ITRC Provides Success in Tennessee

Not so long ago, Chattanooga, Tennessee had such dirty air folks drove around with their headlights on at noon. Chattanooga Creek ran murky with chemicals, and school children got rashes after playing in flooded practice fields next to the creek. Homeless men were sometimes treated for chemical burns after bathing there.

But things have been changing in Chattanooga over the past dozen years. And ITRC and some local citizens are part of that change.

"My part started when I read an article in the New York Times about phytoremediation–about using plants to clean up toxic wastes," says native John Chambliss. "I took it as my mission to do something about cleaning up the environment here."

Phytotechnologies are a set of technologies using plants to remediate or contain contaminants in soil, groundwater, surface water, or sediments. Chambliss said town hall was skeptical when he mentioned phytoremediation but agreed to let him hold a community workshop on the topic, if he could raise the funds. Elizabeth Guthrie Nichols, then of the University of Tennessee at Chattanooga, told him that EPA phytoremediation expert Steve Rock would have a small window of availability in six weeks, so Chamblis set about raising almost $8,000 in a month. Bob Mueller, ITRC member from the New Jersey. Department of Environmental Protection, helped Chambliss organize the class. Mueller also recruited Chambliss into ITRC membership.

"'You've just become an ITRC member' is what he said," Chambliss remembers.

As an ITRC stakeholder representative, John has served on Constructed Wetlands, Mitigated Wetlands, Alternative Landfill Technologies, and Ecological Enhancements teams and also helped fund a 2004 team meeting in Chattanooga. He's recently been appointed to the Mayor's Brownfields Task Force. But his greatest strength is as a facilitator in his hometown.

More than 80 people showed up for the ITRC Phytoremediation workshop, and the Committee to Clean and Beautify Chattanooga (CCBC) was born out of their interest immediately afterward. The group of local regulators, educators, and concerned citizens honed their concerns down to five priority sites and continued to publicize the potential for environmentally sound reuse and ecologically based technologies.

The group—and ITRC— were extremely instrumental in the Chattanooga community's rapid acceptance of phytotechnology. Two years ago, the city and school students planted 300 willows to handle water problems at Boyd Buchanan School athletic facilities, and in 2001 a public/private venture lead by the City of Chattanooga restored the riparian zone along more than half a mile of Citico Creek to improve water quality.

Working in coordination with the CCBC, the University of Tennessee at Chattanooga (UTC) has initiated a number of graduate, undergraduate, and faculty research projects that support alternative clean-up technologies and CCBC's educational outreach, especially at priority sites. Students under biology professor Sean Richards have measured the levels and effects of the carcinogen poly-aromatic hydrocarbons (PAH) in rodents and sediment along Chattanooga Creek, as well as doing other studies of Chattanooga contaminants. UTC student Katherine VanDeusen had good news when her study of Chattanooga Creek floodplain found soils there

have the microbial capacity to reduce the concentration of PAHs by promoting the degradation of these compounds.

Gooey coal tar and creosote compounds are still surfacing in portions of Chattanooga Creek, which was placed on the National Priority List of federal Superfund sites in 1994. At a cost of roughly $12 million, the EPA dredged up the most obvious contamination along a 2.5 mile portion of the creek, excavating some 25,500 cubic yards of coal tar residue deposited from pits along the creek's banks.

The toxicants that remain in the floodplain are a concern for UTC biology professor Steve Halperin. He is attempting to determine whether tall fescue and zucchini, two plants known for reducing PAHs, would be effective along Chattanooga Creek. In a tightly controlled study, Halperin and several students are cultivating the plants in pots of the floodplain's acidic soils in a greenhouse to determine if the plants can remove PAH pyrene. They hope this research will generate data for a much larger federal grant.

"I became aware of ITRC through John Chambliss when he visited the university. We had an interesting discussion, and his idea of cleaning up Alton Park is appealing; I would like to see if plants can be used to remove pollutants from the soil in the Alton Park neighborhood," Halperin said.

"We're helping Chattanooga two ways," Chambliss said. "With ITRC's help, we're doing education here, and then we're moving on to do phytoremediation as an experiment which we can show to others around the world."

Joe Ferguson heads the Enterprise Center, which oversees many of the city's technology and entrepreneurial initiatives. He is interested in turning contaminated, unproductive areas of Chattanooga into productive areas, whether as real estate or green spaces.

"The Enterprise Center hosted one of ITRC's meetings as a result of John Chambliss' phytoremediation activities with them and his connection as a board member," he said. "We were in the process of forming a brownfields management program for Chattanooga, and ITRC was very helpful in sharing information and telling us what other cities had done," Ferguson said.

Since then, Chattanooga's mayor has formed a blue ribbon brownfields task force. Chambliss was one of about a dozen business people and public officials appointed in 2005 to the task force, which has already applied for $200,000 in federal funds to assess brownfield sites that hold promise for redevelopment.

The Enterprise Center plans to send a staff member to visit cities with effective brownfields programs, including Jacksonville, Florida, a city where ITRC has been involved.

"I hope to have the opportunity to invite ITRC down again to show them what we have done," Ferguson said.

Recent successes have shown that ITRC, combined with community partnerships, can achieve goals and cleanup solutions. As people from a wide variety of backgrounds come together, they

are planning a new kind of city. Chattanooga is growing from an industrial town choked in coal tar to a sustainable, forward-looking city where folks can breathe deeply and look forward to wading in the creek.