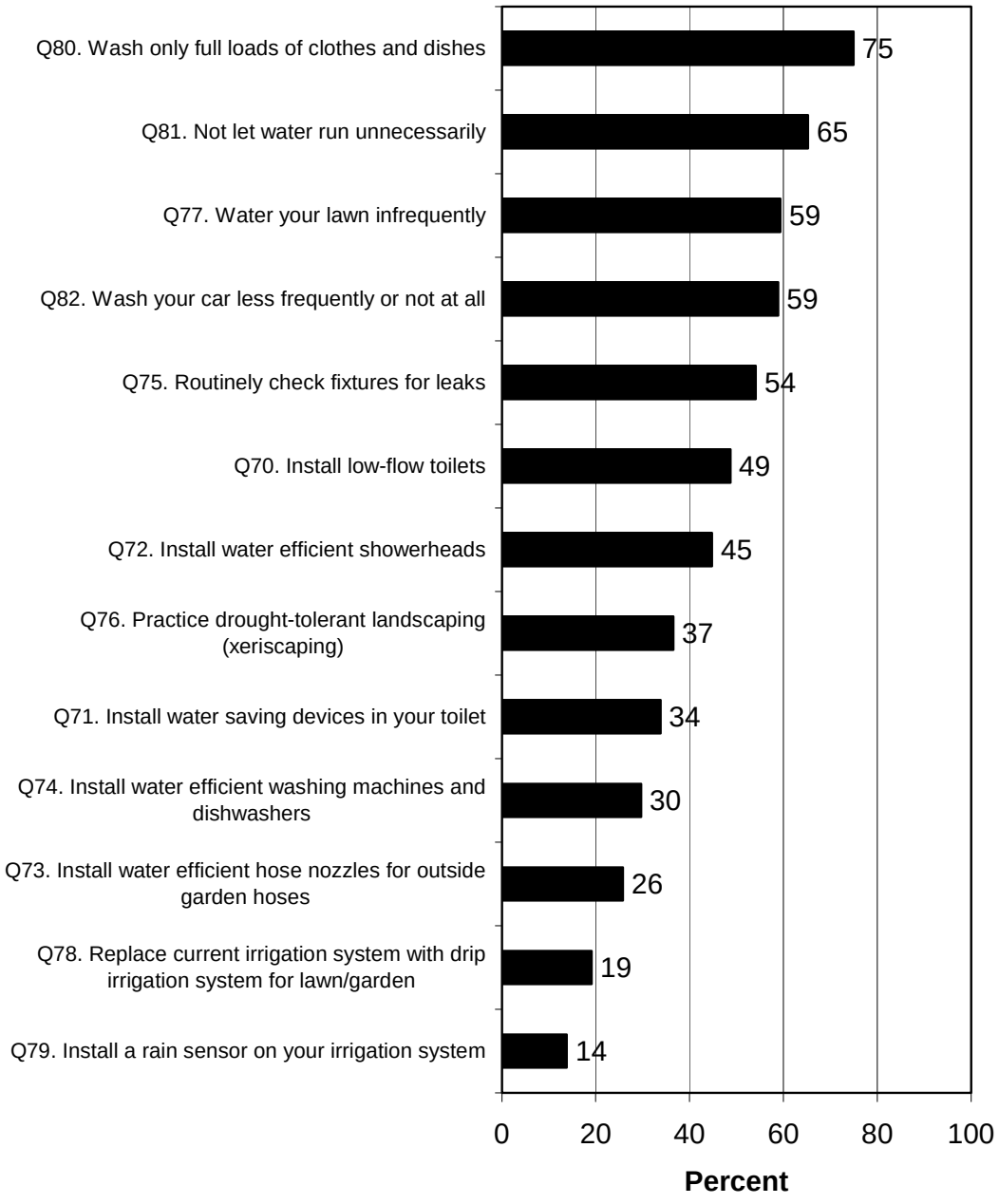
Respondents were also asked about their likelihood to undertake the 13 specific measures to conserve water that were presented. Four measures had a majority of respondents saying that they would be very or somewhat likely to adopt that particular conservation measure: install water efficient hose nozzles for outside garden hoses (60%), install water efficient washing machines and dishwashers (56%), practice drought-resistant landscaping, known as xeriscaping (52%), and install a rain sensor on their irrigation system (52%). Also fairly high percentages, although slightly less than a majority, said that they would be very or somewhat likely to install water saving devices in the toilet (46%), to install water efficient showerheads (44%), and to routinely check fixtures for leaks (43%). (Note that this analysis removed those respondents who answered "not applicable" so that the results are among only those who could take the action.)

The measures that had the highest percentages of respondents having said that they would be not at all likely to participate in related to irrigation systems. The next two measures after irrigation systems, however, related to toilets: install water saving devices in their toilet (20% said that they were not at all likely to do this) and install low-flow toilets (19%).

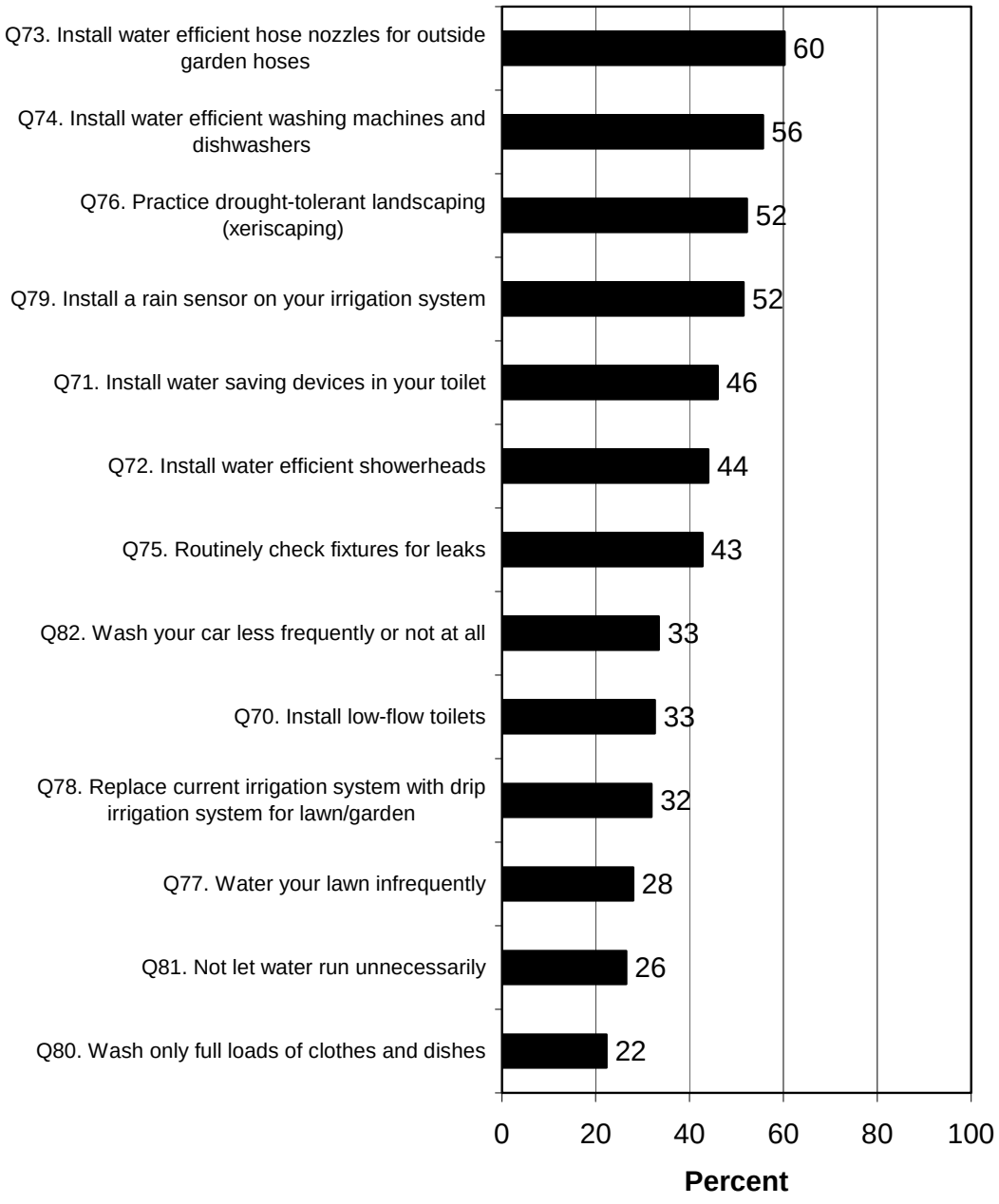
- **Statistical analyses showed that females were statistically more likely than males and African-Americans were statistically more likely than other races to be likely to undertake certain water conservation measures.**

In the statistical analyses, females were more likely than males to be concerned about water quantity in Georgia. In addition, females were statistically more likely than males and African-Americans were statistically more likely than other races to currently participate in and be likely to participate in some water conservation behaviors.

Q70-82. Percent who said they have already done the following water conservation efforts. (Excluding those who answered "Not applicable" or "Don't know.")



Q70-82. Percent who said they would be very or somewhat likely to do the following water conservation efforts. (Excluding those who answered "Not applicable" or "Don't know.")



- **Statistical analyses showed that there appears to be an important geographical component regarding Georgia residents' attitudes toward water quantity and quality as well as propensity to adopt various water conservation measures.**

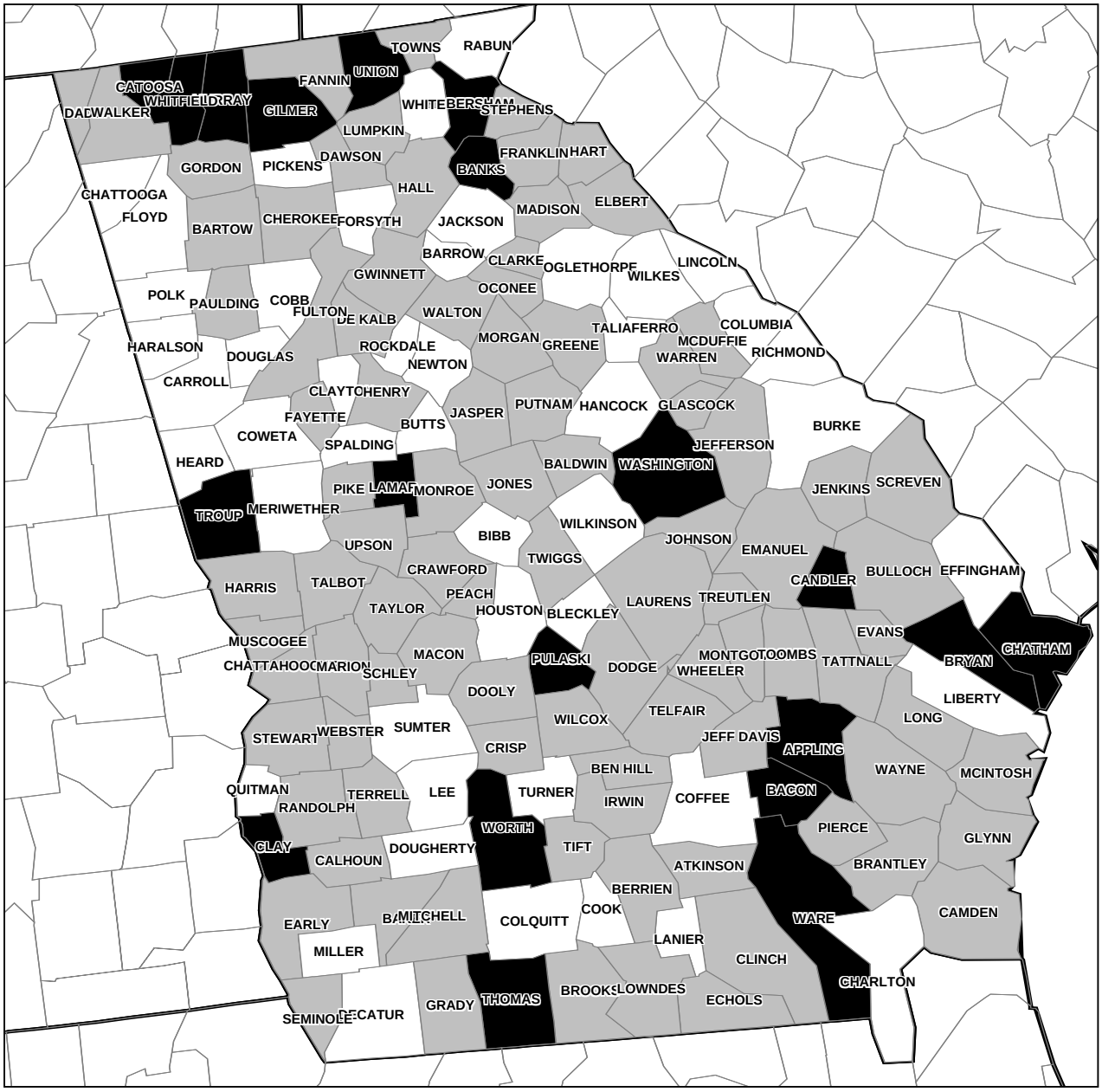
Counties in Georgia consistently appeared in the statistical analyses regarding water conservation behaviors that were already undertaken, water conservation behaviors that were likely to be adopted, and overall concern about water quantity and water quality in Georgia. A scale was developed to determine each county's rank regarding concern about water quantity and water quality, the importance of water quantity and water quality, whether or not water conservation actions had already been undertaken and finally, the likelihood to undertake water conservation actions. The counties were ranked according to the results of the survey for the following questions as they applied to each county:

> Q10. Would you say that water quality is a very important, somewhat important, or not at all important issue facing Georgia?
> Q11. Would you say that water quantity is a very important, somewhat important, or not at all important issue facing Georgia?
> Q20. Would you say you are very concerned, somewhat concerned, or not at all concerned about water quality in Georgia?
> Q27. Would you say you are very concerned, somewhat concerned, or not at all concerned about water quantity in Georgia?
> Q70-82. Would you be very likely, somewhat likely, or not at all likely to do [the following water conservation behavior] or have you already done this? (The water conservation behaviors that were measured were: washing only full loads of clothes and dishes, not letting water run unnecessarily, watering the lawn infrequently, washing the car less frequently or not at all, routinely checking fixtures for leaks, installing low-flow toilets, installing water-efficient showerheads, practicing drought-tolerant landscaping (xeriscaping), installing water saving devices in the toilet, installing water efficient washing machines and dishwashers, installing water efficient hose nozzles for outside garden hoses, replacing current irrigation systems with a drip irrigation system for the lawn or garden and installing a rain sensor in an irrigation system).

The counties were assigned a positive or negative score depending on their answers to each question (if it was positive or negative), and the state of Georgia was mapped based on the county scores. A map was also produced to depict the *overall* score for each county as a ratio of the total positive and negative scores (see map on the following page). White shading means that those counties had a high concern for water quantity and quality, had already undertaken several water conservation measures, and were very likely to undertake water conservation measures. Black shading means that those counties were not as concerned about water quantity and quality, were less likely to have already undertaken water conservation measures, and were less likely to adopt water conservation measures. This map should be used as a broad tool in the water conservation campaign. It does not imply that all citizens have positive or negative attitudes regarding water quantity and conservation according to the county, rather, it is simply a broad overview to illustrate that there appear to be regional differences in attitudes across Georgia. Even though the statistical analyses showed differences between some counties, what should be kept in mind is that some of the counties may have had low numbers of responses.

Concern, Intent, and Behaviors (CIB) Summed Scale
[The sum of the significant z-scores (negatives coded as -1 and positives coded as +1) for each county for survey questions 10, 11, 20, 27 and 72-80]

White = Positive (High CIB)
Gray = Neutral (CIB is 0)
Black = Negative (Negative CIB)



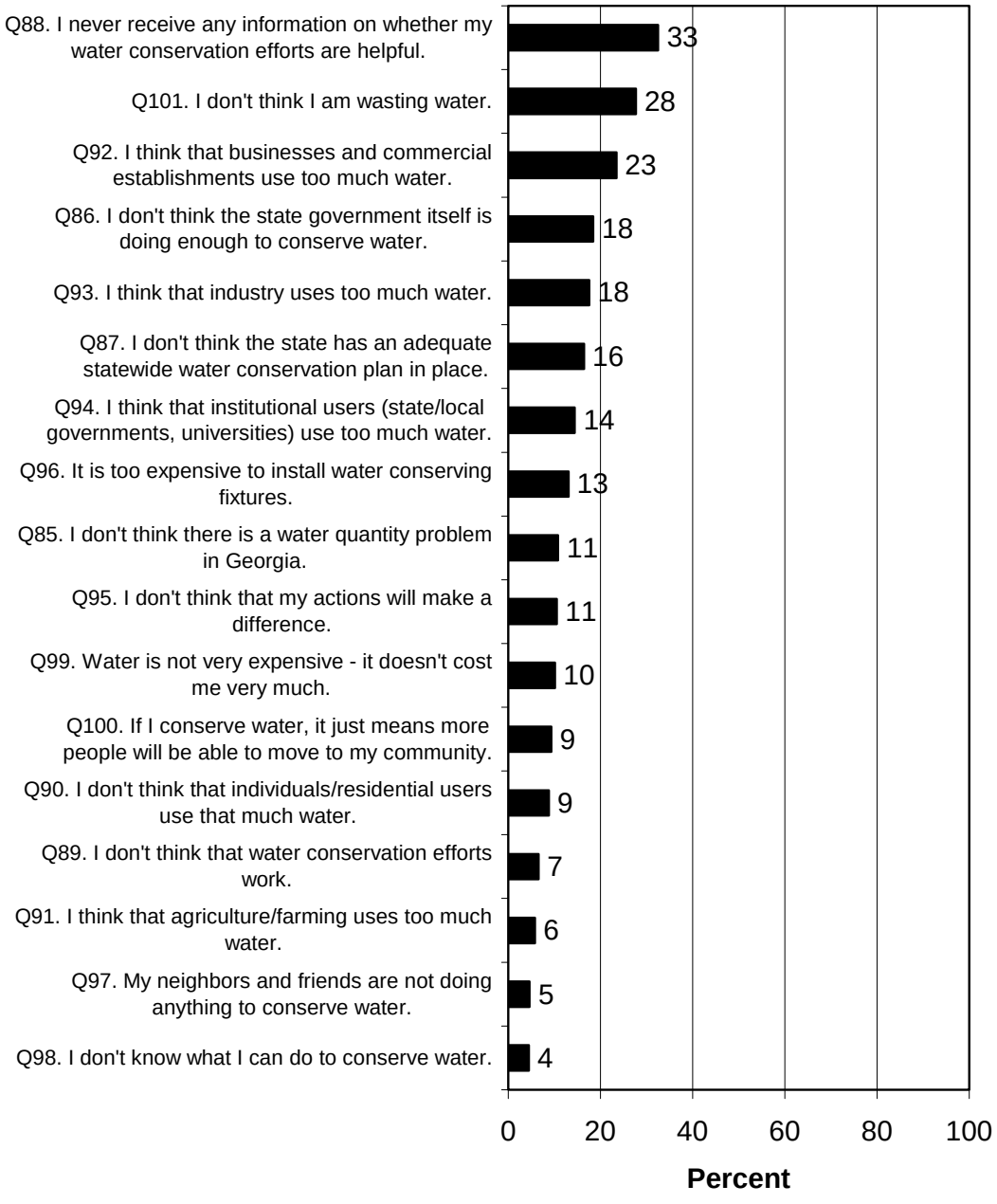
GEORGIA RESIDENTS' PERCEPTION OF REASONS PREVENTING THEM FROM CONSERVING WATER

- **Not receiving feedback on whether their water conservation efforts were working was the number one reason preventing Georgia residents from adopting water conservation behaviors.**

Respondents were asked about 17 factors that might prevent them from undertaking water conservation efforts. The top factor was that respondents did not receive feedback on whether their conservation efforts were effective (33% strongly agreed and 17% moderately agreed that this is a reason preventing them from conserving water). Another important factor was that the respondent did not think he/she was wasting water (28% strongly agreed). The next most commonly given factors preventing the respondent from conserving water related to the perception that residential users do not use enough water to make a difference: "I think businesses and commercial establishments use too much water," (23% strongly agreed that this prevents them from conserving water), "I don't think the state government itself is doing enough to conserve water," (18%), "I think that industry uses too much water," (18%), "I don't think the state has an adequate statewide conservation plan in place," (16%), and "I think that institutional users use too much water" (14%).

The factor that had the highest percentage of respondents having said that they disagreed that the given factor prevented them from conserving water was that they don't know what they can do to conserve water (60% strongly disagreed and 21% moderately disagreed that this was a reason preventing them from conserving water).

Q85-101. Percent who strongly agree that the following reasons prevent them from conserving water in Georgia.



INCENTIVES AND PENALTIES TO ENCOURAGE CONSERVATION OF WATER

- **Georgia residents were most concerned about health-related effects/human well-being as an incentive to conserve water.**

Respondents were asked about 21 factors that might encourage them to conserve water. The health of their children (91%) and their own health (89%) were the two top reasons that would make Georgia residents very likely to conserve water. The next reason also related to the respondent personally: knowing a severe water supply crisis could happen during their lifetime (88%). The next three items were fairly altruistic: knowing they could help protect the quality of life for future generations (85%), knowing that water is a limited resource (85%), and knowing that the health of the environment was at stake (84%). The final item that had a markedly higher percentage of respondents, relative to the rest of the items, saying it would be very likely to encourage them to conserve water also directly related to them personally: knowing they could save money on their water bill (75%).

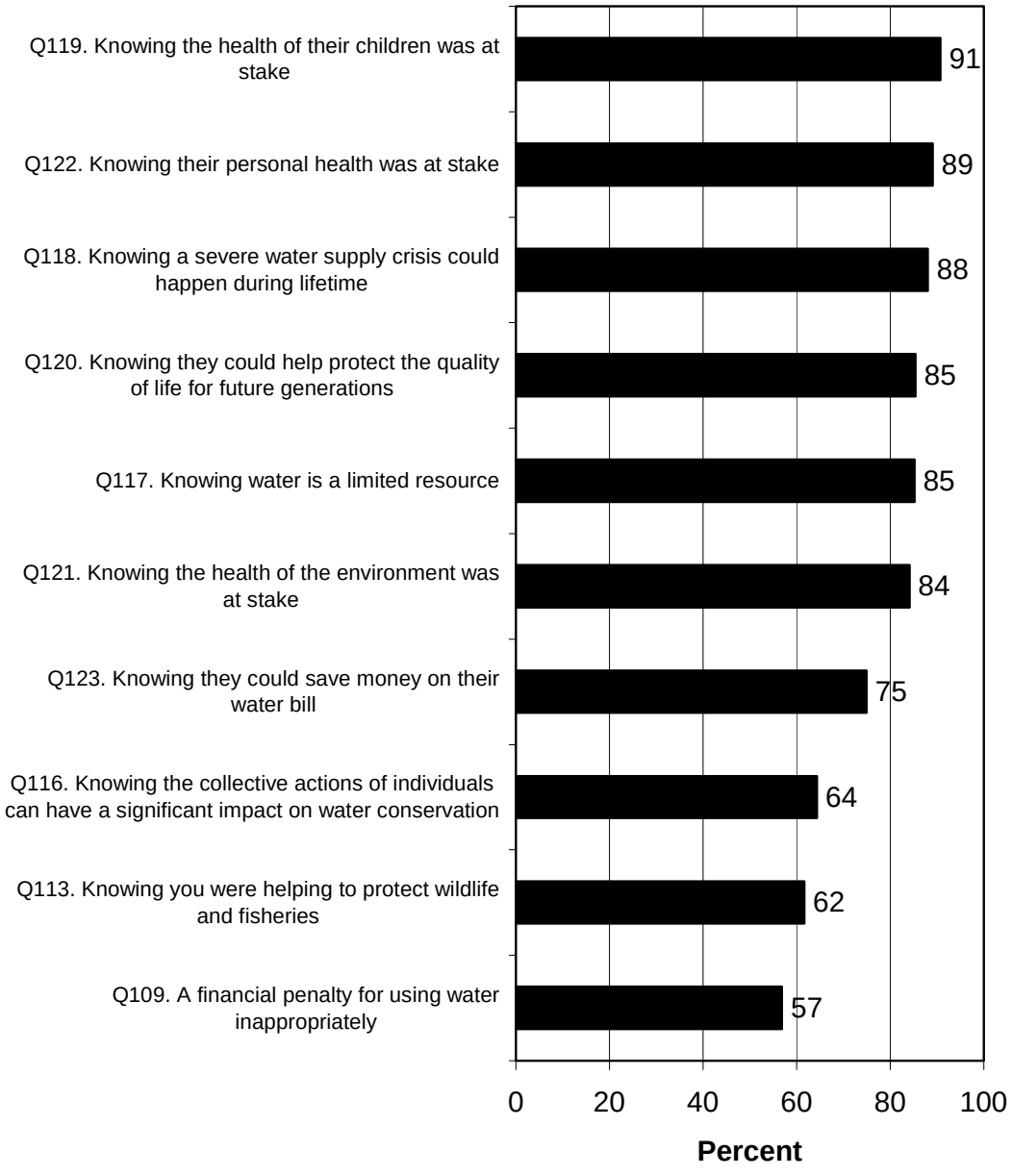
Peer pressure from neighbors (19%) and pressure from children (24%) were at the bottom of the list. Additionally, penalties were not as likely to motivate people to conserve water: conservation pricing (overuse of water being penalized) (38%), the possibility of increased watering restrictions being imposed by the state (50%), an increase in current water costs (52%), and a financial penalty for using water inappropriately (57%) were halfway or more down the list.

INFORMATION ABOUT WATER CONSERVATION

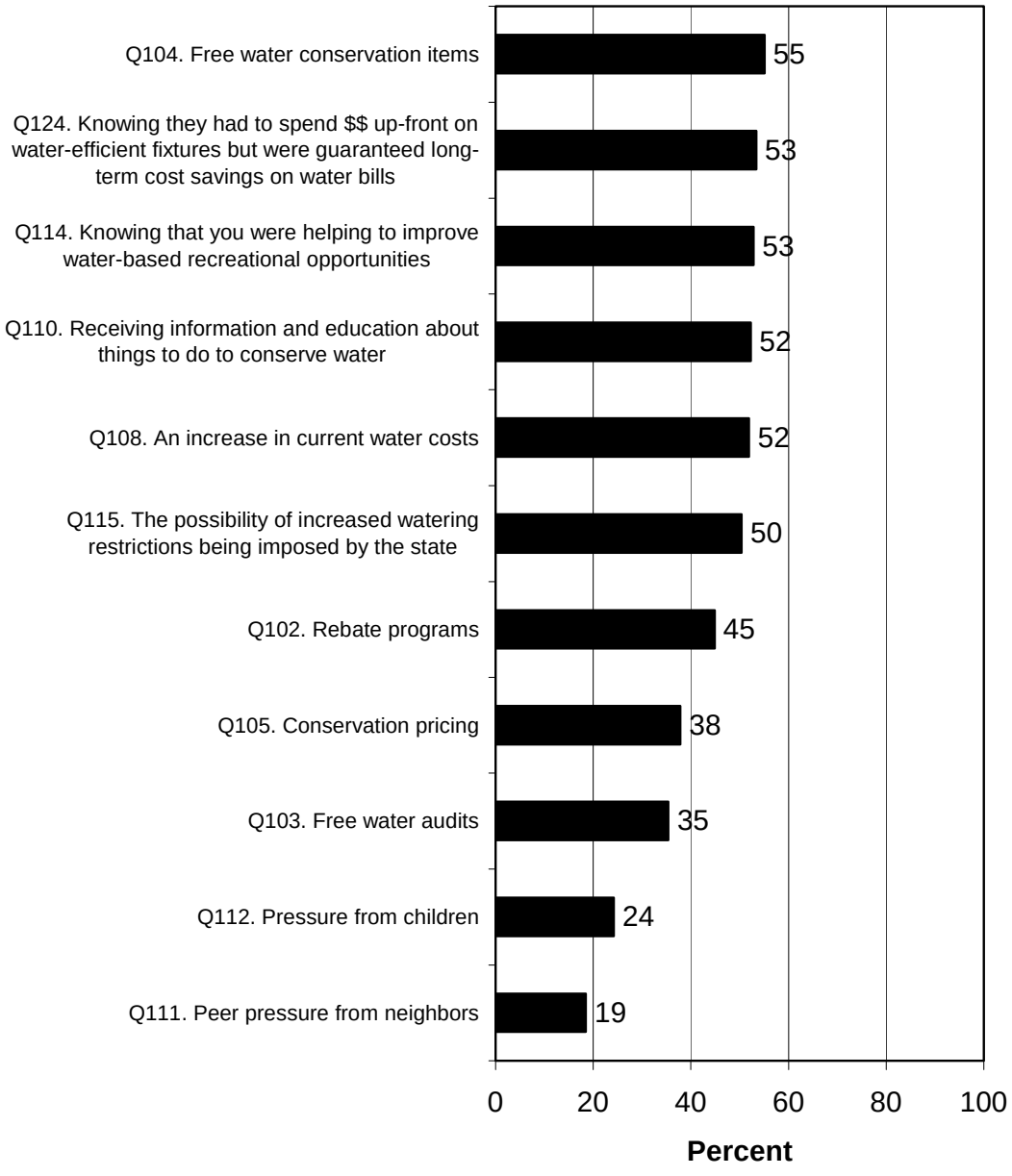
- **Brochures mailed to the respondent's home were the preferred method of receiving information about water conservation.**

Georgia residents most commonly said that one of their preferred methods of receiving information about things they can do to conserve water were brochures mailed to their house (49%). Sixteen percent of respondents said that water bill inserts were the preferred method of receiving information.

Q102-124. Percent who said the following would make them very likely to adopt water conservation practices or conserve water. Part 1.



Q102-124. Percent who said the following would make them very likely to adopt water conservation practices or conserve water. Part 2.



IMPLICATIONS AND RECOMMENDATIONS

- **Results from this study demonstrated that a majority of the Georgia public is concerned about water resource issues. Although both water *quantity* and water *quality* were important issues, there was greater concern for water *quality* over water *quantity*. The implication is that an effective water conservation campaign should tie water quality to water quantity in order to elevate awareness and concern about water conservation in Georgia.**

In the general population survey, respondents were asked to name what they felt were the top natural resource and environmental issues facing Georgia. Polluted water/water quality and not enough water/water quantity were clearly top-of-mind issues to the Georgia public, with 42% of respondents rating polluted water/water quality as the top issue and 30% of respondents rating not enough water/water quantity as the top issue. Likewise, in a series of questions about whether specific issues were important or unimportant in Georgia, water quality was the top issue deemed to be very important (90% said that water quality was very important), and water quantity was the third issue in the ranking (70%). Also, 64% of Georgia residents were very concerned about water quality compared to 41% of respondents who were concerned about water quantity.

Although water quantity was considered an important issue, the data suggested that this issue was not as salient an issue as water quality to the Georgia public. Findings from the focus groups also supported this. Knowing that water quantity is not as salient an issue as water quality to the Georgia public, an effective water conservation campaign should focus on linking water *quality* to water *quantity*, thereby raising awareness and concern about water quantity by association. Also, linking quality and quantity can help raise the saliency of *both* water resource issues, by promoting the importance of conserving water *quantity* so that water *quality* may be preserved.

- **In addition to a general concern about water resource issues, the Georgia public was also concerned with specific aspects of water conservation, including following the 2000-2002 watering restrictions and conserving water even during times of adequate rainfall.**

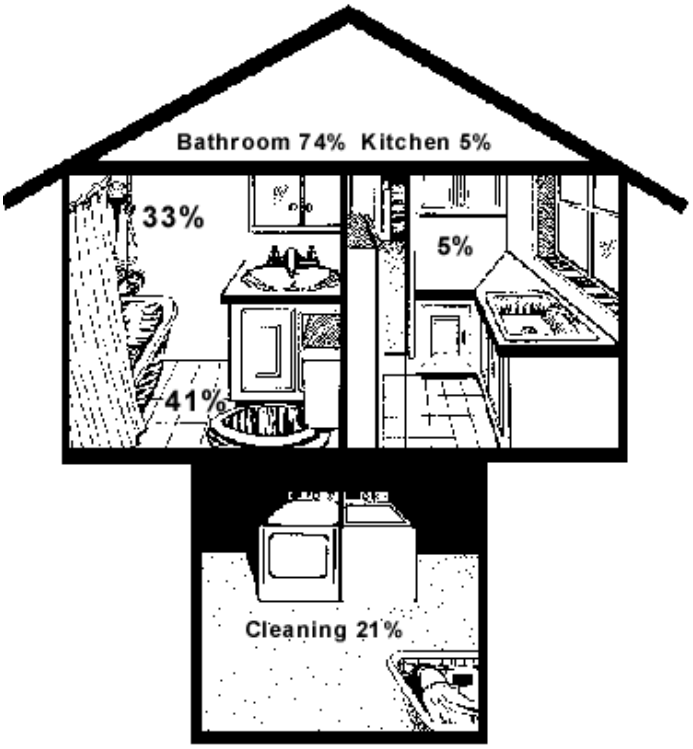
In order for a messaging campaign to be effective, the public must be moved from awareness to concern and ultimately to action. The good news is that there is already a high level of concern for water resource issues among many Georgia residents as indicated in the previous implication. The Georgia public was also concerned about trying to follow the 2000-2002 watering restrictions in Georgia: 47% of respondents said they were very concerned with trying to follow the 2000-2002 watering restrictions, and 30% of respondents said they were moderately concerned with trying to follow the 2000-2002 watering restrictions. In addition, the survey research showed that a large majority of respondents (85%) strongly or moderately agreed that water should be conserved even when no drought conditions exist.

The survey and focus group results showed that many Georgia residents are already concerned about water resource issues in their state; they simply need to be motivated to act on behalf of

their concern. However, what should be kept in mind is that this concern varies regionally across the state, as some areas of Georgia appear to be more concerned than other areas. However, since some concern about water resource issues is already in place, the Georgia public appears to be a potentially receptive audience for a water conservation initiative in the state.

- **The research suggested that Georgia residents need to be informed about household activities that consume more water than they thought they were consuming.**

When asked the top three ways that respondents used water, 83% said taking a shower, 57% said laundry, 45% said washing dishes and other household items, and 36% said cooking. These findings indicated that the Georgia public needs to be informed about how much water different activities use, compared to how much water they *think* is used. According to the Environmental Protection Agency, toilet flushes use the highest percent of water in the average household. But yet, only 11% of the survey respondents named toilets as one of the top ways that they use water (toilets were ranked seventh compared to all other uses). Also according to the Environmental Protection Agency, the average household uses only 5% of its total water consumption in the kitchen, while the survey showed that 36% of respondents said that cooking was one of the top three ways that they consume water. These findings suggested that the Georgia public may in fact be consuming or wasting water in ways they are not aware of. For example, in assuming that toilet flushes do not consume a large amount of water, many Georgia residents may be flushing more than is necessary (i.e. flushing materials down the toilet that could instead be thrown in the trash). This suggested that although Georgia residents may be concerned about water resource issues, they may not be aware of ways that they are wasting water.



Typical breakdown of interior water use.

Source: http://www.epa.gov/ow/you/chap1.html.

CONSTRAINTS TO WATER CONSERVATION EFFORTS

As part of an effective water conservation campaign, several constraints must be overcome. The survey research and focus group findings suggested that the following constraints must be overcome in order for Georgia citizens to take greater measures to conserve water:

Constraint #1: There is a perception that the State should be doing more to conserve water.
Constraint #2: Residential users feel that the State does not have an overall plan for water conservation in place.
Constraint #3: There is no feedback mechanism concerning the effectiveness of water conservation efforts.
Constraint #4: Many residential users believe that they do not consume very much water.
Constraint #5: There is a general lack of knowledge and awareness about where to find information about water conservation and water conservation measures.
Constraint #6: People do not generally make the connection between water quantity/water conservation and water quality.
Constraint #7: There is a perception that water is readily available.

- **Constraint #1: *There is a perception that the State should be doing more to conserve water.* The research suggested that the Georgia public needs to be shown that the State is doing its part to help conserve water.**

According to the survey results, 35% of Georgia residents strongly or moderately agreed that the following statement prevented them from conserving water, "I don't think that the State has an adequate statewide water conservation plan in place." Also, 34% of Georgia residents strongly or moderately agreed that the following statement prevented them from conserving water: "I don't think that the state government itself is doing enough to conserve water." The focus group findings also suggested that many Georgia residents distrusted the State government and felt that the State itself is not doing enough to conserve water. Much of this sentiment was fueled by residents that said they witnessed government and commercial establishments running their sprinklers even while it was raining, which appeared to several focus group participants to be a blatant display of wasting water. A majority of the focus group participants felt that the State should lead by example to help motivate the public to conserve water. Even if the State is already enacting measures to help conserve water, the water conservation campaign should publicize this information so that residential users do not feel that all of the pressure to conserve water is placed on them.

> *What is the State doing to conserve water? They are so busy trying to make the place look good, that they waste so much of the resource. They are using so much water but we are told to water only on certain days. If the State starts there first, people will be a lot more comfortable doing it [conserving water] at home.*

- **Constraint #2: *Residential users feel that the State does not have an overall plan for water conservation in place.* The research suggested that many residential users were interested in learning how their water conservation efforts fit into the overall statewide effort.**

Many of the focus group participants were interested in gaining a better understanding of exactly how water conservation measures adopted by homeowners fit into the overall statewide water conservation effort.

The State should always have a plan ready for drought.

The survey results and focus group findings suggested that the Georgia public is interested in learning more about the statewide water conservation effort that documents how each major entity (industry, homeowners, state government, etc.) uses water and how each group will be expected to find and adopt ways to conserve water. This document could be posted on the Internet, and the public could be notified of its availability through an announcement that accompanies a monthly water bill. Findings from the focus groups also suggested that the public may be interested in receiving a shortened version of the statewide water conservation effort – i.e., a concise form of the document that explains the main points in a several short statements. Several focus group participants mentioned that they wanted concise facts that are not highly technical. The water conservation campaign will be more effective if homeowners have a sense of ownership in the statewide effort, and are reassured that other entities are also doing their part in water conservation.

As the water conservation campaign is developed and implemented, it will be important to project an image that the State government is doing it's part and taking a leadership role to help conserve water in Georgia. The water conservation campaign will have a high potential of failure if Georgia residents are told that they must conserve water without being reassured that entities such as government, industry, and other commercial establishments are also taking measures to conserve water. Information should be made readily available to the public regarding the water conservation efforts that are implemented by government, industry, and other commercial establishments. This can be accomplished over time and does not have to be done all at once. For example, public service announcements can be used several times a year over the course of several years. In addition, the public not only wants to hear the information, but they want to see it – especially not to see sprinklers running while it is raining at government buildings, businesses and other facilities.

- **Constraint #3: *There is no feedback mechanism concerning the effectiveness of water conservation efforts.* Fortunately, the survey research indicated that a majority of the Georgia public believes that they can personally make a difference in terms of water conservation. However, this belief needs to be reinforced with a feedback mechanism showing people that they really <u>are</u> making a difference, such as providing quantified data regarding the number of gallons that have been conserved.**

The survey research indicated that although a majority (57%) of the Georgia public felt that they could personally make a difference in terms of water conservation, a top reason that prevented

them from conserving water on a consistent basis was that they did not receive feedback on whether their conservation efforts were effective (33% strongly agreed and 17% moderately agreed that this is a reason preventing them from conserving water). An effective water conservation campaign should include feedback provided to the public regarding whether their water conservation efforts are working. Information about how many gallons have been saved in the previous six months, for example, could be posted on the GDNR's website or included as inserts in homeowners' water bills. This type of information should be visible and repeated to ensure that it reaches the broadest audience.

Feedback on performance, in this case feedback showing the impact of Georgia residents' efforts on conservation, is very powerful in influencing performance. Performance feedback alone (without any further explanation) will usually lead to spontaneous goal setting, and spontaneous performance improvements by the person(s) receiving the feedback (Locke & Latham, 1990). Giving a goal without also providing feedback on the results of users efforts toward meeting the goal usually renders goals completely ineffective (Locke & Latham, 1990).

Goals, whether they are self-set, or externally set, have the known impact of raising the level of effort, attention, persistence, and strategy development toward meeting the goals (Locke & Latham, 1990). This means that individuals who have been somehow engaged in a goal, either through being shown feedback and "self-setting" the goal, or through somehow being inducted into commitment to a goal, will more so than those without goals work harder, pay more attention, persist despite difficulty, and spend time and effort developing unique strategies (Locke & Latham, 1990).

Regardless of the method, goals are initiated, feedback is absolutely necessary to show progress, and to assess efforts and strategies toward achieving the goal. The goals are best if they are specific and they are difficult. In fact, the more difficult the goal, as long as there is some level of commitment by the participants, the better the outcome. This is even true when the goals are unreasonably difficult, or when the goals exceed the current ability of the individual. In those cases, the individual learns new skills, even without instruction, to meet the challenge and increase performance (De Michele, 2000).

- **Constraint #4:** ***Many residential users believe that they do not consume very much water.*** **Although the Georgia public acknowledged that residential users consume a substantial amount of water, there is still a need to educate Georgia residents about how significant residential water use is, as well as how individuals may waste water without fully realizing it.**

When respondents were asked if they felt that they could personally make a difference in terms of water conservation, the number one reason for those that *disagreed* was because they felt that residential users do not use much water (17% gave this answer). Also, when respondents were asked to agree or disagree with a series of reasons that might prevent them from conserving water in Georgia, the reason, "I don't think I am wasting water" (28% strongly agreed) was the second most important reason for not conserving water. Not receiving adequate feedback was the number one reason. The next most commonly given reasons preventing respondents from conserving water related to the perception that residential users do not use enough water to make

a difference: "I think business and commercial establishments use too much water," "I don't think the state government itself is doing enough to conserve water," "I think that industry uses too much water," "I don't think the State has an adequate statewide conservation plan in place," and "I think that institutional users use too much water." Clearly, the research implied that many Georgia residents felt that residential use is often insignificant compared to commercial establishments; it is someone else's problem.

These results from the survey research clearly suggested that the Georgia public may not be fully aware of how much water can be wasted through residential use. Interestingly, when respondents were asked to estimate the percent of water used by residential users compared to all other user groups in Georgia, respondents estimated that residential users use more water (45%) than industry (35%) or agriculture (32%). This finding suggested that although Georgia residents may be aware that residential use of water can be significant, they may not be aware that residents may be *wasting* water. Georgia residents need to be informed that residential water use can be significant, and therefore, that if residential users collectively work together to conserve water, a significant amount of water can be conserved. The focus group findings also supported this and showed that residents may not fully realize that, collectively, residential water use and waste can be significant. When the focus group participants were asked what they felt were the major sources of water quantity and water quality problems in Georgia, the consensus was that industry and agriculture were both the biggest users and polluters of water. As the discussions progressed, a few individuals acknowledged that some homeowners were guilty of wasting water, but by far, they felt that homeowners contributed negligibly to water consumption and pollution compared to industry and agriculture.

- **Constraint #5: *There is a general lack of knowledge and awareness about where to find information about water conservation measures.* The research suggested that the Georgia public is concerned about water resources in Georgia, but some residents will need more information on what they can do to conserve water. Most importantly, all residents need to be continuously reminded about all of the measures that can be taken to conserve water in order to make water conservation a "top-of-mind" issue.**

In the focus groups, many individuals expressed concern about water conservation but said that they were unaware of measures they could take to conserve water:

> *I don't know what we could do. I would like to know what we could do as citizens.*

> *I'm concerned about water resources, but all I hear about is what is in the newspaper. We all have limited information.*

The survey research demonstrated that of those respondents who said that they disagreed they could personally make a difference in terms of water conservation, 15% said it was because they did not know what they could do. This was ranked as the second-highest reason as to why respondents felt that they could not personally make a difference in terms of water conservation. Although this reason was ranked lower in a series of questions asking respondents the reasons that prevented them from conserving water in Georgia, evidence from the survey research and focus group findings suggested that this is still an important constraint. One of the goals of the

water conservation campaign must be to educate the public on measures they can take to conserve water and increase the visibility of this information. An effective water conservation campaign includes providing the public with simple, straightforward tips they can implement to help conserve water. This information must also be adequately promoted so that the information is visible and readily available to the public. The public needs to be constantly reminded about measures they can take to conserve water in and around their home. These reminders are necessary for the long-term viability of the water conservation campaign, especially reminders about some of the more costly water conservation measures such as installing low-flow toilets or installing water efficient dishwashers and washing machines. The research indicated that most people probably will not replace these devices until their old devices break, so reminders are essential to make water conservation an issue to consider when purchasing a new device.

- **Constraint #6: *People do not generally make the connection between water quantity/water conservation and water quality/human well-being.* The research indicated that although Georgia residents would be motivated to conserve water for reasons related to human well-being, many Georgia residents are probably not clear on the link between water conservation and water quality/human well-being.**

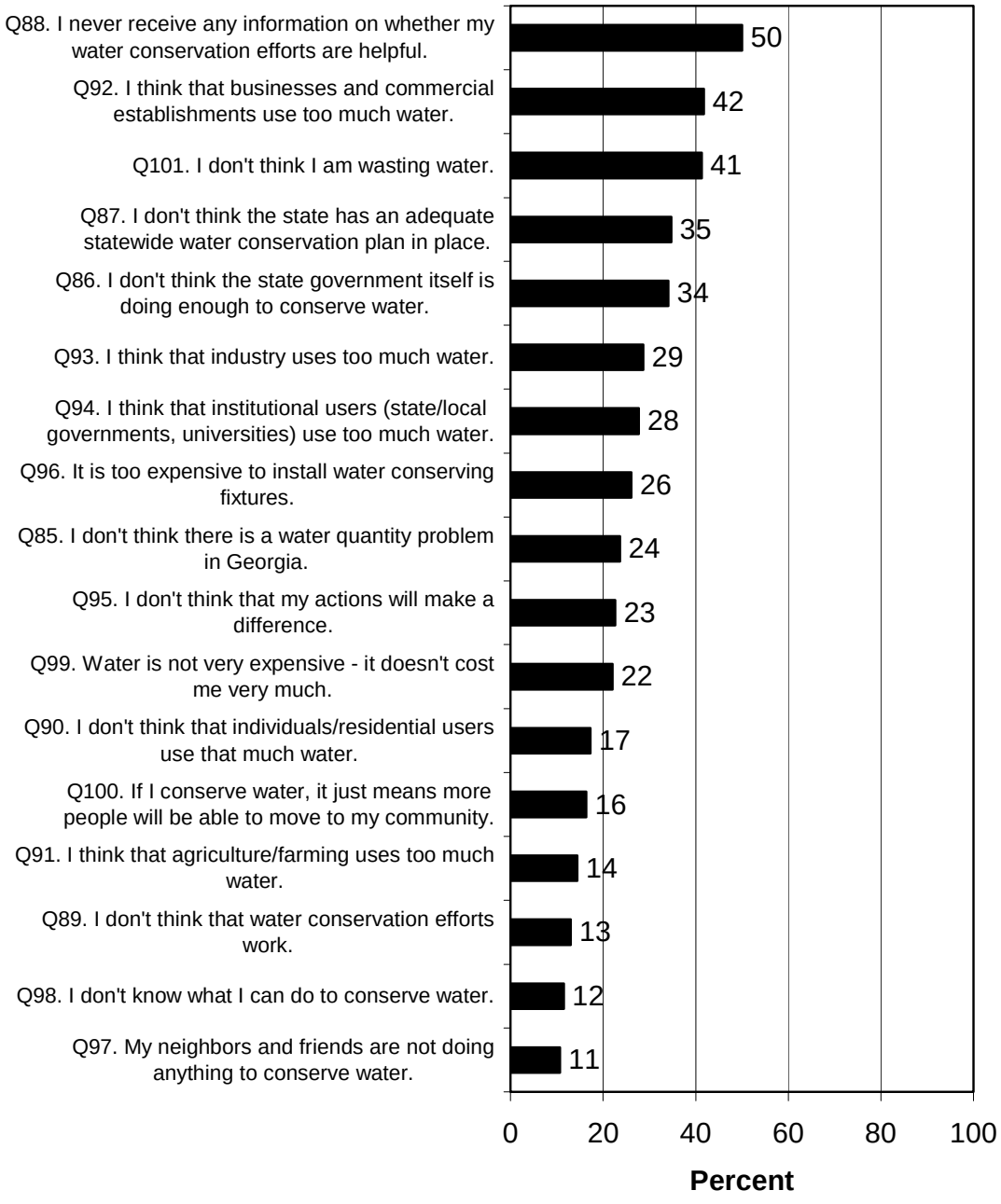
The survey research demonstrated that Georgia residents would be motivated to conserve water for reasons related to human well-being (such as if they knew their children's health and their own health were at stake). However, the focus group findings suggested that many Georgia residents may not make the connection between water conservation and water quality, which directly impacts health and human well-being. Although the public does not need highly technical, scientific facts about the link between water quantity/conservation and water quality, one of the elements of the water conservation campaign should be to educate the public on this link. One of the goals of the water conservation campaign is to raise the awareness and concern about water quantity and conservation, and this could be accomplished by linking water quantity and conservation to water quality, since concern for water quality is already higher than concern for water quantity.

- **Constraint #7: *There is a perception that water is readily available.* The research indicated that many Georgia residents do not really believe that there is a serious water quantity problem or that there will be an imminent water shortage.**

Although the survey research did not directly address this issue, the focus group findings suggested that many Georgia residents felt that water is readily available and that there is not a threat of an imminent water shortage or crisis. In fact, several focus group participants mentioned that water is always available when the faucet is turned on, and even if the electricity is turned off, water is still available. A successful water conservation campaign must educate the public that although water appears to be a plentiful commodity, it could run out eventually if measures are not taken to conserve it.

> *When the electricity goes off, you still have water!*
>
> *When you turn on the faucet, the water is always there.*

Q85-101. Percent who strongly or moderately agree that the following reasons prevent them from conserving water in Georgia.



PARTICIPATION IN AND SUPPORT FOR WATER CONSERVATION MEASURES

- **The top water actions that Georgia residents most commonly said they had *already undertaken* were washing only full loads of clothes and dishes, not letting water run unnecessarily, watering the lawn infrequently, and washing the car less frequently or not at all.**

The survey research demonstrated that many Georgia residents are already taking measures (excluding those who answered "not applicable" or "don't know") to conserve water including:

- Washing only full loads of clothes (75%),
- Not letting water run unnecessarily (65%),
- Watering the lawn infrequently (59%),
- Washing the car less frequently or not at all (59%).

Since the survey research and focus group findings indicated that the public is interested in feedback as to whether or not their conservation efforts are working, the water conservation campaign should focus on the above four measures and publicize how much water is saved by implementing these conservation measures. Since some people are participating in certain water conservation behaviors and other people are participating in other conservation behaviors, the feedback should be provided on *all* conservation measures but special attention should perhaps be given to the above mentioned measures since large percentages of the State's population are already undertaking these measures. Showing the public that their water conservation efforts are working and producing desired results will likely encourage the public to increase their efforts to conserve water and continue the measures they are already taking. Georgia residents could be provided with quantified numbers regarding the amount of water that was conserved. One of the most important aspects of the water conservation campaign must be to have individuals that are already taking measures to conserve water to *continue* to do so.

- **The survey results indicated that the Georgia public is *most likely* to: install water efficient hose nozzles for outside garden hoses, practice drought-tolerant landscaping, routinely check fixtures for leaks, and install water efficient washing machines and dishwashers.**

The general population survey asked respondents about their likelihood to undertake (or whether they had already undertaken) 13 specific actions to conserve water. The survey research indicated that the measures with the highest percentages of the Georgia public that said they were very likely (excluding those who answered "not applicable" or "don't know") to take the following measures to help conserve water were:

- Install water efficient hose nozzles for outside garden hoses (37%),
- Practice drought tolerant landscaping, also known as xeriscaping (34%),
- Routinely check fixtures for leaks (33%),
- Install water efficient washing machines and dishwashers (30%).

When the 13 conservation behaviors were graphed as a percent of the entire number of respondents (including those who answered "not applicable" or "don't know"), the above four behaviors were still shown to have sizeable markets indicating that as a percent of the entire population of Georgia, a sizeable number of Georgia residents would be very likely to adopt these measures.

Interestingly, the following behaviors had lower percentages of Georgia residents that said they would be very likely to implement these measures but yet, had higher percentages of residents that said they had already adopted these measures: washing the car less frequently or not at all (18% were very likely to do this and 54% had already done this), not letting water run unnecessarily (17% were very likely to do this and 64% had already done this), and washing only full loads of clothes and dishes (16% were very likely to do this and 73% had already done this). Therefore, even though these measures had lower percentages of Georgia residents that said they would be very likely to implement them, they should not be discounted as potential promotional water conservation tips. Since large percentages have already implemented these measures, the implication is that there may be even more support that can be garnered for these water conservation measures.

- **The water conservation measures with the highest percentages of the Georgia public having said they would be *not at all likely* to implement related to irrigation systems and toilets.**

The actions that had the highest percentages of respondents having said that they would be not at all likely to implement the action related to irrigation systems. Forty-nine percent of respondents said that they would be not at all likely to replace their current irrigation system with a drip irrigation system for their lawn and/or garden, and 35% said they would be not at all likely to install a rain sensor on their irrigation system. The next two actions related to toilets: installing water-saving devices in their toilet (20% said that they were not likely to do this) and installing low-flow toilets (19%).

Even though Georgia residents indicated that they would be less likely to adopt these water conservation measures, these measures should still be promoted as long-term efforts. Most of these less popular measures are more costly than others, such as watering a lawn less frequently, or installing water efficient showerheads or hose nozzles. Several focus group participants said that they would not be very likely to install new irrigation systems or low flow toilets unless their current devices broke. Therefore, these measures should still be promoted over the long term, because when Georgia residents are considering replacing irrigation systems or toilets they could be reminded to think about water conservation when making their next purchase.

- **The survey research demonstrated that Georgia residents are already implementing and are likely to implement a variety of water conservation measures.**

As the previous discussions indicate, many Georgia residents have already undertaken and are very likely to implement a variety of water conservation measures. Upon examination of the

statistical analyses for each of the 13 specific water conservation measures that were presented to the respondents in the general population survey, the results showed that overall, those people who were statistically significantly more likely (very or somewhat likely) to adopt a conservation measure that they weren't currently participating in were already participating in other water conservation efforts. *This suggests that conservation-minded individuals are already participating in water conservation behaviors and are likely to do other things to help conserve water.* This finding is important to the water conservation campaign because those individuals who are already conserving water need to be reminded and encouraged to continue their water conservation behaviors. Part of the campaign could include encouragement to do more – for example, if you are already implementing one conservation measure, do one more. If you are doing two conservation measures, do three, etc. This reinforcement of what is already being done is very important – Georgia residents need to be informed that their actions are having a positive impact on water conservation as they will only continue to act if they receive feedback on whether or not their water conservation efforts are working.

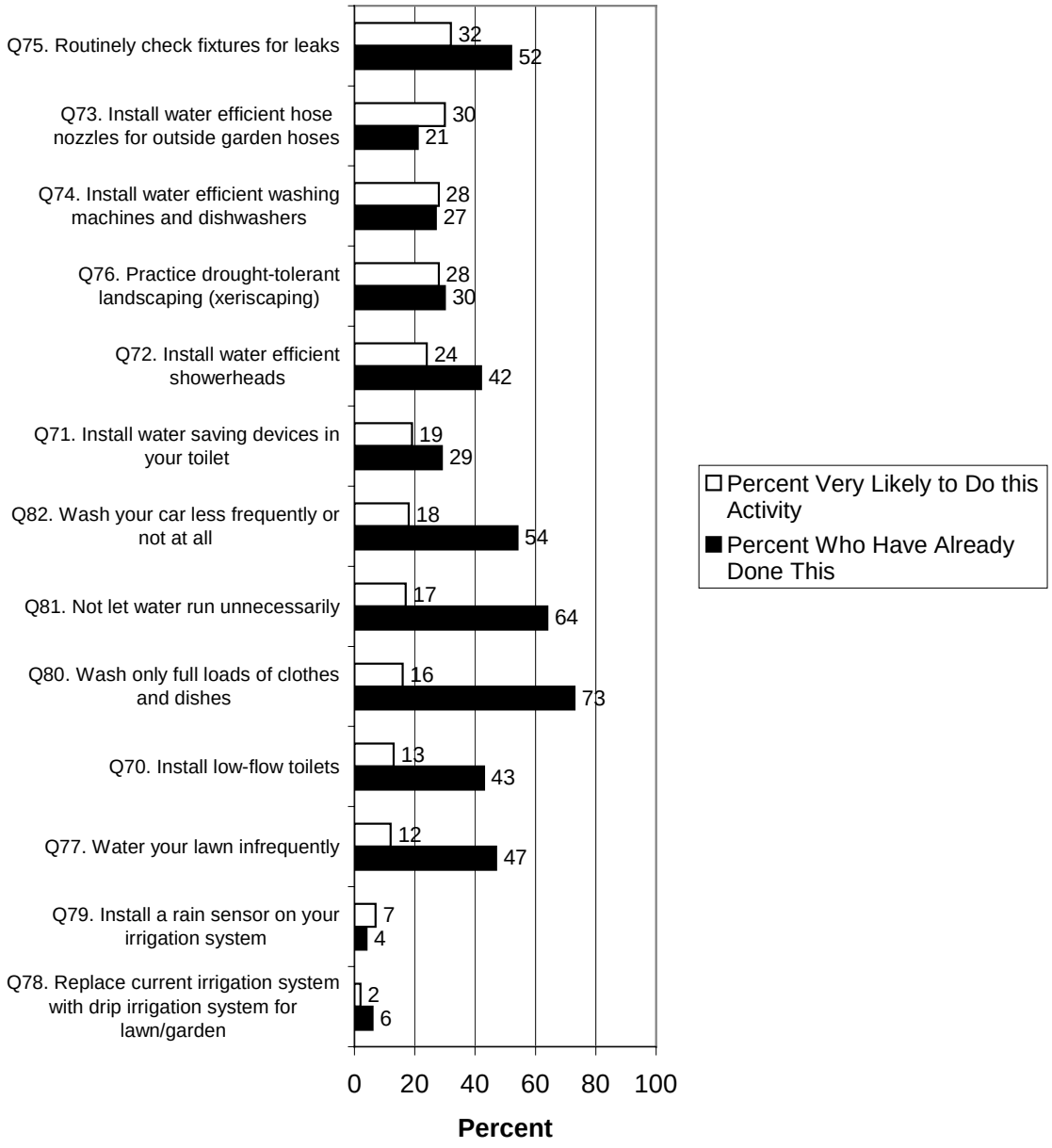
- **As part of the water conservation campaign, Georgia residents that are not already participating in water conservation behaviors should be encouraged to adopt one or two small measures.**

Statistical analyses demonstrated that those individuals who were most likely to participate in each of the 13 water conservation measures had already adopted several other water conservation measures. Therefore, this suggests that once an individual starts conserving water, he/she may be likely to adopt other measures to conserve water. Based on this idea, one element of the water conservation campaign should be to provide as much encouragement as possible to the Georgia public to adopt even one small measure to conserve water. The research showed that Georgia residents were most likely to install water efficient hose nozzles for outside garden hoses (37%), practice drought tolerant landscaping, also known as xeriscaping (34%), routinely check fixtures for leaks (33%), and install water efficient washing machines and dishwashers (30%). Installing water efficient hose nozzles is probably one of the least expensive measures that an individual could take to conserve water. Hose nozzles could be promoted as an example of a simple, inexpensive measure that can be taken and that, when implemented collectively by numerous homeowners, can help save a substantial amount of water. Also, more research should be conducted to investigate further the least expensive water conservation measures so that accurate information can be made available to the public regarding inexpensive measures that can be taken to conserve water. In addition, partnerships between government and businesses such as Home Depot or Lowes could be investigated and developed in order to promote water conserving devices, or to hold workshops for Georgia residents on how to integrate water conservation into their own residence.

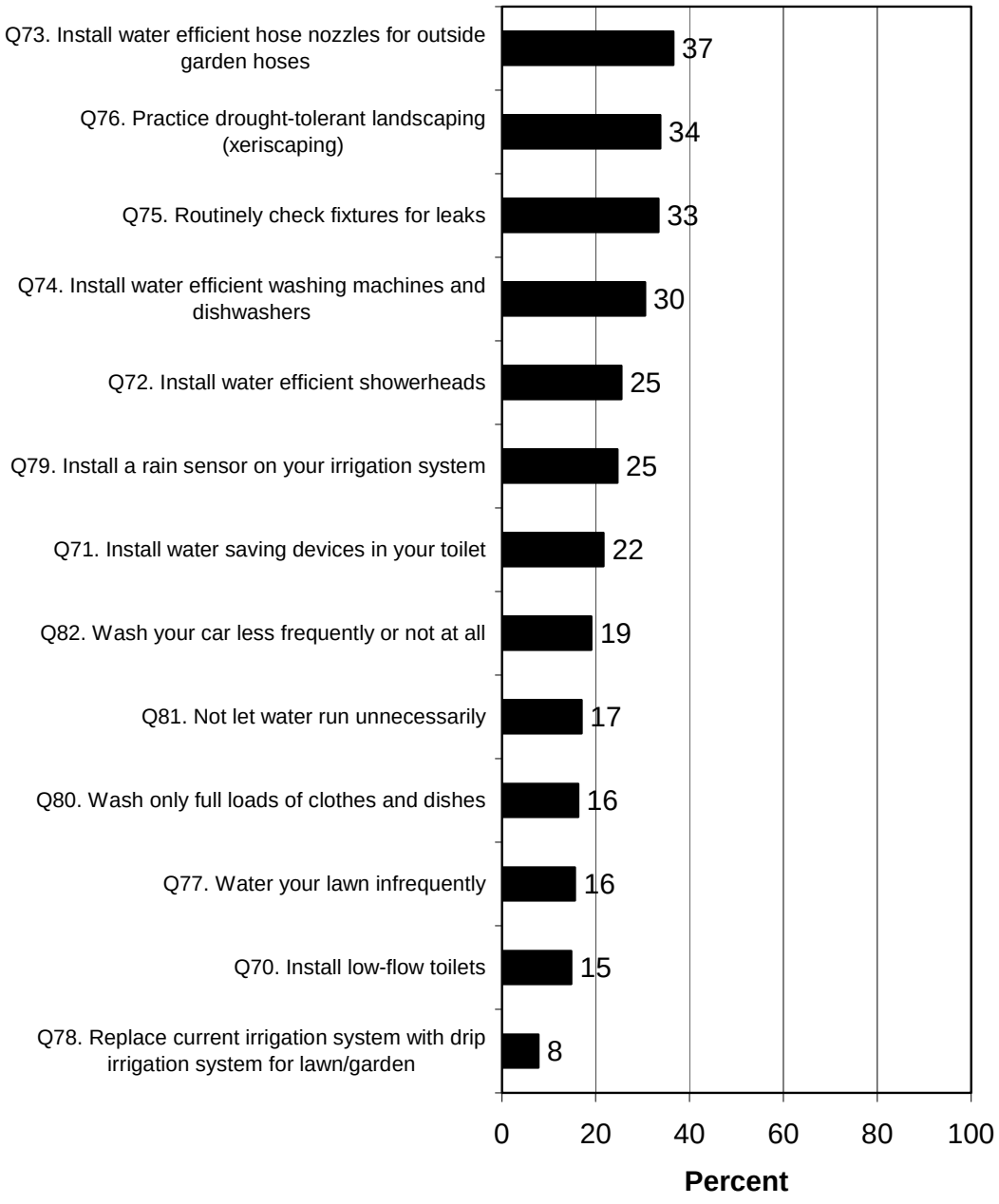
> As quoted in <u>In Search of Excellence</u>: "There are two schools of thought. One says that attitudes (beliefs, policies, proclamations) precede actions – the "Tell, then do" model. The other, clearly more dominant, reverses the logic. The Harvard psychologist Jerome Bruner captures the spirit when he says, "You are more likely to act yourself into feeling than feel yourself into action"……The implications of this line of reasoning are clear:

only if you get people *acting*, even in small ways, they way you want them to, will they come to believe in what they're doing."

Q70-82. Percent who said they would be very likely to do and percent who have already done the following water conservation behaviors.



Q70-82. Percent who said they would be very likely to do the following water conservation efforts. (Excluding those who answered "Not applicable" or "Don't know.")



TARGET MARKETS

The research indicated that there are several important target markets that the water conservation campaign should reach. On the broadest level, the three major target markets include: 1) Georgia residents that are not concerned about water quantity or conservation and are not currently participating in water conservation measures, 2) Georgia residents that are somewhat concerned about water quantity and conservation and have implemented one or two conservation measures and 3) Georgia residents who are very concerned about water quantity and conservation and have already implemented several water conservation measures.

GROUPS THAT ARE ALREADY PARTICIPATING IN WATER CONSERVATION BEHAVIORS

- **Statistical analyses demonstrated that whites and males are already undertaking several water conservation efforts in Georgia.**

Statistical analyses showed that there was a significant, positive correlation between males and whites with having already undertaken a variety of water conservation measures. Part of the water conservation campaign should include reminders to these groups that water conservation measures are effective, and are indeed having a significant impact on the amount of water that is conserved.

GROUPS THAT ARE LIKELY TO PARTICIPATE IN WATER CONSERVATION BEHAVIORS

- **The survey research suggested that females and African-Americans are a potentially important target market for the water conservation campaign in Georgia.**

Statistical analyses showed that there was a significant, positive correlation between females with concern about water quantity in Georgia, and a significant, positive correlation between females and African-Americans with current participation and likelihood to participate in some water conservation behaviors. As a whole, African-Americans were not statistically more likely to have *already* undertaken certain water conservation measures but rather were more *likely* to participate in water conservation measures, thus, making this group an important target market. Based on the statistical analyses, African-Americans were significantly more likely to participate in the following water conservation behaviors:

- Install water efficient washing machines and dishwashers
- Install water efficient showerheads
- Routinely check fixtures for leaks
- Wash the car less frequently or not at all
- Water the lawn infrequently
- Not let water run unnecessarily
- Wash only full loads of clothes and dishes

Females were significantly more likely to participate in the following water conservation behaviors:

- Install water saving devices in the toilet
- Install water efficient showerheads

As the water conservation campaign is developed, the potential receptivity of females and African-Americans to implementing water conservation measures should be kept in mind. An effective water conservation campaign should consider using females and African-Americans in promotional tools and visuals.

- **The results of this study indicated that there is an important geographical component to consider regarding concern about water resources and participation in water conservation behaviors in Georgia.**

Counties in Georgia consistently appeared in the statistical analyses regarding water conservation behaviors that were already undertaken, water conservation behaviors that were likely to be adopted, and overall concern about water quantity and water quality in Georgia. Strong regional differences were also observed in the focus groups. A scale was developed to determine each county's rank regarding concern about water quantity and water quality, the importance of water quantity and water quality, whether or not water conservation actions had already been undertaken, and the likelihood to undertake water conservation actions. A map was produced to show how the counties compared to each other regarding their attitudes toward water resources and water conservation measures (as shown in the Major Findings section of this report).

White shaded counties mean that those counties had a high concern for water quantity and quality, had already undertaken several water conservation measures, and were very likely to undertake water conservation measures. Black shaded counties mean that those counties were less concerned about water quantity and quality, were less likely to have already undertaken water conservation measures, and were less likely to adopt water conservation measures. The grey shaded counties are perhaps of most interest, because the residents of these counties could likely be motivated to act to conserve water. Those individuals living in the white shaded counties should be encouraged to continue to conserve water and perhaps adopt one or two additional conservation measures, while the grey shaded counties should be encouraged to adopt just one small inexpensive measure to start conserving water. The water conservation campaign should also not ignore the black shaded counties even though they appear to have less positive attitudes toward water quantity and water conservation. The residents of these counties need to have their awareness and concern levels raised regarding water quantity and conservation. The residents of these counties should also be encouraged to adopt one small inexpensive measure, and the State should be especially vigilant in portraying an image that other entities such as businesses and the government are also doing their part to conserve water.

The good news is that a majority of the counties are either white or grey, meaning there is a high likelihood that the water conservation campaign will be successful.

TARGET MARKETS ON A COUNTY LEVEL

The interpretations, descriptions, and suggested directions described in the rest of this report indicate the best methods to instill a culture of water conservation for Georgia as a whole. Described below are additional analysis intended to illustrate potential differential treatment of particular counties based on differences in the attitudes within these counties. These analyses complement each other in that the survey data showed how people in the state of Georgia felt about these issues, while the data in this section indicate how residents of the counties may be more or less sensitive to different approaches that can be implemented through the water conservation campaign.

Analyses were performed to compare county census data to the survey data. The significant, positive relationships between the census data and the survey data are summarized below. The results show that many demographic factors within the counties are strongly related to whether a county was likely or unlikely to have or be likely to undertake water conservation measures.

- **More densely populated areas, whether measured by the number of houses or the number of people per square mile, were more likely to prefer information about water resources and conservation in their water bill, to make efforts to conserve water due to concerns about water restrictions, and to conserve water when presented with the idea that they are part of a collective group.**

- **As a county's median age increased it was more likely that people in that county were *less* likely to install efficient showerheads, conserve water to protect wildlife and fisheries, and replace irrigation systems with drip systems.**

- **Counties with higher median incomes were more likely to respond, by conserving water, to messages that convey personal health issues. These same, wealthier counties, also had a greater likelihood of feeling they had the ability to make a difference in water conservation. However, they were also more likely to not conserve water due to their perception of the lack of government involvement.**

- **County racial makeup also played a part in water-related beliefs, actions, and intents. Counties with greater proportions of whites and Hispanics were less likely to currently be making efforts to conserve water. Counties with higher proportions of whites were more likely to have installed low-flow toilets and wash only full loads. Most other proportions of county-races that were non-white, and/or non-Hispanic races showed a higher propensity for supporting or intending to implement conservation related behaviors.**

Suggested Marketing Actions on a County Basis

Based on the county-specific information indicated above, differential marketing for counties should be considered as part of an effective water conservation campaign in Georgia. However, what should be kept in mind is that if counties are targeted individually, these efforts should still fall under an overall umbrella campaign to unify the message of water conservation across the State. Counties with higher population and housing densities should be contacted by water bills, counties with higher percentages of whites should be encouraged to continue those conservation efforts they may already do and adopt additional conservation measures. Those counties with higher proportions of African-Americans should be encouraged to act on their likelihood to participate in conservation efforts. Counties with higher proportions of older residents, where there is especially high resistance to action, should be aided through incentives or helped with the installation of water conservation measures.

Water-saving devices are generally inexpensive, and may be subsidized and/or made more appealing by making them easily available. The installation of water-saving devices can be encouraged through convincing arguments about water-bill savings, along with their cheap and easy installation. An even more powerful argument can be made if government agencies that have saved money through installation are modeled. This will help allay hesitation to conserve water due to the impression of low government participation in water conservation.

In the end, county-by-county marketing would seem best targeted to, *maintain*, *enable*, and *model* water conservation. The idea would be to *maintain* those persons who have already implemented water conservation actions, to *enable* those who are likely to participate by making implementation easy (and to enable those who will not participate by helping them participate in some manner), and to use Georgia governmental offices to *model* appropriate water saving behaviors and indicate the water and financial (or projected financial) savings of using those methods in government offices.

INCENTIVES TO CONSERVE WATER

- **An effective water conservation campaign will educate the Georgia public about the link between water quantity, water quality, and human well-being.**

The research showed that water quantity and water quality were important issues to the Georgia public. Also, the top reasons why respondents were concerned about water quality in Georgia related to effects on human well-being: the top three answers were drinking water (46% said this was a reason they were concerned about water quality), own health/safety (27%), and public healthy/safety (23%). Answers relating to fish and wildlife habitat and the environment were lower in ranking. When respondents were asked why they were concerned about water quantity, concern for the environment (9%) also had a much lower ranking than other reasons.

The water conservation campaign should include promotion of the links between the importance of water conservation, water quality effects, and health-related issues. The survey research suggested that the Georgia public already makes the connection between poor water quality and human well-being, including effects on drinking water. Drinking water and effects on human well-being are clearly reasons why the Georgia public is concerned about water quality and are therefore likely motivators for taking measures to help improve water quality. Since water quality resonated more strongly than water quantity with the Georgia public, the water conservation campaign may be able to increase the concern about water quantity by relating this issue to water quality and the effects on human well-being. For example, according to the Environmental Protection Agency, reduction of streamflow (such as from reservoir construction) has a myriad of effects, including effects on water-based recreation, aquifer recharge, maintaining water delivery to downstream users, and sediment flushing (http://www.epa.gov/ow/you/chap2.html), all of which ultimately affects water quality. Saving water through improved efficiency can lessen the need to withdraw ground or surface water supplies. Conserving water decreases the need to impound or otherwise regulate the natural flow of streams, thus preserving free flow to retain the value of stream and river systems. Scientific facts such as these and images could be presented as well as the links between water quantity, water quality, and health-related issues in a manner that is simple and understandable to the Georgia public.

- **The survey research suggested that the Georgia public will be motivated to conserve water if they know how it personally affects them, especially regarding their own well-being and the well-being of their children.**

The survey asked respondents about 21 factors that would encourage them to conserve water. The following were ranked markedly higher than other items regarding the incentives that would make respondents very likely to adopt conservation practices or conserve water:

- Knowing the health of the their children was at stake (91%),
- Knowing their personal health was at stake (89%),
- Knowing a severe water supply crisis could happen during their lifetime (88%),
- Knowing they could help protect the quality of life for future generations (85%),

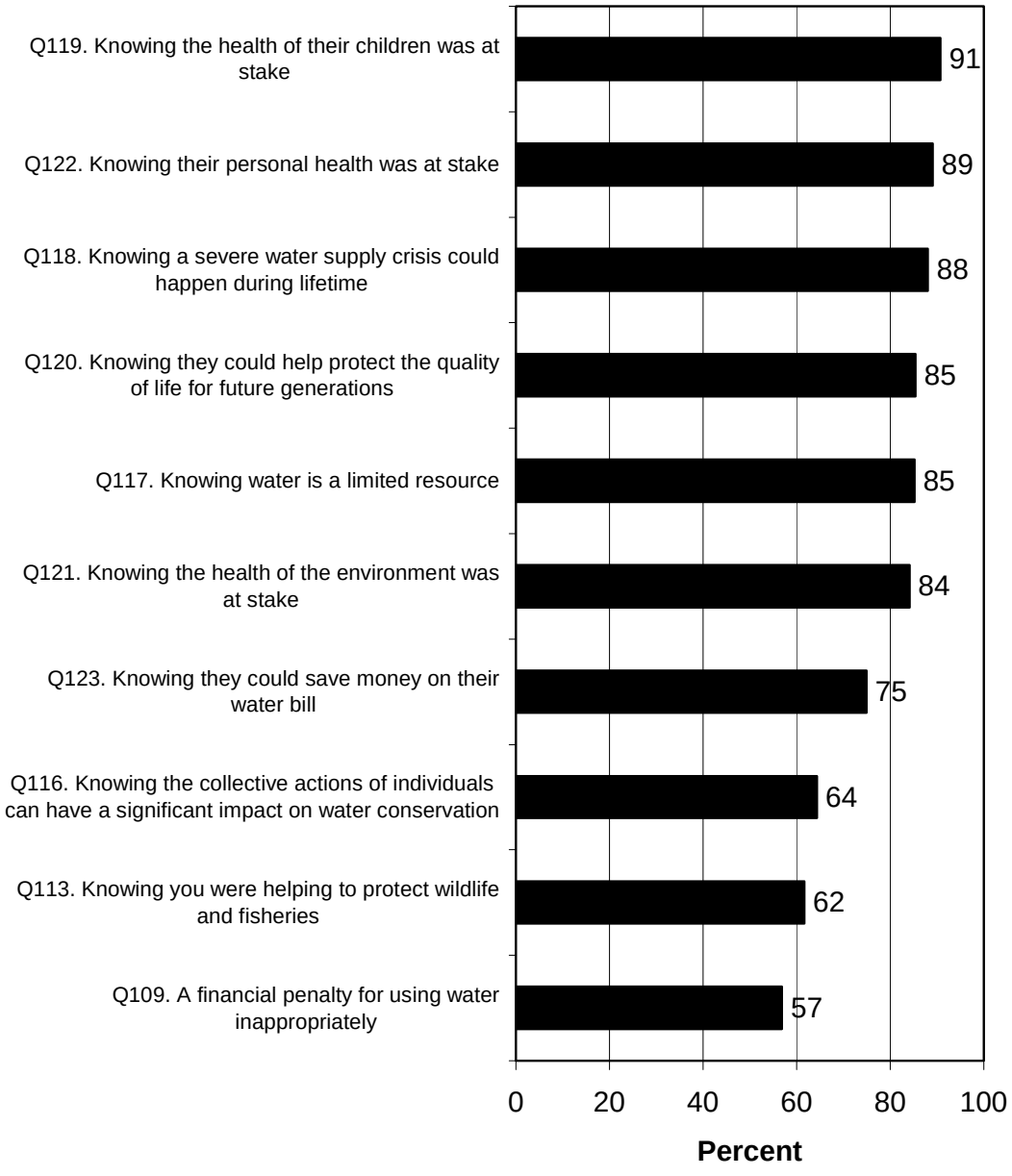
- Knowing water is a limited resource (85%),
- Knowing the health of the environment was at stake (84%),
- Knowing they could save money on their water bill (75%).

The survey research suggested that one of the major themes that resonated with the Georgia public in terms of making people very likely to adopt water conservation practices was knowing that if they do not conserve water, they will be *personally affected*. Knowing that they could be personally affected by the well-being of their children, their own well-being, a water supply crisis, and water savings on their water bill supported the idea that the Georgia public was motivated to act to conserve water on their own behalf. The survey research suggested that the water conservation campaign should use messages that tie in water conservation and how it affects individuals personally, especially regarding human well-being. Developing messages with themes related to human well-being is also supported by survey research that showed that the Georgia public was concerned about water quality for safety reasons and reasons related to human well-being.

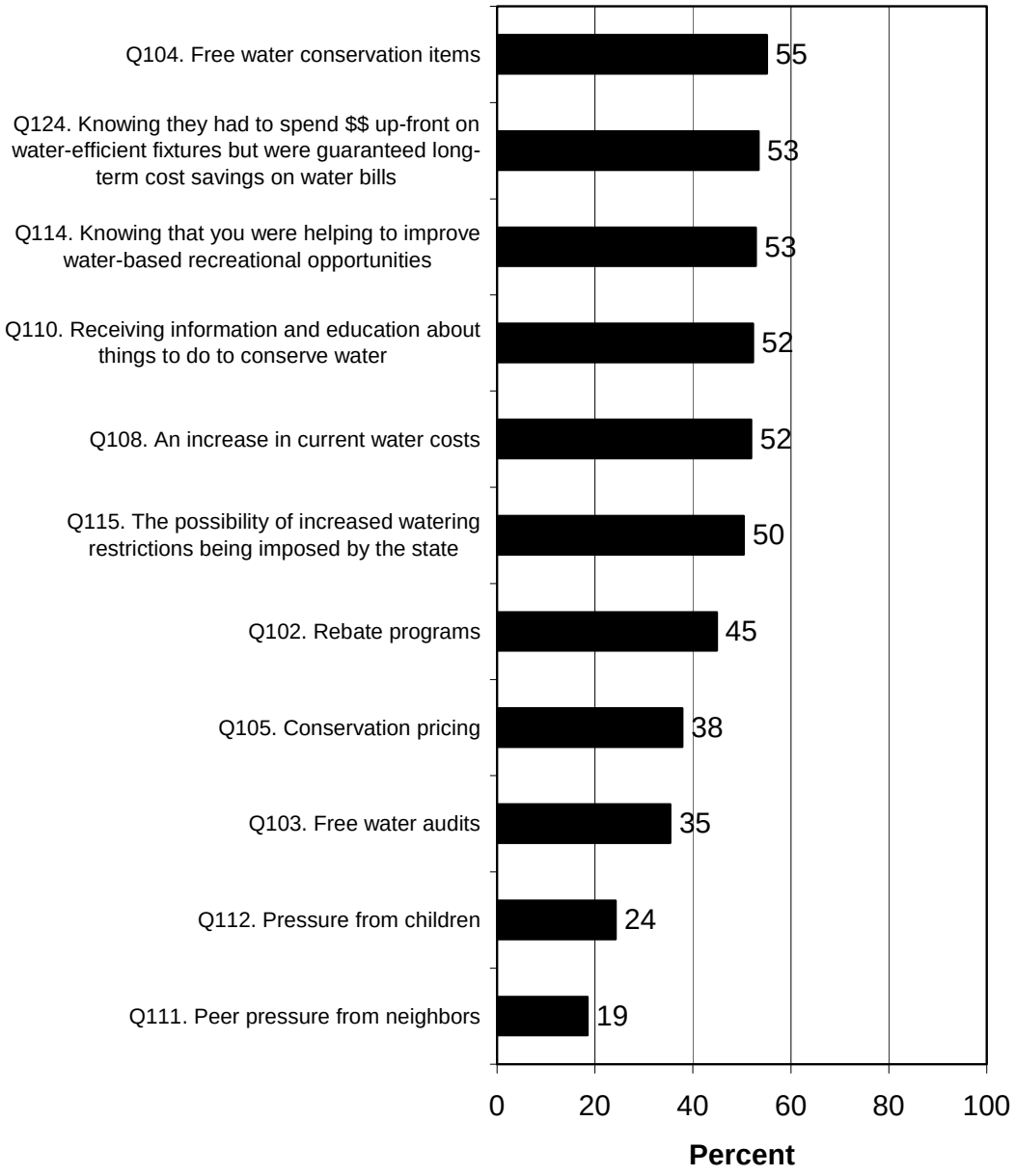
Another major theme that emerged from the survey research was that the Georgia public was motivated to conserve water for altruistic reasons: for future generations and the environment, as shown above. Even though the survey research showed that Georgia residents are likely to respond to a water conservation effort if they know how it personally affects them, the survey research also showed that Georgia residents may respond to a message that advocates water conservation for the sake of future generations and the environment.

The third major theme that emerged was a desire to save money on water bills. Seventy-five percent of Georgia residents said that they would be very likely to adopt water conservation practices or conserve water if they knew they could save money on their water bill. Once again, this theme relates to how a person is personally affected by water conservation; they can save money every month on their water bill.

Q102-124. Percent who said the following would make them very likely to adopt water conservation practices or conserve water. Part 1.



Q102-124. Percent who said the following would make them very likely to adopt water conservation practices or conserve water. Part 2.

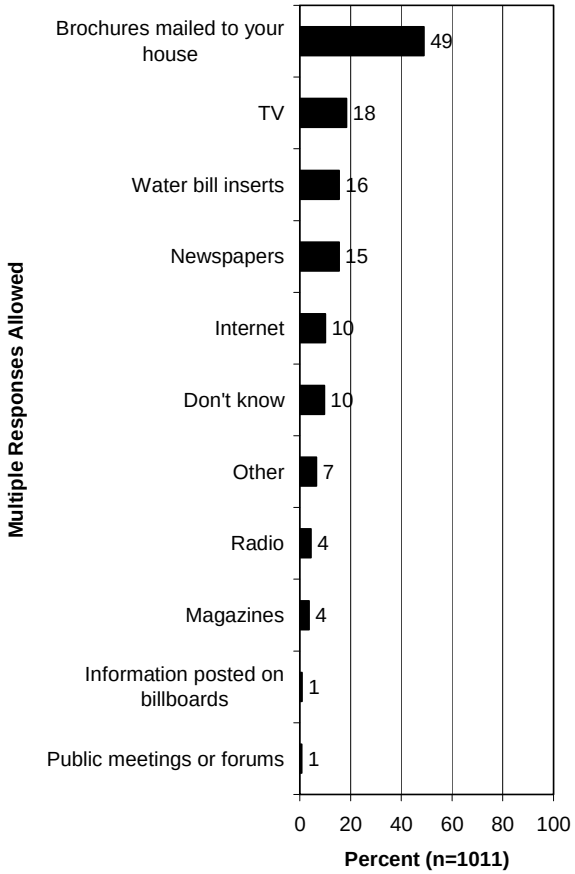


INFORMATION DISTRIBUTION

- **The top three methods through which the Georgia public preferred to receive information about water conservation were brochures mailed to their house, television, and water bill inserts.**

In the general population survey, respondents most commonly said that they preferred to receive information about things they can do to conserve water through brochures mailed to their house (49%). The second most common response was television (18%). Water bill inserts had 16% saying it was a preferred method of receiving information. An effective water conservation campaign will use a combination of promotional methods to get information out to Georgia residents. Residents already receive water bills, so inserts in the water bills would likely be less costly in terms of mailing, as well as logical. Although brochures and direct mail may be more expensive, perhaps brochures could be mailed out less frequently and then supplemented by more frequent information distributed along with water bills.

Q126. What are your preferred methods of receiving information about water resources and things you can do to conserve water?



MESSAGE AND CAMPAIGN DEVELOPMENT

- **A major umbrella effort is necessary to increase awareness and concern about water quantity and water conservation in Georgia. All water conservation information, education, and outreach efforts should be developed and coordinated so that they fall under the umbrella campaign. This is especially important for consistency and to ensure that the campaign is widely recognized in Georgia.**

The survey research and focus group findings suggested that several key elements should be incorporated in and used as a foundation for the water conservation campaign. Although different strategies will be required for different target audiences, a major umbrella effort to increase concern and awareness about water quantity and water conservation is necessary. *This umbrella effort would present itself in the form of a water conservation theme that ties the statewide efforts together, including the efforts of various partner organizations throughout Georgia. One overall message must be used to secure widespread recognition of the water conservation campaign among the broadest audience.*

In order for the water conservation campaign to have any impact the message must be accompanied by specific attempts to address the constraints to water conservation that were discussed earlier in this report. Addressing the constraints are just as important, if not more important than simply promoting a water conservation message. The overall theme will tie all water conservation efforts together and increase visibility of the campaign, thus overcoming the aforementioned constraints, as well as encouraging action and long-term behavioral changes among Georgia residents. The research indicated that the water conservation campaign will be successful if it incorporates the following:

- A water conservation message that specifically encourages people to act by saving water.
- Promotes the links between water quantity/water conservation and human well-being.
- Provides numerous water conservation tips to the public rather than focusing on only one or two. (Note that specific water conservation efforts can and should be promoted such as lists that contain numerous water saving tips but not in the overall message of the campaign.)

In addition to these elements, the water conservation campaign must incorporate the following:

- The public needs assurance that the State is doing its part to conserve water and that other entities are also doing their part (agriculture, business, etc.).
- The public needs feedback on whether their water conservation efforts are working. This will reinforce the water conservation messages and promote long-term behavioral changes.

- Georgia residents must be educated regarding how significant residential water use can be.
- The public needs to be provided with simple, readily available information on water conservation and measures that can be taken to conserve water. The public needs to be reminded about water conservation at regular intervals.
- Encouragement needs to be provided to those individuals who are already taking water conservation measures – especially to encourage those individuals to implement a few more measures in addition to what they are already doing.
- Georgia residents that have not taken any measures to conserve water should be encouraged to adopt one small, inexpensive measure to get them initiated into the water conservation process.

MESSAGE THEMES

Several water conservation messages were tested in the post-survey focus groups. The messages that resonated highly had several elements in common. For example, a majority of focus group participants responded positively to messages that were short and declarative, encouraging them to act. The focus group participants preferred messages instructing them to act by saving water rather than messages that were less action-oriented. Most of the focus group participants preferred the word, "save" to "conserve" because they felt that "save" implied a greater sense of urgency. Save may also be more effective because it is more closely connected to human well-being than the word conserve, which is often associated with the environment. The focus group participants felt that messages that conveyed a sense of *urgency* but not *emergency* would motivate them to conserve water. Overall, the positive messages resonated much higher than the negative messages.

One message that tested highly was "Save Georgia Water – Every Drop Counts." Although this message may be successful in the short-term, this message may not instill an idea of saving water long-term. Also, this message may actually discourage some Georgia residents over time because "saving every drop of water" is essentially impossible.

Other messages that tested highly were: "Water: Use it Wisely," "Georgia Water – Use it Wisely," "Save Water and Money in Your Home," "Save Water: Save Life," and "Water Smart: Save Water – Save Time – Save Money."

Instead of "Water Smart," the focus group participants suggested using the terminology, "Be Water Smart." Several individuals were not convinced that saving water could also save time, and were interested in more information about this.

Although at the beginning of the discussions, many focus group participants said that they liked the idea of having the word Georgia in the message theme, this attitude changed by the end of the discussions. Most of the focus group participants at the end of the discussions felt that since water conservation should be a universal concern, adding the word Georgia would make the

message too narrow. In addition, several individuals mentioned that the disagreement with neighboring states over water rights came to mind when they saw Georgia in the message theme.

The Water – Use it Wisely campaign (http://www.wateruseitwisely.com) is a water conservation campaign that began in the southwest United States and has grown into a national effort. The developers of the campaign have created numerous promotional materials including brochures, posters, public service announcements, television ads, watering guides, and numerous other materials that include many water conservation tips for the public. The developers of the campaign work with interested parties to customize promotional materials to their specific needs. Since this message tested fairly high with focus group participants, some of the materials may be able to be integrated in Georgia's water conservation campaign.

The research suggested that, "Water, Save it for Life" and similar themes (such as Save Life: Save Water, etc.) should be considered for the water conservation campaign. This message touches on the idea of linking water quantity to human well-being, which was demonstrated to be important to Georgia residents as a motivating factor to conserve water. The survey research demonstrated that residents of Georgia responded positively to water conservation efforts when they knew their own well-being was at stake as well as their children's health. In addition, as the survey research demonstrated, conserving water for the sake of the environment was a close second behind the health issue as a motivating factor. "Save it for Life" also touches on this concern for the environment, because it captures the altruistic concern for life in general, as opposed to just the personal aspect. "Life" is a universally appealing word, and several focus group participants commented that the word was appropriate in initiating concern about their own life/health, their children's life/health, or the environment's life/health. "Save it for Life" also implies saving water for a lifetime. Since several different messages resonated highly in the focus groups, the water conservation campaign could use different combinations of the words. For example, other possible variations include:

- Water Use it Wisely – Save it for Life
- Water – Use it Wisely for Life
- Save Water for Life
- Save Water for Life, Every Drop Counts
- Be Water Smart: Save Water for Life

An Internet search was conducted to ensure that the theme, "Water, Save it for Life" was not already trademarked. A similar message was discovered on the Bonita Springs Utilities website (http://69.0.212.254/water_resources/flash.htm); however it does not appear to be trademarked.

Overall, the post-survey focus group findings and survey research suggested that a statewide water conservation campaign in Georgia can and will be successful if a concerted effort is made to address the constraints to water conservation among the Georgia public and that an umbrella message theme is used to coordinate and unify the effort. This is not to say that messages could not be tailored to individual partners contributing to the overall effort, such as businesses, specific counties or regions in Georgia or other entities, *but rather the overall theme must be short, consistent, repeated over the long-term and include the elements previously discussed. It is very important for the campaign to promote a single message theme, rather than multiple*

messages so that the campaign will function as a unified whole. The research presented in this report can be used to help instill a culture of water conservation in Georgia, both in the short term and the years to come.

COMMUNICATIONS EFFORTS

Overall, the research suggested that Georgia residents can and will be motivated to adopt certain water conservation measures. As the water conservation campaign is developed, all of the partners in this effort must keep in mind that certain challenges will develop. During the past fifteen years, Responsive Management has had the opportunity to evaluate numerous communications and outreach efforts. Based on these evaluations, Responsive Management has identified some of the challenges that may arise during implementation of communications plans. Knowing these challenges ahead of time will enable the water conservation campaign to be as effective as possible:

- Appropriate and adequate financial and personnel resources must be allocated. Many communications programs and efforts are woefully underfunded from the start.
- Efforts must be directly linked to Georgia's highest conservation priorities.
- Biologists, administrators, and other partners must be directly involved in setting communications priorities and goals.
- Specific communications goals and objectives must be specified or committed to writing.
- Target audiences need to be identified. Communications efforts sometimes attempt to be all things to all people.
- Messages should be simple and not complex.
- Appropriate media need to be selected with the specific target audience in mind.
- There should be less emphasis on communications initiative *outputs* as opposed to *outcomes.*
- Efforts and initiatives must be implemented long-term. Efforts need time to work and sometimes personnel get bored of the implementation phase of repeating the same message over and over. There is often too much emphasis on product and program development and not enough on implementation.
- Efforts must be evaluated quantitatively in terms of outcomes and specified goals and objectives.

On the other hand, Responsive Management has also identified the elements of successful communications and outreach programs. Following are the steps that have lead to successful conservation communications and outreach initiatives. If the following steps are implemented in the water conservation campaign, a water conservation culture can and will be instilled in the state of Georgia.

- Step 1: *Identify and Prioritize Issues.* The first step in information, education, and communications planning is the challenging task of identifying and prioritizing the issues most important to the organization regarding conservation.
- Step 2: *Identify and Prioritize Information, Education, and Communications Issues.* The next step is to understand and identify the information, education, and communications goals and priorities of organization staff.
- Step 3: *Define Goals and Set Measurable Objectives.* The next step is to define specific goals and set measurable objectives. Goals define the management philosophy within which objectives will be pursued. They are general and often

lofty statements about the outcome desired for a program or initiative. Objectives are directed toward the accomplishment of goals and are specific and measurable statements of what, when, and how much will be achieved.

- Step 4: *Identify, Define, and Target Publics.* To develop effective and successful communications programs, managers need to identify and classify different user groups and discern their socio-demographic characteristics.
- Step 5: *Understand the Audience.* Understanding how people relate to conservation issues is an important foundation upon which communications efforts can be built and can determine how an organization approaches target groups. Three major aspects of understanding how people relate to conservation and other issues include understanding public opinion, attitudes, and level of awareness or readiness stage.
- Step 6: *Identify, Define, and Test the Message.* Research clearly indicates that some messages will resonate with the public while others will not. The final steps in marketing, publicizing, and advertising the communications product, program, or service are to choose the appeal(s) or motivator, and develop and pretest the product, program, or service. Several considerations when developing projects and programs to create positive actions and behaviors include: appealing to people's emotions, creating programs that are locally based, making programs convenient for people, and reminding people of results and benefits. The final step is to pretest and evaluate the product, program, or service. Pretest programs, products, and messages on the target audience for which they have been designed. Incorporate feedback into the program. Repeat the exercise until the program produces the desired results.
- Step 7: *Consider Demographic, Social, Economic, and Political Trends.* Identifying and incorporating changing societal factors into communications programs allows organizations to become proactive, rather than reactive, to external forces. Information on societal makeup and change also can be used in conjunction with market segmentation, target marketing, and target group segmentation.
- Step 8: *Getting the Message Across: A Marketing and Advertising Approach.* The next step in bringing an organization's message or program to target groups is to select the appropriate medium. The decision should be based on the target group – where they live; where, when and how often the organization wants to reach them; and how much effective advertising costs.
- Step 9: *Internal Considerations.* There are many internal issues that information, education, and communications specialists should be aware of that can make the difference between successful and unsuccessful programs. For example, communications efforts will not work if there are not appropriate resources committed to the effort. Internal awareness and acceptance must be created as well.
- Step 10: *Project Evaluation.* Evaluation is one of the most important components of a communications program because it will answer the fundamental question, "Did the program work?" Evaluation of information, education, and communications programs should be based on the goals and objectives initially set.

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APPENDICES

Appendix A: Methodology

Phase 1 and 3: Qualitative Analysis

Pre-survey and Post-survey Focus Groups

The first phase of this study included three pre-survey focus groups that were conducted with the Georgia public to better understand Georgia residents' attitudes and opinions toward water resource issues in Georgia, Georgia residents' willingness to participate in water conservation measures, and incentives and barriers to water conservation in Georgia. These focus groups were conducted in May 2002 in Savannah, Albany, and Atlanta.

The third phase of this study included four post-survey focus groups that were conducted with the Georgia public to better understand Georgia residents' opinions and attitudes toward specific findings from the quantitative survey as well as to test and refine messages related to water conservation to be used in the statewide water conservation campaign. The focus groups were conducted in October 2003 in Savannah, Atlanta, Augusta and Columbus.

Focus groups are group-depth interviews in which a small group of participants (8 to 12) are interviewed at length about select subjects. The use of focus groups is an accepted research technique for qualitative explorations of attitudes, opinions, perceptions, motivations, constraints, participation, and behaviors. The use of focus groups provides researchers with insights, new hypotheses, and understanding through the process of interaction. An experienced, trained moderator lead the focus groups, as unobtrusively as possible, through a discussion guide and looked for new insights into why individuals felt the way they did about particular issues. The moderator kept the discussion within design parameters without exerting a strong influence on the discussion content. A discussion guide helped ensure consistency in data collection. Responsive Management developed the discussion guide based on its previous knowledge of literature in the field and through input provided by the GDNR, Pollution Prevention Assistance Division. The focus groups were recorded on audio tape for further analysis and were used for developing a qualitative understanding of the Georgia public's attitudes toward water resource issues and the motivational messages to which they would respond in a water conservation campaign. The pre-survey focus groups were also used in developing the telephone survey instrument.

Phase 2: Quantitative Analysis

Telephone Survey

The second phase of this study involved a quantitative telephone survey of Georgia residents. In the telephone survey, 1,011 completed interviews were obtained with a sample error of plus or minus 3.08 percentage points. Telephones were selected as the preferred sampling medium

because of the universality of telephone ownership. In addition, a central polling site at the Responsive Management office allowed for rigorous quality control over the interviews and data collection. Responsive Management maintains its own in-house telephone interviewing facilities. These facilities are staffed by interviewers with experience conducting computer-assisted telephone interviews on the subjects of public attitudes toward natural resources. The telephone survey questionnaire was developed cooperatively by Responsive Management and the GDNR, Pollution Prevention Assistance Division. Responsive Management conducted a pre-test of the questionnaire, and revisions were made to the questionnaire based on the pre-test.

To ensure that the telephone survey data collected were of the highest quality, Responsive Management employed interviewers who have been trained according to the standards established by the Council of American Survey Research Organizations. Methods of instruction included lecture and role-playing. The Survey Center Managers conducted project briefings with the interviewers prior to the administration of the survey. Interviewers were instructed on the type of study, study goals and objectives, handling of survey questions, interview length, termination points and qualifiers for participation, interviewer instructions within the survey instrument, reading of the survey instrument, skip patterns, and probing and clarifying techniques necessary for specific questions on the survey instrument. The Survey Center Managers randomly monitored telephone workstations without the interviewers' knowledge to evaluate the performance of each interviewer. After the surveys were obtained by the interviewers, the Survey Center Managers and/or statisticians edited each completed survey to ensure clarity and completeness.

Interviews were conducted Monday through Friday from 9:00 a.m. to 9:00 p.m., Saturday noon to 6:00 p.m., and Sunday from 3:00 p.m. to 7:00 p.m. A five-callback design was used to maintain the representative ness of the sample, to avoid bias toward people easy to reach by telephone, and to provide an equal opportunity for all potential respondents to participate. When a respondent could not be reached on the first call, subsequent calls were placed on different days of the week and at different times of the day. The survey was conducted in August 2003.

Throughout the reports, findings of the general population telephone survey are reported at a 95% confidence interval. For the entire sample of Georgia residents, the sampling error is at most plus or minus 3.08 percentage points. This means that if the survey were conducted 100 times on different samples that were selected in the same way, the findings of 95 out of the 100 surveys would fall within plus or minus 3.08% of each other. Sampling error was calculated using the formula described below, with a sample size of 1,011 and a population size of 6.1 million (residents 18 years old and older).

Sampling error equation:

$$B = \left(\sqrt{\frac{\frac{N_p(.25)}{N_s} - .25}{N_p - 1}} \right)(1.96)$$

Where: B = maximum sampling error (as decimal)
N_P = population size (e.g., total number of residents)
N_S = sample size

Derived from formula: p. 206 in Dolman, D. A. 2000. *Mail and Internet Surveys*. John Wiley & Sons, NY.

Note: This is a simplified version of the formula that calculates the maximum sampling error using a 50:50 split (the most conservative calculation because a 50:50 split would give maximum variation).

Note that some sums (e.g., when "very likely" and "somewhat likely" are summed to determine the total percentage answering "likely") may appear to be off by as much as 1 or 2 percentage points, and some graphs may not sum to 100%, because of rounding.

Data Analysis

The software used for data collection was Questionnaire Programming Language 4.1 (QPL). The survey data were entered into the computer as each interview was being conducted, eliminating manual data entry after the completion of the survey and the concomitant data entry errors that may occur with manual data entry. The survey instrument was programmed so that QPL branched, coded, and substituted phrases in the survey based on previous responses to ensure the integrity and consistency of the data collection. The analysis of data was performed using Statistical Package for the Social Sciences (SPSS) software. SPSS is a software package that is specifically designed for quantitative statistical analyses.

For this report, a nonparametric analysis examined how the various responses to specific survey questions related to behavioral, attitudinal, and demographic characteristics. Responses for selected questions were tested by means of z-scores for relationships to behavioral, attitudinal, and demographic characteristics. The analysis examined approximately 500 variables regarding characteristics of the respondents. A positive z-score means that the response and characteristic are positively related; a negative z-score means that the response and characteristic are negatively related.

The demographic characteristics examined include:

- gender,
- age,
- ethnicity,
- income level,
- education level,
- profession,
- location of residence—the character of the location (i.e., rural, small city or town, suburban, urban, or large city), and
- attitudes toward water quality, quantity, and conservation.