

from more than 200 C&E firms and aggregates the revenues into an industry model to determine, among other things, shares and trends in the market by media, service and client. The tables on page 2 demonstrate these breakdowns and show the recent fluctuations in market sectors. Of particular note is the gain in water resources and local governments, and the loss of share in a number of industrial client markets.

Detail on the 'universe' of companies in the C&E industry on page 4 shows the aggregate growth of the larger firms, continuing a trend where firms over \$100 million accounted for one-third of total revenues in 1990, one-half in 1995 and 63% in 2002. Acquisitions have primarily led to this consolidation, but larger contracts for fewer firms—in both the private and public sector—also has played a role. Lastly EBJ's list of the top 60-odd firms shows understandably few real newcomers, but a larger percentage of work by many of the top players from non-environmental work that tends to characterize the relative newcomers like Shaw and AECOM, for instance, that bought or consolidated their way towards the top ten firms.

THE ECONOMY IS #1 CONCERN

Data compiled by the **Environmental Financial Consulting Group** (New York), which twice a year asks CEOs and CFOs at environmental and infrastructure engineering firms to report their most recent financial performance and project performance for the current year, 2002 did not live up to expectations. CEOs polled by EFCG in October 2002 downgraded previous revenue growth projections to 5% from 10%. Margins took a hit of about 50%, which was entirely predictable, according to EFCG President Paul Zofnass.

In the spring of 2003, CFOs reported that their first-quarter revenues were up compared with the previous year, but only 1.2%. "In 2002, we saw a slight decline from 2001, and that was the first decline in five or six years," notes Zofnass. "My guess is, this year is going to be worse than that." He suggests that the slumping financials may generate an increase in executive terminations, which have been fewer and farther between in recent years. The bad times for environmental CEOs began in 1993 or 1994, Zofnass recalls. "Those years, through 1996, were terrible. I don't know if it will get that bad again, but..."

U.S. C&E Market, 1996-2002 (\$Mil)

By Media	1996	2000	2001	2002	1996	2000	2002	03-05
Hazardous Waste	4,180	4,040	4,300	4,340	27%	23%	23%	-0.5%
Remediation	3,550	3,840	4,240	4,490	23%	22%	24%	3.2%
Solid Waste	1,150	1,050	1,070	960	8%	6%	5%	-2%
Wastewater	2,620	3,380	3,430	3,470	17%	19%	18%	3.5%
Water	1,270	2,200	2,280	2,400	8%	13%	13%	3%
Energy	260	270	280	220	2%	2%	1%	2%
Air Quality	1,390	1,060	1,250	1,380	9%	6%	7%	-3%
Natural Resources	790	980	980	1,000	5%	6%	5%	4%
Multi-Media	n/a	590	540	510	n/a	3%	3%	3%
Total	15,210	17,410	18,370	18,770	100%	100%	100%	1.7%

By Service	1996	2000	2001	2002	1996	2000	2002	03-05
Invs/Assmt/Audit	3,640	4,030	3,950	3,780	24%	23%	20%	2.5%
Lab/Testing Svcs	250	130	150	170	2%	1%	1%	2%
Permitting/Compl.	2,110	2,090	2,090	2,270	14%	12%	12%	3%
Design	3,500	4,100	4,420	4,640	23%	24%	25%	1%
Project Mgmt.	2,700	2,790	2,890	2,930	18%	16%	16%	2%
Monitoring	590	450	500	520	4%	3%	3%	-3%
Information Mgmt	n/a	350	430	380	n/a	2%	2%	2%
O&M	850	1,510	1,570	1,520	6%	9%	8%	2%
Pollution Prev.	570	790	880	960	4%	5%	5%	-2%
SEM	720	730	750	760	5%	4%	4%	3%
Other	280	440	740	840	2%	3%	4%	2%
Total	15,210	17,400	18,370	18,770	100%	100%	100%	1.7%

By Customer	1996	2000	2001	2002	1996	2000	2002	03-05
Chemical	1,620	1,410	1,450	1,330	11%	8%	7%	2.5%
Petroleum	1,120	1,270	1,350	1,010	7%	7%	5%	2.5%
Primary Metals	110	230	220	240	1%	1%	1%	1%
Metals	190	140	150	250	1%	1%	1%	1%
Mining	210	480	490	580	1%	3%	3%	-2%
Electronics	280	250	260	350	2%	1%	2%	2%
Transportation	430	640	660	570	3%	4%	3%	2.5%
Textiles	70	100	130	140	0%	1%	1%	1%
Pulp & Paper	280	380	440	520	2%	2%	3%	1.5%
Other Mfr	360	510	580	470	2%	3%	3%	3%
Water Utilities	220	370	420	690	1%	2%	4%	3%
Power Utilities	430	820	730	650	3%	5%	3%	2.5%
Solid Waste Util/Cos.	520	270	340	260	3%	2%	1%	-2%
Petrol./Gas Stations	420	370	400	360	3%	2%	2%	-2%
Banks, Law, Real Est.	450	600	590	540	3%	3%	3%	4%
Other	n/a	210	240	210	1%	1%	3%	2%
Total Private Sector	6,710	8,050	8,450	8,170	44%	46%	44%	1.7%
Federal	5,060	5,130	5,320	5,630	33%	29%	30%	2.5%
State	1,000	1,200	1,290	1,340	7%	7%	7%	-3%
Local	2,440	3,030	3,310	3,630	16%	17%	19%	2%
Total Government	8,500	9,360	9,920	10,600	56%	54%	56%	1.6%
Total	15,210	17,410	18,370	18,770	100%	100%	100%	1.7%

Source: EBJ, EBI Report 718, EBI Inc., www.ebiusa.com, based primarily on aggregated annual surveys of C&E firms, units in \$mil. 03-05 is average annual growth in 2003-2005.

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At EFCG's latest CEO conference in October 2003, Paul Zofnass reported the results of a survey in which the CEOs of 173 environmental and infrastructure engineering firms continued their historic optimism for the coming year. The CEOs projected revenue growth of 8% and margin growth of 9.6% for 2004—a perhaps unwarranted optimism, Zofnass suggested, given that actual performance for 2002 and 2003 lagged projections, especially for margins. In addition to characterizing the CEOs revenue and margin projections for 2004 as unrealistic, Zofnass also confessed his puzzlement at the fact that the CEOs are projecting “the highest multipliers and utilization rates in history” for next year. The average net revenue multiplier will be 3.00 and average utilization rate will be 64%, the CEOs told EFCG. According to historical EFCG data, the industry achieved a net revenue multiplier of 3.00 in 1994 and 1995, but at no other time since. Utilization rate reached 64% only once during the last ten years, in 2000.

Amidst this optimism are the signs of tough times, as reported by CEOs. For example, voluntary turnover is down from 11.9% in 2000 to 8.0% projected for 2003, matching 2002 and reflecting a reduced tendency—or opportunity—for employees to find better work elsewhere. Involuntary turnover is up from 2.0% in 2000 to 4.0% projected for 2003. The CEOs reported essentially no increase in work force this year—the first time in many years, Zofnass said.

Asked to evaluate the greatest risks and concerns for the coming year, CEOs indicated that the economic slowdown was the number-one issue on their mind. The perennial concern about attracting and retaining talent is still much on executives' minds, but it slips to the third leading concern after the economy and cutbacks in federal and municipal spending. Margin pressures rank high as well, and an enormous increase in medical costs—from \$4,600 per employee

EBJ's Top Environmental C&E Firms, 2002

Company (Location)	Total Gross 02	Env'l C&E 02
1 CH2M Hill Inc. (Englewood, CO)	2,384	1,660
2 Earth Tech (Long Beach, CA)	1,467	1,115
3 Tetra Tech Inc. (Pasadena, CA)	1,275	905
4 URS Corporation (San Francisco, CA)	2,888	751
5 MWH (Montgomery Watson) (Broomfield, CO)	1,095	723
6 Bechtel Group Inc. (San Francisco, CA)	13,100	625
7 Parsons (Pasadena, CA)	3,500	548
8 Battelle Memorial Institute (Columbus, OH)	1,151	472
9 Camp Dresser & McKee Inc. (Cambridge, MA)	508	457
10 AECOM Technology Corp (Los Angeles, CA)	1,726	449
11 Shaw Group (Stone & Webster Environmental) (Baton Rouge, LA)	2,830	448
12 Black & Veatch Corporation (Kansas City, MO)	1,974	376
13 Science Applications International Corp. (SAIC) (San Diego, CA)	6,298	315
14 Mactec Inc. (Golden, CO)	408	310
15 Environmental Resources Management (ERM) (Austin, TX)	303	310
16 Weston Solutions Inc. (West Chester, PA)	344	240
17 Malcolm Pirnie, Inc. (White Plains, NY)	225	225
18 Jacobs Engineering Group (Pasadena, CA)	4,540	209
19 TRC Companies Inc. (Windsor, CT)	225	195
20 Golder Associates Corp. (Atlanta, GA)	92	190
21 ARCADIS Geraghty & Miller Inc. (Denver, CO)	251	178
22 Washington Group International (Boise, ID)	4,240	171
23 ENSR Corporation (Westford, MA)	168	168
24 AMEC (Plymouth Meeting, PA)	220	160
25 Brown and Caldwell (Walnut Creek, CA)	165	157
26 HDR Inc. (Omaha, NE)	427	154
27 PBS&J Corp., The (Miami, FL)	345	117
28 Blasland, Bouck & Lee, Inc. (Syracuse, NY)	110	110
29 Conestoga-Rovers & Associates (Niagara Falls, NY)	98	98
30 Fluor Corp. (Aliso Viejo, CA)	8,670	98
31 SECOR International, Inc. (Redmond, WA)	92	97
32 Carollo Engineers (Santa Ana, CA)	97	97
33 Handex Environmental (Mt. Dora, FL)	91	91
34 ATC Group Services Inc. (Woburn, MA)	172	90
35 Louis Berger Group, The (East Orange, NJ)	442	89
36 ENVIRON Holdings Inc. (Arlington, VA)	82	82
37 Hazen & Sawyer (Fairfax, VA)	80	80
38 Gannett Fleming, Inc. (Harrisburg, PA)	214	75
39 Burns & McDonnell (Kansas City, MO)	265	74
40 Delta Environmental Consultants Inc. (St. Paul, MN)	73	73
41 RMT Inc. (Madison, WI)	76	73
42 Clayton Environmental Consultants (Novi, MI)	67	67
43 RETEC Group, INC., The (Concord, MA)	86	65
44 Hatch Mott MacDonald (Millburn, NJ)	113	63
45 GeoSyntec Consultants, Inc. (Atlanta, GA)	61	61
46 Michael Baker Corp. (Moon Township, PA)	216	61
47 Ecology & Environment Inc. (Lancaster, NY)	87	60
48 Dewberry Cos (Fairfax, VA)	184	57
49 Groundwater & Environmental Services Inc. (Woll, NJ)	57	57
50 Kellog Brown & Root (Houston, TX)	598	54
51 LFR Levine Fricke (Emeryville, CA)	53	53
52 O'Brien & Gere Engineers, Inc. (Syracuse, NY)	63	53
53 Greeley & Hanson (Chicago, IL)	52	52
54 Kennedy/Jenks Consultants (San Francisco, CA)	61	48
55 Woodard & Curran (Portland, ME)	54	47
56 SCS Engineers (Long Beach, CA)	57	45
57 EA Engineering Science and Technology (Hunt Valley, MD)	52	45
58 Boyle Engineering Corp. (Newport Beach, CA)	60	44
59 Carter & Burgess Inc. (Fort Worth, TX)	323	42
60 Jordan, Jones & Goulding Inc (Atlanta, GA)	64	42
61 GZA GeoEnvironmental Technologies, Inc. (Newton Upper Falls, MA)	58	42
62 Parsons and Brinkerhoff Inc (New York, NY)	823	41
63 DLZ Corp (Columbus, OH)	77	40
64 Professional Service Industries (Lombard, IL)	176	40
65 The Terracon Companies (Lenexa, KS)	144	39
66 Jones & Stokes Associates (Sacramento, CA)	37	37
67 The Kleinfelder Group Inc. (San Diego, CA)	161	37

Figures in EBJ's list of top C&E firms are revenues generated for calendar year 2002 in gross environmental consulting & engineering (C&E) not including construction and remediation construction, but including construction management. This list is a result of independent research and a survey of more than 400 firms conducted by EBI. In some cases, revenues are approximations derived from executives, analysts and reputable business information sources. Although EBI has made every reasonable effort to be accurate, figures are not the result of internal or external audits and are not guaranteed to be accurate. Errors and omissions are unintentional.

Revenue Distribution of U.S. C&E Industry in 2002

	Number of Firms	Total Revenues	Average Revenues	% of Market	02 Growth
Large >\$100 mil	28	11,871	424	63.2%	4.2%
Mid \$20-100 mil	80	3,549	44	18.9%	3.0%
S \$10-20 mil	84	1,164	13.9	6.2%	-0.6%
S \$5-10 mil	108	731	6.8	3.9%	-4.4%
S \$1-5 mil	306	627	2.1	3.3%	-8.3%
S <\$1 mil	2,765	830	0.3	4.4%	-6.8%
Total	3,371	18,770	5.6	100.0%	2.2%

Source: EBJ industry model based on EBJ's 2003 survey of C&E firms

in 2001 to \$5,700 per employee in 2003, according to the survey—is looming as a major factor in that pressure.

Emerging as a new worry are issues connected to insurance and bonding. During the EFCG conference, John Beachamp, senior vice president at XL Environmental (Exton, Penn.) affirmed the basis for this worry, noting that insurers like XL are beginning to see the signs of the soft economy. He stressed that his industry's ability to measure risk has not kept pace with changes in the environmental and infrastructure engineering industry, such as expanded service offerings and new risk conditions in contracts. Accept a reasonable percentage of your own risk and paying a reasonable premium, he advised the CEOs ominously. Asked what "reasonable" might mean, one CEO in the audience simply shook his head in frustration.

Brook Smith, president of surety bond provider Smith Manus (Louisville, Ky.) described similar constraints affecting the bonding industry. The availability of capital has shrunk from a football field-size pool to an Olympic-size pool, he remarked, while capital available for environmental firms has shrunk to "a baby-size pool"—and uninvitingly cold water no doubt. Losses like those suffered by Enron and K-Mart partially explain the general shrinkage in capital. There are fewer providers and limited options for environmental firms, Smith remarked. Some providers may not support certain lines of business, while others will require collateral, but the environmental industry does outperform the others, he noted.

Recognizing that firms in the environmental and infrastructure engineering industry are increasingly employee owned, Zofnass devoted much of the conference time to ownership issues, with a particular emphasis on transition. The percentage of companies that are public or are subsidiar-

ies of public companies represented in EFCG's surveys has decreased from 29% in 1997 to 12% in 2003. Meanwhile, the number of firms has increased from 71% to 88% over that period, and the number of firms with Employee Stock Ownership Programs (ESOPs) has nearly doubled from 13% to 25%.

The life's blood of an employee-owned firm is profitability, Zofnass emphasized, and that's where these firms should be focusing their attention. Good profitability is needed to incentivize the work force to join the ownership team, and it's needed to make the transition in ownership. Private firms need to develop an Ownership-Capital-Compensation (OCC) plan to ensure growth and plot out in advance the steps required to make the ownership transition smooth. If internal revenue growth is going to be somewhere in the area of 5%, as the industry-wide data suggests, then a firm should consider supplementing that growth with a small acquisition that can add another 5% to the top line.

Mergers and acquisitions are down from previous years, Zofnass noted. "Buyers and sellers are getting picky," Zofnass observed. Deals are more strategic and more carefully executed he added. In addition, there is somewhat less buying power out there, but some financial buyers are moving in and offering multiples of five to ten times EBITDA for companies. A large number of these firms are looking for a first platform in the environmental industry, which means they are considering an equity stake in companies of not insubstantial size, such as \$50 million in annual revenues.

According to the EFCG survey data, 36 firms estimated that they will have completed 57 deals by the end of 2003. That's already up from the 28 deal-makers in 2002, which was itself a trough compared with the 38 firms in 2000 and 40 firms in 2001 that engaged in transactions. The firms surveyed in

2003 indicated that they expect to jump into mergers and acquisitions in a big way in 2004—64 firms projecting 100 deals—but as we have seen with the historic optimism in revenue and margin growth projections, that level of activity remains to be seen.

Zofnass remarked on the shrinkage of publicly traded environmental consulting and engineering firms, but while the executives at firms that have gone private are noticeably happier, he questions whether going private relieves substantial amounts of pressure. "There's a little bit of extra pressure being in a public company, but I think it is overblown. If you can hire a good PR director, you can take care of the public aspect. Some CEOs who are engineers and are not very good at being the public face may have some trouble in this area. That's a personality issue, not necessarily a function of being public itself. As long as you focus on the company, and the earnings are there, the stock will follow. When the numbers stink, everybody sees that they stink. So it's not being public that's the problem, it's being in an industry where you're not very profitable that's the problem."

Clients are imposing their own set of pressures on profits, largely a function of the fact that they've been procuring environmental services for more than two decades now and know what to expect. "Client companies have said, 'there is a fair amount of business out there that's in commodity form, and we're going to pursue it that way, so we're going to pursue low costs'; that has happened," notes Robert Graziano, president of the engineering recruitment firm Graziano & Partners (Houston, Tex.).

Environmental executives report that they are working hard to steer clear of commodity-type services by identifying tough problems and selling "solutions." But if the clients are increasingly sophisticated to the point where they can beat up suppliers on price, they are still somewhere short of understanding the value of the service they are getting, some executives complain. It's up to the environmental consultant to articulate that value, and the industry still often struggles to make the case.

"Too many clients, in my opinion, do not perform a cost-benefit analysis of the services they procure," says Rudolph Bonaparte, president and CEO of GeoSyntec Consultants (Atlanta, Ga.). "I am a big believer—and we try to proselytize this to clients and the industry—in convey-