



Overview and Summary of Recent Initiatives

Governor Haley Barbour formed **Momentum Mississippi** in 2005 to move forward in implementing Blueprint Mississippi, a strategic plan that identified a number of recommendations for promoting economic growth. The primary recommendations were to

- Identify and pursue high-value, high-growth industry targets and to align resources around them;
- Increase public and private R&D funding and improve effectiveness of technology transfer and capital accessibility to help commercialize innovations; and
- Improve production and profitability of existing businesses through programs that support innovation, technology, and process improvement.

Legislation was passed (HB 3) to provide funding for several economic development programs and to revise several tax incentive programs to make them more accessible to technology companies. The \$28 million initiative includes a \$7 million fund for companies to support business incubation centers and create new and expanding R&D and technology-based companies; \$7 million for an equipment and public facilities fund to aid in infrastructure-related improvements and the purchase of equipment; \$7 million for the Existing Industry Productivity Loan Fund, which provides loans to industries to deploy long-term fixed assets that will improve productivity and competitiveness through new technology; and \$7 million in state general obligation bonds for an inducement account for “extraordinary” economic development opportunities. All of the programs will be administered by the Mississippi Development Authority.

In addition, HB 3 made technology-intensive companies eligible for local property tax exemptions, state sales and use tax exemptions, the state’s Jobs Tax Credit, the Advantage Jobs program, and the Rural Economic Development Corporate Income Tax Credit. Technology-intensive companies are defined as those that employ at least 10 full-time workers, 10 percent of which must be scientists, engineers, or computer specialists who have an annual wage of 150 percent of the state average, and provide a basic health plan for employees.

Mississippi has targeted the biomass industry for development. The **Mississippi Technology Alliance (MTA)**, which is a nonprofit organization with the mission to champion innovation and technology-based economic development for the State of Mississippi, administers a Strategic Biomass Initiative that is funded primarily by the U.S. Department of Energy (DOE). (See description below.)

Building Bioscience R&D Capacity

Recent state investments in facilities

The construction of the second building in the **University of Mississippi's Arthur C. Guyton Laboratory Research Complex** will be completed in the near future, and construction has begun on a four-story addition to the original building. At completion, the \$93 million project will give the School of Medicine an additional 360,000 square feet of dedicated research space.

Research programs

Mississippi State University's **Life Sciences and Biotechnology Institute (LSBI)** was established to promote economic development and to create high-quality employment opportunities in Mississippi. LSBI awards competitive seed grants for research in the life sciences and biotechnology. The program seeks to fund projects that will position researchers to compete successfully for federal R&D funding in the future.

The **Franklin Furniture Center** at Mississippi State University (MSU) is researching and developing the use of wood fibers to make building products. For example, a new company, located at MSU, takes otherwise useless small-diameter soft wood and bonds it into structural building materials. The Mississippi Land Water and Timber Board provided the company approximately \$1 million.

Encouraging Academic/Industrial Interaction

The mission of MTA's **Strategic Biomass Initiative** is to foster viable commercial enterprises based on the state's natural biomass resources and develop near-term opportunities through university-based R&D. The initiative provides funding for applied research projects of up to \$300,000, with the company paying 25 percent of the total cost, and commercialization projects, which can go up to \$400,000 but with the company paying 60 percent of the total cost. A total of \$1.55 million is available for applied research grants, \$1.2 million of which comes from DOE and \$350,000 of which is provided by partner companies. A total of \$1 million is available for commercialization assistance, with DOE providing \$400,000 and partner companies providing \$600,000.

LSBI provides faculty researchers and partner companies with central facilities and state-of-the-art tools, equipment, and training. The institute has full-time staff members who run equipment and provide training.

Moving Technology into the Marketplace

Commercializing university technology

The **Mississippi Technology Alliance** receives approximately \$1.5 million from state funds. Commercialization of technologies, especially resulting from university investment, has been a priority focus. The MTA has hosted several venture capital forums targeting various industry groups.

The state's universities have internal staff and programs to educate faculty, staff, and students about the commercialization process, e.g., intellectual property valuation, business start-up, and venture capital

sources. The MTA partners with these groups to host forums where professional investors meet with companies and university faculty.

MSU has established the **Thad Cochran Endowment for Entrepreneurship** to encourage the commercialization of MSU-developed technologies.

The **Institute for Technology Development**, located at John C. Stennis Space Center, conducts applied research and converts the results into marketable products or services. The institute's primary technology focus is multispectral and hyperspectral imaging systems. Research areas include wound care, ophthalmology, precision agriculture, and food quality and design.

Supporting bioscience entrepreneurs and emerging companies

The MTA provides business development services, including business plan review, guidance on raising capital, and connections to technical or financial resources, to all technology companies, including bioscience companies.

Making Capital Available

Pre-seed and seed capital

In late 2005 the **Mississippi Angel Network** was formed. Since then, more than 50 high-net-worth individuals have joined. The network makes investments in the \$500,000 to \$5 million range in life sciences, software, and communications companies. The network is administered by the MTA and will make investments only in companies that are either headquartered in Mississippi or have substantial operations within the state. An advisory group of investors reviews candidate companies and selects ones to present at quarterly meetings. Twelve companies have given formal presentations to date, and 17 start-up companies were featured at the MTA Conference on High Technology.

The **Mississippi Federal and State Technology Partnership Program (MS-FAST)**, which is also administered by MTA, provides funding of up to \$3,000 to cover the costs of developing and submitting Phase I Small Business Innovation Research/Small Business Technology Transfer Program proposals.

Providing Space for Bioscience Companies

Incubators

The **Ralph E. Powe Center for Innovative Technologies** is a 25,000-square-foot incubator that will include a clean room and wet-lab space.

An incubator with wet-lab space is under development in the University of Mississippi Research Park.

Bioscience research parks

Under development

The University of Mississippi is developing the **University of Mississippi Research Park** that will focus on attracting companies that are interested in tapping into the university's R&D expertise. Initially, these efforts will focus on health care, defense/security, information management, and remote sensing. The

research park and an incubator that is being developed will have wet-lab facilities suitable for pharmaceutical companies.

The University of Southern Mississippi is developing the **USM Innovation and Commercialization Park** on 522 acres. It has received \$20 million to construct its first building, which will focus on companies seeking access to the Mississippi Polymer Institute.

MSU is developing the **Thad Cochran Research Technology and Economic Development Park** on 222 acres. The park currently includes the Ralph E. Powe Center for Innovative Technologies.

Addressing Talent Needs

Recruiting management talent

Planning is underway for a management recruitment network that will connect technology companies with much needed executive management and technical talent.

Specialized postsecondary programs

Base Pair, a project to expose young people to basic science and research, is hosted by the University of Mississippi Medical Center. The program pairs students with biomedical researchers for a year.

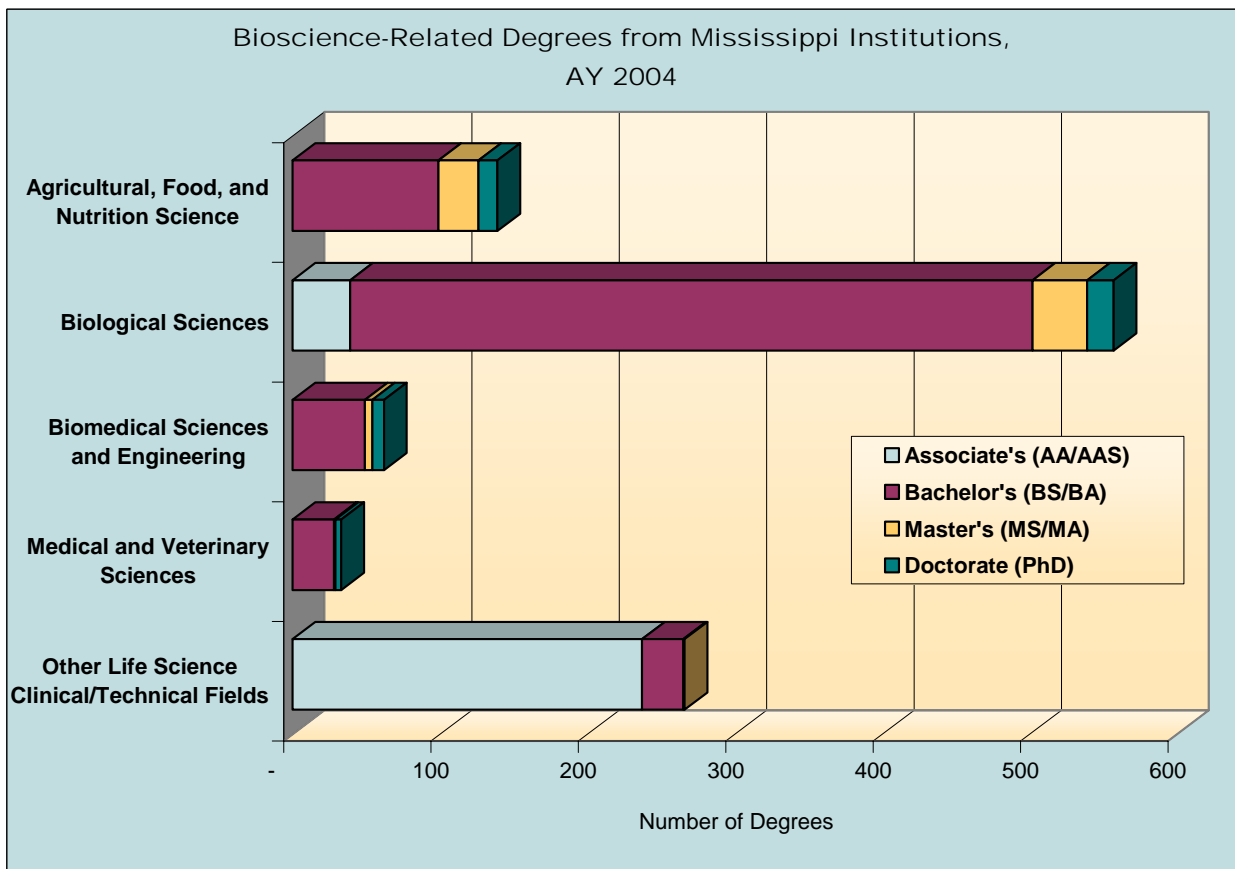
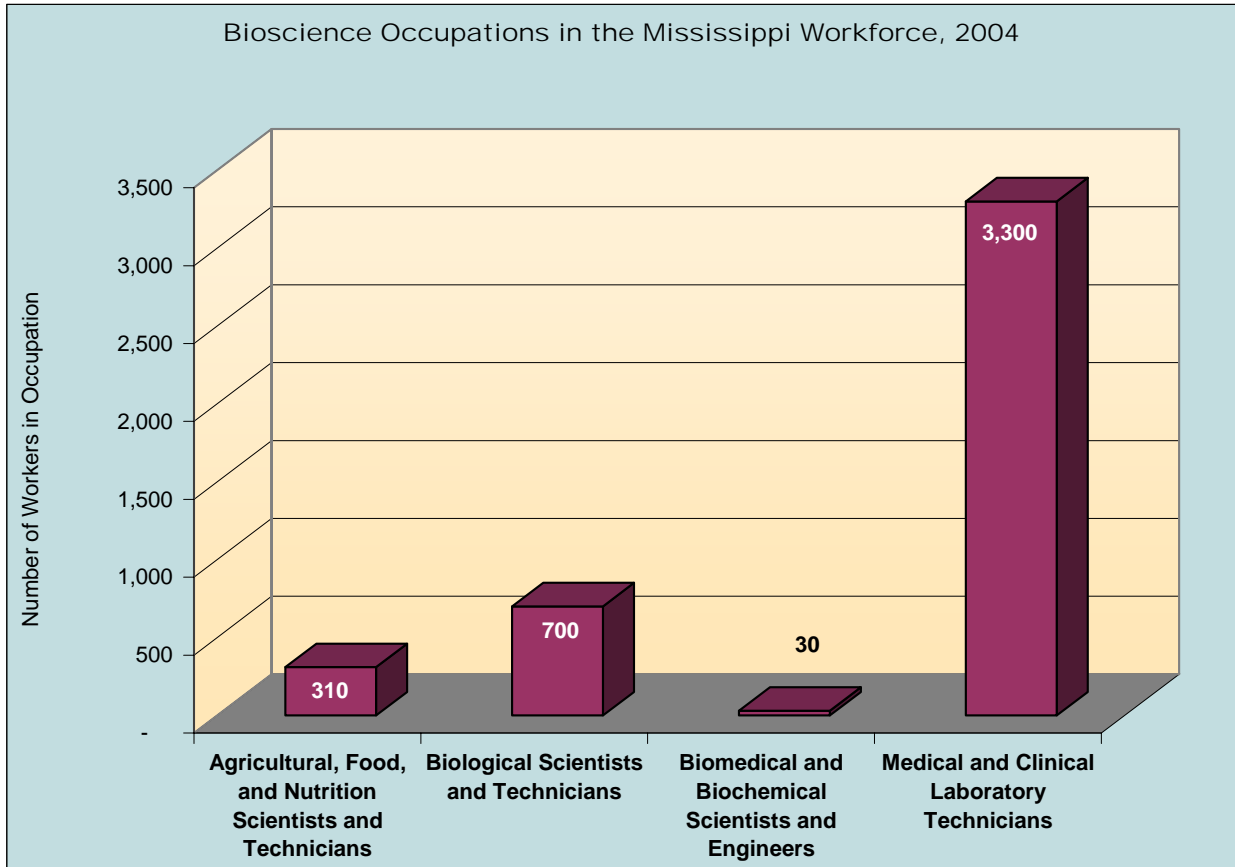
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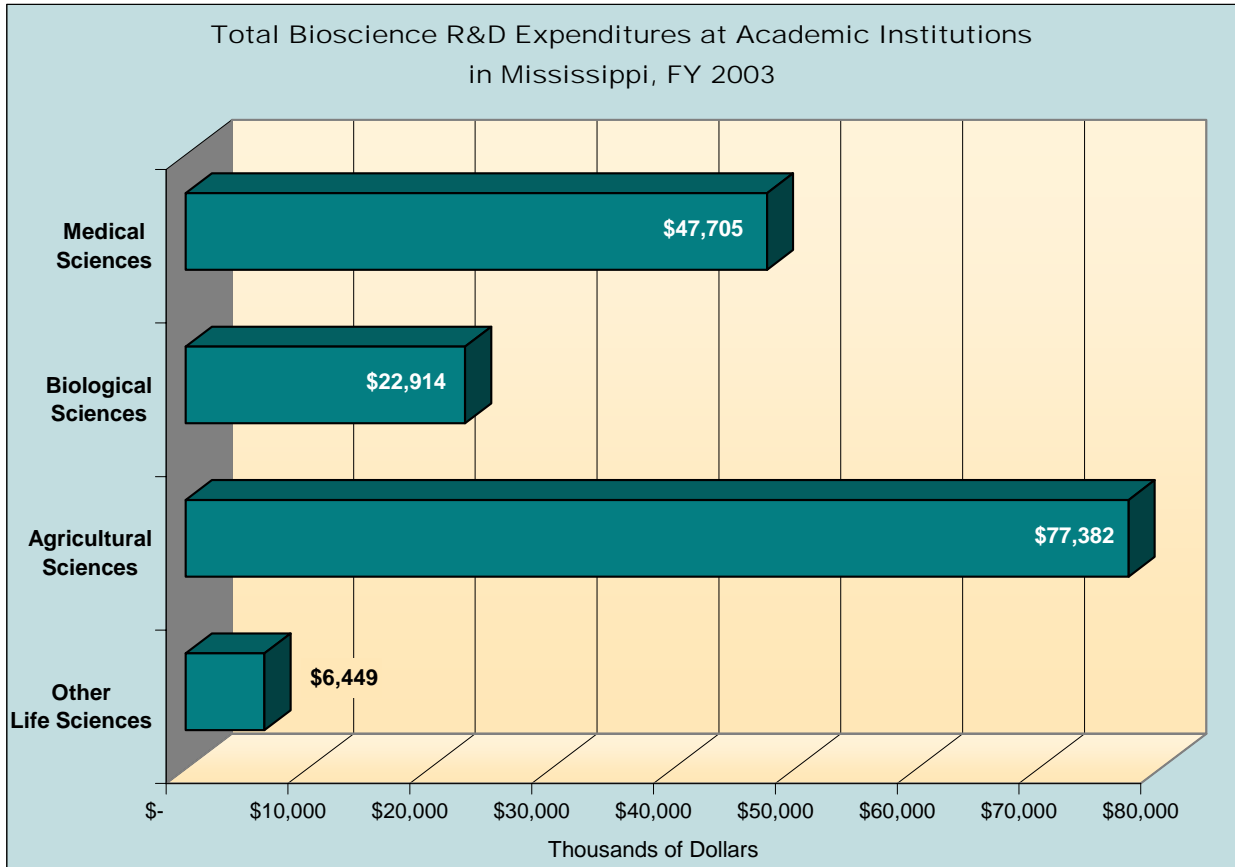
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Industry Subsector	Mississippi	United States
Agricultural Feedstock & Chemicals		
Establishments 2004	24	2,111
2001-2004 Establishment % Change	7.9%	0.4%
Employment 2004	1,216	104,893
2001-2004 Employment % Change	-22.0%	-6.9%
Share of U.S. Employment	1.2%	100.0%
Location Quotient	1.45	n.a.
Average Annual Wage 2004	\$43,856	\$63,383
Direct-Effect Employment Multiplier	5.60	10.91
Total Employment Impact	6,804	1,212,094
Drugs & Pharmaceuticals		
Establishments 2004	23	2,589
2001-2004 Establishment % Change	76.9%	-0.6%
Employment 2004	1,178	313,207
2001-2004 Employment % Change	2.2%	2.7%
Share of U.S. Employment	0.4%	100.0%
Location Quotient	0.47	n.a.
Average Annual Wage 2004	\$33,879	\$79,303
Direct-Effect Employment Multiplier	3.22	9.51
Total Employment Impact	3,797	2,731,321
Medical Devices & Equipment		
Establishments 2004	90	15,190
2001-2004 Establishment % Change	5.7%	0.2%
Employment 2004	966	411,460
2001-2004 Employment % Change	-11.2%	-3.6%
Share of U.S. Employment	0.2%	100.0%
Location Quotient	0.29	n.a.
Average Annual Wage 2004	\$29,575	\$56,449
Direct-Effect Employment Multiplier	2.06	4.56
Total Employment Impact	1,986	1,817,705
Research, Testing, & Medical Laboratories		
Establishments 2004	99	20,565
2001-2004 Establishment % Change	7.9%	19.4%
Employment 2004	819	413,550
2001-2004 Employment % Change	-12.5%	8.2%
Share of U.S. Employment	0.2%	100.0%
Location Quotient	0.25	n.a.
Average Annual Wage 2004	\$39,132	\$65,414
Direct-Effect Employment Multiplier	1.96	3.15
Total Employment Impact	1,603	1,272,936
TOTAL PRIVATE SECTOR		
Establishments 2004	62,371	8,156,137
2001-2004 Establishment % Change	4.5%	4.8%
Employment 2004	871,223	109,249,195
2001-2004 Employment % Change	-1.5%	-0.7%
Share of U.S. Employment	0.8%	100.0%
Location Quotient	n.a.	n.a.
Average Annual Wage 2004	\$28,027	\$39,003

Source: Battelle calculations -- based on Bureau of Labor Statistics QCEW data from the Minnesota Implan Group, RIMS II Employment Multipliers from the Bureau of Economic Analysis, and the Census Bureau's Economic Census.

Note: n.a. = metric is not applicable.





	Mississippi	United States	Rank
University R&D Expenditures, FY 2003			
Total (\$ thousands)	\$324,298	\$40,104,621	31
Life Science R&D (\$ thousands)	\$154,450	\$24,062,088	34
Percent of Total R&D	47.6%	60.0%	
Life Sciences Per Capita	\$53.60	\$82.74	
Change in Life Sciences FY 1999–2003	57.7%	52.7%	
NIH Support to Institutions, FY 2004			
Total (\$ thousands)	\$36,265	\$22,556,459	44
Per Capita Expenditures	\$12.59	\$77.56	
Change in Expenditures FY 2000–2004	44.9%	53.2%	
Higher Education Degrees in Bioscience Fields, AY 2004	1,057	111,329	35
Bioscience Occupations in the Workforce, 2004	4,340	616,140	35