



# AIR & WASTE MANAGEMENT ASSOCIATION

Georgia Chapter



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Don't miss the 2008 Southern Section A&WMA Annual Meeting & Technical Conference August 5-8, 2008 At the Beau Rivage Resort in Biloxi, MS.



## Why Global Climate Change is Good for Air Quality (It's Not What You Think)

Michael E. Chang: Sr. Research Scientist, School of Earth and Atmospheric Sciences, Georgia Institute of Technology

The hottest topic in environmental circles today is global warming: the accumulation of greenhouse gases since the dawn of the industrial revolution that has disrupted the earth's energy balance and is responsible for an increase in global average temperatures, regional changes in precipitation, rising sea levels, and diminishing polar ice. Subsequently, these changes have been connected to drought, hurricanes, polar bear endangerment, and all manner of other consequences, with more threats daily being scientifically linked – including air pollution.

With air quality already at its worst during the heated summer months

here in Georgia, the prospects of longer, hotter summers suggests global warming will only exasperate our smog problem. Recent climate and air quality modeling conducted at Georgia Tech suggests that increased temperatures in the Southeast by 2050 could lead to a 10% increase in ground-level ozone concentrations above and beyond what might be normally experienced if Georgia's climate were not changing. That's a pretty hefty penalty for an area that has struggled for 30 years to attain the National Ambient Air Quality Standard (NAAQS) for ozone and is running out of regulatory options. It is also daunting in light of the recent tightening of the ozone NAAQS. That

10% penalty looks even worse if one believes that the EPA's scientific advisors having recommended an even tighter standard than the one that the agency promulgated, foreshadows the NAAQS likely being further strengthened in the next round of review. For the regulated community then, the future would seem to look onerous. Global warming will make attaining or maintaining any air quality standard harder at the same time that tougher air quality standards demand more regulatory controls. All this aside, though, I am of the mindset that global warming will lead to better air quality at lower cost than at any other time in the history of

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## Gold Mine In My Backyard

By Mack Belue

My 20-20 hindsight keeps getting better even after retiring as the Director of the Dalton-Whitfield Regional Solid Waste Authority. For 25 years I, along with my SWANA (Solid Waste Association of North America) colleagues, worked diligently to bring our communities' solid waste facilities into compliance with Federal and State regulations. Now, the facilities that were once NIMBYS (not in my backyard) are becoming assets with tremendous value from

an environmental and financial standpoint.

The most important value is the protection of human health and the environment. This is a 24-7 job that must be the number one priority. The development of a solid waste landfill into a totally integrated waste management system now includes recycling, which once operated at a loss has now become a break-even or revenue producer in certain com-

munities. Now, in Georgia there is another benefit from solid waste landfills: "Landfill GAS". The communities of Dekalb County, City of Lagrange, and Dalton-Whitfield currently operate systems to recover and use the methane gas generated from their closed and operating landfills to our benefit of this renewable energy source. Bill Clistor of Golder Associates spent countless hours educating me on the

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## Water Conservation and the Carpet

### Werner Braun: President, Carpet and Rug Institute



Although the enormity of the Earth's seas creates a sense of limitless supply, the amount of water usable for human consumption is small. Only 2.8 percent of the Earth's water is fresh, including 2.14 percent that is locked up in polar ice caps and glaciers. Of the remaining 0.66 percent, only about 0.03 percent is available for human consumption.

Given the nature of the carpet industry and our product, water conservation is necessary to help ensure the supply of water remains sufficient. Finishing and dyeing of carpet traditionally uses a large

quantity of water. Environmental responsibility has resulted in companies finding ways to consistently reduce water usage. Significant total reductions have been reported over the years. Over the last dozen years, water consumption at the mill level has decreased by 46 percent.

Since 1995 alone, mills have reduced the amount of water used by almost 54 percent. Innovation and conservation has allowed some mills the ability to save as much as 22,000 gallons of water per day to process each 1,000 square yards of carpet. From 1997 to 2006, the

industry on average reduced the amount of water needed per square yard of carpet from 15.6 gallons per square yard to 6.9 gallons per square yard.

With the majority of the carpet industry based in northwest Georgia where there has been a documented drought for most of the last five years, the carpet industry has increased its efforts to conserve water. Dalton Utilities reports that the average industrial use of water has gone from 18.6 millions gallon per day in 1997 to 13.9 millions per gallon in 2007 with the carpet industry

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## The Benefits of Networking Between Generations

### Benjamin Sessions: Trinity Consultants



In recent years, large professional organizations have expressed concern over the trend of senior members leaving in large numbers.

This exodus is apparently due to the retirement of an increasing number of Baby Boomers. These older members provided a stable base of support to volunteer organizations for many years. Often times, these individuals are heavily involved in professional volunteer organizations that enhance their skill sets through training and *networking*. Aside from the social aspect of membership in a professional organization, these aforementioned benefits primarily sustain upward mobility in a career, which becomes unimportant after retirement (retired members may turn to groups that have less professional importance to stay active).

The decline of older members

staying active in these organizations presents a new challenge. The younger generations (which would supplement membership)



entering the workforce may not fully realize the benefits of joining a professional volunteer organization. This younger group, sometimes referred to as the "Millennial (Millennials)" or "Y" generation (with a tail end of generation X) and is generally classified as early thirties and below. This group has very differ-

ent expectations for work and activities that revolve around work.

In comparison, the Baby Boomers have traditionally looked at their career as something that defines them. Their career does/did offer them a sense of direction as they worked very hard to change the shape of the world. The guiding principles for Baby Boomers have been competition, visibility, upward mobility, and success. This could be one of the reasons that many Baby Boomers realized the potential of professional organizations and the benefits of networking. In contrast, this currently seems to be less apparent to the Millennial generation. The Millennials have grown up in the extremely economically stable "era of choice" and have enjoyed such benefits as

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## Why Global Climate Change is Good for Air

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the Clean Air Act. The reason? Time.

Heretofore, solutions to air quality problems have been packaged in relatively short frames of time. Marginal ozone nonattainment areas were required to meet the standard in three years. Moderate nonattainment areas had three years to develop a plan, then three more years to implement it. Serious areas like Atlanta were given six years to implement their plan. At the extreme classification, the Los Angeles area was granted 20 years to fix its air quality problems. Forget for the moment the question of whether or not these plans and subsequent actions were effective, and focus only on the time scales. For the issue of global warming and the changes that will be required to address it, no one is supposing that even in 20 years we will have completed the job. Indeed in 20 years, we only will be beginning the job. In the world of air quality, actions today are rewarded immediately. In the world of climate change, actions today begin paying dividends now, but the full benefit is not realized for, perhaps, 100 years or more, and in that time, more actions are needed. The implication then is that the issue of climate change will require a longer planning and implementation horizon than the "air community" has ever been afforded. So instead of 3, 5, or 10 year air plans, we are more likely to see 25, 50, or 100 year plans. And whereas there are fairly hard limits to what can be politically, technically,

and economically achieved in 3, 5 or 10 years, the potential for shaping changes 25, 50, or 100 years into the future are virtually limitless.

The United States as a nation, and Georgia as a state have both been reluctant to aggressively develop a climate action plan even as other nations and other states have moved forward. Agree or disagree, the reluctance is likely due to the very real recognition that dealing with climate change will require a fundamental change in our relationship with energy supply and demand, manufacturing, and transportation. No doubt, change on the magnanimous scale to which we are committed to those systems is hard. But whereas we don't fully know all the ways in which such a reordering is going to manifest itself in our economy, our communities, and our lives, it does hit on the sources that are at the heart of the on-going air quality saga: energy, manufacturing, and transportation.

For air quality and on the scale of a few years, we've implemented all the easy controls. To a large extent, we've even implemented all the hard controls. Mustering on with the status quo regulatory process, there isn't a whole lot more we can do. For air quality on the scale of tens of years, which climate change grants us for the same sources, we haven't even begun to plan for the easy controls, let alone implement them. It's a whole new world of opportunity. But is a new world of regulatory controls a good thing? Probably

not, but is it really "a world of regulatory controls" that is opening up? Or is it more a world of good planning and good design that is opening up? At that longer time scale, when investments, technology, and goodwill are all pliable, the latter seems more descriptive of the opportunity. It is a process in which the regulatory agencies wield neither command nor control, but cooperation and collaboration. It is in the regulator's and the regulated's best interest to work together to envision the intersection of the common good and the private self interest and to make it into reality. Having the time makes this new relationship possible.

We already have transportation plans that reach out 25 years into the future. We already have investments that amortize over 30 years. Power plants are granted 40 year operating licenses. At present, none of these super-plans take air quality into consideration beyond, perhaps, the first few years of their life. Air quality considerations have to keep nipping away at them in three to five year chunks, unable to greatly change the course of final destiny. The prospects of climate change alters that. It puts climate, and by proxy, air quality, on equal footing with these other long range planning activities. In doing so, it puts the air protectors at the same table with the investment bankers, the engineers, and the managers to hammer out a deal that works for everyone. Global warming: it's a good thing (for air quality).



## Water Conservation and the Carpet Industry Continued from page 2

making up over 90 percent of that demand. This comes at a time when industry production also grew about 42 percent over the same time period.

Since 1997, several companies have worked with the Georgia Pollution Prevention Assistance Division of the Department of Natural Resources and Dalton Utilities to find ways to reduce pollutant loading to the Utilities' wastewater plants by improving water quality and manufacturing processes and reducing water usage and wastewater generated. One project was a partnership of a company and the Utility where technology was developed for the reuse of dye bath water, which reduced water usage for that process by 50 percent.

All of our member mills have policies in effect that scrutinize water usage. These mills continue to work with third-party vendors to identify ways to reuse water. One company has saved over 100 million gallons a year simply by figuring out ways to keep the water it uses from

being contaminated therefore giving it the ability to reuse the same water over and over again.

Mills have identified ways to incorporate the use "grey water," or rather the wastewater that has been treated by a wastewater facility and would normally be discharged, into its operations without having any impact on its operations. By doing so, 87 million gallons of fresh water is saved annually.

We have open dialogue across the board between many stakeholders, and while ours is an extremely competitive industry, those conversations and workgroups put aside the cutting edge of competition in a committed effort to reach accord on what is best not only for the industry itself, but for every single person it touches.

We will continue to be a leader in water conservation as well as all of our sustainability responsibilities. We

will search for innovative solutions to meet our economic, social, and environmental opportunities. True collaboration and multi-stakeholder teamwork is enabling great strides and the carpet industry will continue to hold itself to a higher responsibility than anybody else expects of us.

We are also becoming increasingly more aware of the fact that as we continue to squeeze more and more reductions in such areas of energy and water use, we must continue to think outside the box and develop a new paradigm to move the needle even more. Alternate sources of energy such as solar and steam capture, wind mills and water turbines are all exciting possibilities as we look towards the future.



Did you know that our website has a bulletin board for members to post job openings, internships, and resumes? [www.gaawma.org](http://www.gaawma.org)

## Gold Mine In My Backyard Continued from page 1

present and future possibilities of capturing and using methane gas to help improve air quality and provide an additional revenue source that will help sustain other environmental measures. Another environmental use of property owned and managed



by progressive solid waste sites is the development of wetlands. A well planned Wetland Mitigation Bank (WMB) will provide an economic boost to your community and wildlife while at the same time providing revenue to pay for the cost of developing the WMB. I must commend Jim Renner also of Golder Associates for leading me down the boggy path of environmental sustainability and improved water quality while making money for our integrated

waste system.

Hindsight may be a good indicator of what we have accomplished in the solid waste field. Awareness of opportunities, innovative people, and a dedicated & active role in environmental organizations will continue to provide rewards that benefit environmental protection and the future management of our solid waste.

# DATA MANAGEMENT THROUGH GIS: RESTRUCTURING GEORGIA'S AGRICULTURAL WATER WITHDRAWAL PERMITTING

Amber Alfonso<sup>a</sup>, Danna Betts<sup>b</sup> and Tammy Coppage<sup>c</sup>

Competing consumptive uses and the compounding effects of recent droughts have diminished Georgia's once abundant water resources. Current and future trans-boundary allocations, saltwater intrusion, assimilation of pollutants from non-point sources and wastewater have lead to a situation where demand on water resources has exceeded supply. In recent years, Georgia officials have responded by implementing environmental policies and expanded resource planning to provide comprehensive strategies for water management.

Specifically, O.C.G.A. 12-5-31 (the Georgia Surface Water Use Act), O.C.G.A. 12-5-90 (the Georgia Groundwater Use Act), and the rules and regulations 391-3-6-.07 and 391-3-2-.03, established a water withdrawal permit system overseen by the Georgia Department of Natural Resources, Environmental Protection Division (EPD). These directives assert that "waters of the state" shall be utilized prudently and for the maximum benefit of the people.

The original versions of the Groundwater and Surface Water Use Acts did not contain text on regulation of agricultural water withdrawals. In the 1970's Georgia's agricultural irrigation was limited to small withdrawals, mostly from ponds and streams. However, Georgia's irrigation industry was on the verge of a rapid expansion that changed the face of agricultural field crop production. Droughts, loan structures and commodity pricing lead to a dramatic increase in withdrawal

amounts. It became clear by the 1980's that agricultural water use was substantial and needed to be regulated in order to mitigate its impact. As a result, permitting of "farm use" withdrawals began in 1988. The Agricultural Permitting Unit (APU) in Tifton, GA is charged with providing these

linkage of geospatial data and permits has proved invaluable for computing potential withdrawals for specific sources and locations as well as for protecting existing permitted withdrawals as subsequent permitting has progressed.

The Environmental Research System Institute's (ESRI) ArcGIS<sup>®</sup> uses an object-oriented data model known as a geodatabase, which gives the features in GIS datasets custom behaviors. The geodatabase data model provides a common data and management framework into which geospatial data is imported. Geodatabases manage the vector data as well as relationship and topology rules describing the behavior of and physical environment through which water flows. Geodatabase extensions for storing, querying, and manipulating geospatial data are employed to facilitate the management of hydrologic datasets.

ArcGIS<sup>®</sup> Hydro (Arc Hydro), developed by the Center for Research in Water Resources at the University of Texas in Austin and ESRI, is a surface water data model for storing geospatial and temporal hydrologic data. Arc

Hydro consists of a geodatabase, managed using ArcGIS<sup>®</sup> software, which is used in the facilitation of hydrologic analysis of geospatial data.

ArcGIS<sup>®</sup> Model Builder, is an application in which you can create models that control the flow of processes and preserve sets of workflow for dependable repeatability and accuracy. The APU Models execute various tools, available with ArcToolbox<sup>®</sup>, to merge source datasets into a single feature class. This allows data to be queried

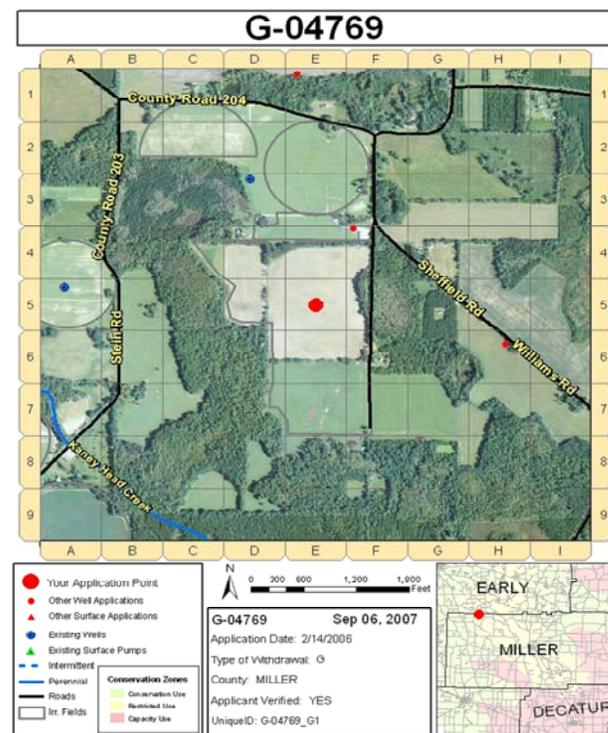


Figure 1. Application map generated with DS MapBook sample

permits.

Water resource managers require information on the characteristics of watersheds that drain "waters of the state". Geographic information system (GIS) technology coupled with increased geospatial data availability allows managers to obtain this information. GIS provides a platform for analyzing spatial data. A GIS is a device used to represent geospatial data and make location-specific decisions. APU tracks overlapping legislation affecting jurisdictions and watersheds when considering new permitted withdrawals. The

## The Benefits of Networking Continued from page 2

financial support from parents, a vast array of educational opportunities, and probably most noticeably the ability to delay entering the workforce. The Millennial philosophy generally revolves around work as a “gig” to support their lifestyle. They believe it is important to maximize “options” or choices in their lives. Many Millennials choose to grow up later and pursue childhood dreams, travel the world, or just spend time “hanging out” with friends, which leaves less time to pursue a demanding career and thus professional activities.

This change in expectations will force professional organizations to change if they plan on recruiting the younger generation. The Millennial generation responds to a different kind of stimuli than the preceding generations.

Many Millennials respond well to the concept of “connection.” It is important for them to feel like they “belong” to an organization. This can be achieved in part by having experienced members taking the time to mentor the younger newer members.

They also respond well to enjoyable activities. Typically, an individual from an older generation would look at volunteering as a civic responsibility with benefits. A Millennial will need to see the benefits up front and will look at membership as a trade off; The average Millennial may think, “the organization will provide me with enjoyable activities and networking opportunities and I will give some of my time to support the organization.”

The Young Professional Committee sponsored by the Air & Waste Management Association’s Georgia Chapter is seeking to bridge the gap between generations and recruit the younger generation into volunteerism in the A&WMA. A plan has been developed that offers benefits to the Millennial generation seeking to get involved in this particular organization.

The 2008 plan is relatively simple. It seeks to increase the Young Professional (YP) base from 5 to 25+ members by the end of 2008. This will be accomplished by seeking referrals from the more experienced members. When the potential YP is contacted they will learn about the benefits of getting involved in the group will be asked to be actively involved in the organization in return. Some of the benefits of participating in the YP group will be a monthly networking and information based conference call (this is designed to increase the overall exposure to current issues in the environmental field). In addition to the monthly information and exchange calls, a mixer revolved around networking will be held a restaurant or bar in Atlanta when the membership increases to approximately 25 YP members. These benefits will be in addition to all of the traditional benefits offered to A&WMA members such as conference discounts, an environmental magazine, and national website offerings.

Ultimately, the benefits of networking between generations can be extremely helpful in assisting the organization and assisting the individual. The Young Professional group seeks to bridge this gap.

If you would like to submit referrals to this group or request any additional information please contact Benjamin Sessions (Young Professional Chair) via phone 404.256.1919 or email [bsessions@trinityconsultants.com](mailto:bsessions@trinityconsultants.com).



## 2008 Georgia Chapter Board & Committee Members

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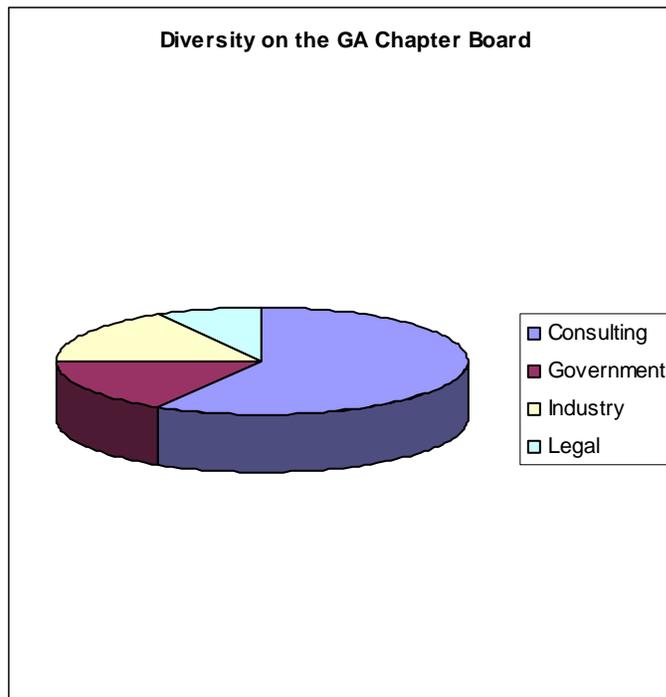
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The Air & Waste Management Association (A&WMA) is recognized as a premier forum for industry, government, consulting, and legal sectors to discuss environmental issues. The A&WMA strives to maintain a balance between these four sectors. The Georgia Chapter Board Members and Committee Chairs reflect this balance as all 4 sectors are represented.

The association is currently looking to increase its membership numbers locally in Georgia and nationally. This recruitment process assists with driving diversity within the association. Please contact one of the Board Members if you would like to join or are aware of individuals who are interested in joining the Association.



## Data Management through GIS Continued from page 5

for quality control, extracted to make new feature classes, add and populate fields for data entry validation.

APU uses 3 different models: The GIS Update Model, the MapGeneration Model, and the GeoEvaluation Model. The GIS Update Model involves updating new information and running quality control checks in order to preserve the integrity of APU data. The Map Generation Model selects and creates the feature classes used in generating application and permit maps. The GeoEvaluation Model identifies area data, calculates point distances, extracts elevation information, and updates information in the geo-evaluation database. This data is

used to evaluate applications for new groundwater withdrawals.

ArcGIS® DS MapBook 9.2 is a developer's sample that creates map books. Map books are multi page documents generated using grids or polygon datasets to create index grids. Map series are generated for each of the feature classes created by the Map Generation Model. This model in combination with the GIS Update Model allows for fast and reliable creation of large quantities of application and permit maps. Figure 1 provides an example of the series output.

Tri-state allocations, drought year management, and improved protection of permit holders demand a system of

permit mapping for the management of agricultural withdrawal permits. GIS functionality allows managers to incorporate location-specific decision-making and permitting regulations in their quest to protect existing downstream users and critical flow. The combination of available extensions and developer samples with ArcGIS® tools provides APU managers systems that improve the accuracy of permit mapping. This system advances the precision, consistency, and objectivity of permit decisions.



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## Georgia Chapter A&WMA Fall Conference

The Georgia Chapter Air & Waste Management Association (A&WMA) annual conference will be held on October 9, 2008 at the Georgia Tech Global Learning & Conference Center in Atlanta Georgia convenient to MARTA. This conference typically attracts over 100 attendees from all over Georgia. The theme for our



morning session will be "Greenology-Ownership and Accountability." Afternoon technical sessions will include case studies, regulatory updates, new developments, and practical experiences.

The conference will begin at 8:30 AM. Just a few of our speakers and their topics are listed below.

- Gloria Hardegree, Georgia Recycling Coalition: The Role of Recycling in the Green Movement
- Michelle Bergin, GA EPD: Climate Change Update
- Jain Ashok, National Council for Air & Stream Improvement: Water conservation in Georgia Pulp & Paper Industry
- Larry Lamberth, EPA Region 4 - RCRA and OPA Enforcement and Compliance Branch: RCRA issues
- John Brent, U.S. Department of the Army Environmental Management Division: Fort Benning Greening Initiative
- Jim Davis, Power & Energy, Climate Solutions, Enviance: GHG Information Management Systems– Best Practice Case Studies

There's sure to be something for everyone with an interest in environmental issues. More information and online registration will be available soon on our website. [www.gaawma.org](http://www.gaawma.org).



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