Chapter 5

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Clearly, the burden of transforming the textile and apparel industries in the United States lies with the thousands of private investors and managers that must pilot their companies through a period of unprecedented change. This will require large amounts of capital, careful reexamination of "standard operating practices, " continuous innovation, and taking some significant risks. Perhaps most importantly, building a competitive industry will require confidence on the part of investors. Public policy, however enlightened, cannot replace such factors.

On the other hand, while the previous discussion indicates that many parts of this industry have moved boldly to build a world-class enterprise, their efforts alone may not prevent major sections of the industry from being eliminated by low-cost imports. Federal action could assist the industry in a variety of ways. The government can foster an economic climate conducive to risk-taking and innovation. It can help firms to retrain workers as production techniques change. It can protect the domestic industry against unfair trading practices by foreign firms. And it can act to stem the excessive tide of imports while the industry works to rebuild itself.

Debate over possible Federal programs in these and other areas has been long and complex. The following discussion will not resolve disputes covered more extensively in other, more detailed industry analyses. Rather, it will outline areas where Federal action has been suggested by a variety of groups involved in the production and trade of textiles and apparel.

Consensus about appropriate policy directions for the textile and apparel industry is difficult to achieve. In addition to basic disagreements about economic philosophy, complex industry interests are involved. For example, retailers may care little about domestic manufacturing if their foreign sources are viewed as secure; they would argue that the consumer benefits from low-cost imports. Some go so far as to contend that the United States does not appear to have a comparative advantage in many textile and apparel activities, and should not attempt to prevent the inevitable—rather, they argue, emphasis should be placed on industries in which U.S. firms can more easily compete in international markets. U.S. textile and apparel manufacturers and unions take strong exception to this perspective, and state that their industry can remain a major employer—given appropriate protection in the short term, and adequate support for research and investment over the long term.

EMPLOYMENT ISSUES

Because the textile and apparel industry is so labor-intensive—especially the apparel segment—any severe negative impact on the industry's employment becomes a problem of national concern. While some private firms have taken steps to facilitate the transition, several proposals have been suggested for public sector action, and some Federal programs already exist. What follows is a brief discussion of Federal programs to facilitate job transition and training.[1]

Assistance for Textile and Apparel Workers

Currently, it appears that the majority of textile and apparel firms devote few resources to helping workers who have been displaced—whether the assistance comes in the form of advance notice of a plant closing, or actual help in retraining and relocation. Data on assistance to displaced workers are not available, but there is little reason to believe that textile and apparel workers receive more help from their ex-employers than the average displaced worker. A survey done by the U.S. General Accounting Office, *U.S. Business Closures and Permanent Layoffs During 2983 and 2984,* indicated that of U.S. com-

[1]For more detailed discussion of this subject, see U.S. Congress, Office of Technology Assessment, *Technology and Structural Unemployment Reemploying Displaced Workers,* OTA-ITE-250 (Washington, DC: U.S. Government Printing Office, February 1986).

panics employing more than 100 people, only one-fifth gave placement help to blue collar workers, and that the average blue collar worker received 7 days' notice of a plant closing. As an OTA special report has concluded, "notice periods this brief do not allow enough time to prepare an effective program of adjustment assistance for the displaced workers."[2]

Should companies be required to give employees advance notice of pending job losses, as is done in several European countries? Should severance pay be required? Should there be any direct responsibility of the company to seek out new job opportunities actively, either through enticing new businesses to the affected community—perhaps to the very buildings abandoned by the departing firm—or by searching out appropriate job opportunities for their employees in other locations? Such questions affect not only the textile and apparel industry, but all U.S. industries; two recent OTA reports provide detailed discussion of programs for advance notice, job transition, and job training.[3]

Some of the larger textile firms have relocated displaced workers from one company plant to another. For example, Fieldcrest Cannon, Inc., attempts to relocate laid-off employees at other company sites when practical, according to O.L. Raines Jr., the company's vice president of human resources. This firm also notifies area employers and State employment officials in order to gain further reemployment assistance, and has provided advance notice of a plant closing—in March 1986, Fieldcrest announced that it was laying off 1,465 workers in North Carolina and Georgia; the layoffs began midyear. But, says Raines, "We don't have the resources to do as much . . . as we'd like. "[4]

Even more than textile companies, many apparel firms suffer from a lack of resources to devote to worker transition. A small apparel job shop may depend on orders from larger firms, and may be unable to project the amount of work to be done in a few weeks, much less the several months needed to develop comprehensive worker adjustment plans. Accordingly, many proponents of advance notice support a "size qualification, " whereby firms under a certain size would not have to satisfy all of the requirements that larger, more capital-intensive firms could fulfill.

In the United States, only Maine and Wisconsin require advance notice, while only three other States have laws that provide for voluntary advance notice, However, none of these States are located in the Southeast, where most U.S. textile and apparel firms reside. And it is uncertain whether those States that do have laws have actually improved their own programs for displaced workers, since very little data has been collected on the effects of these laws. Moreover, enforcement has been only modest.

Aside from advance notice, several States have other laws related to plant closings. Some, for example, require that employers continue health insurance coverage for a period of time. Some offer technical and financial assistance for worker buyouts, and some give assistance to troubled firms to help them stay in business,

Some State officials argue that the private sector is acting effectively to meet the needs of displaced workers, asserting that today's textile firms have "demonstrated a lot more empathy than . . . in the past. Most of the companies make a good effort to help their employees. "5 While there are models of excellent company programs, these are generally the exception and not the rule for U.S. businesses. As the Secretary of Labor's Task Force on Economic Adjustment and Worker Dislocation recommends, "greater private sector effort is necessary to alleviate the problems faced by displaced workers and their communities."[6]

Skill upgrading by companies is another question. Some argue that the production and management jobs of the future will require entirely different skills. They contend that more education and different training will be needed to perform on the job. Beginning some of that retraining now, with existing employees, could help ease the displacement crisis that is likely to continue in the industry. It is important to note, however, that these kinds of activities

[2]U.S. Congress, Office of Technology Assessment, *P/ant Closing: Advance* Notice *and Rapid Response-Special Report*, OTA-ITE-321 (Washington, DC: U.S. Government Printing Office, September 1986), p. 1.

[3]*Technology and Structural Unemployment: Reemploying Displaced Adults,* op. cit., ch. 5; *Plant Closing: Advance Notice and Rapid Response—Special Report,* op. cit , pp. *26-27.*

[4]*The Charlotte Observer*, Apr. 28, 1986, p. 17C.

[5]Robert Smith, assistant deputy executive director, South Carolina Employment Security Commission, cited in *The Charlotte Observer,* op. cit.

[6]*The Charlotte Observer,* op. cit., p. 6,

may benefit society as a whole more than the industry that helps fund retraining programs. As a result, company-based retraining efforts may often fall short of a level that would be optimum for the Nation.

State and Local Responsibilities for Employment Training and Transition

Communities whose tax and economic bases depend heavily on the production of textiles and apparel have a clear interest in ensuring that new employment opportunities respond to plant closings, and that individuals who must navigate the transition to new jobs have access to assistance programs. As textile and apparel firms continue to adapt to new technologies and changing market conditions, local social service departments may be forced to increase the money and time allocated to assist displaced workers and their families.

Active promotion of potential businesses by communities, as well as by regional and State bodies, has proven successful in many areas. Lowell, Massachusetts, for example, has lost many textile and apparel jobs over the past 50 years, but in recent years the town has recruited several high-technology firms to its community, including Wang. These firms have provided employment opportunities directly through the job openings they offer, and indirectly through the economic stimulus that their presence brings to the town. North Carolina's Research Triangle Park has also provided some relief to those in the State left unemployed by plant closings or layoffs in the textile and apparel industry.

In order to retain existing firms or lure new firms to their communities, a local body may have to waive or reduce property taxes for a period of time. Infrastructure may have to be provided at public expense. Local governments may have to go to their citizens with new bond issues. These kinds of expenditures can help slow the drain on public services resulting from widespread worker displacement—services which range from State unemployment insurance to local programs providing emergency shelter for a family evicted due to insufficient mortgage or rent payments. The competition among communities to attract industry is high. But so are the stakes to communities and their residents—and to States, which stand to increase their tax base significantly during times of high employment.

There is, however, a limit to actions that a State or city can take in order to bring industry into its borders. Some States are threatening to bring suit against businesses that have been granted special incentives, but have then fallen short of fulfilling original expectations. One 1984 study found that "for every 50 cents difference that an incentive made in a company's profit, it cost a State $1 in foregone revenues."[7] Clearly, too much in the way of up-front company bonuses can cause the State or locality to lose more revenue than would be gained through long term industrial activity. Moreover, some businesses have admitted that prospective subsidies play a less important role in a location decision than such factors as a reputable labor force, a natural resource base, and even "quality of life" considerations.[8]

Trade Adjustment Assistance[9]

The Federal Government, through the Trade Act of 1974, has provided "trade adjustment assistance" (TAA) to workers who lose their jobs due to foreign competition, and to firms who suffer from increases in imports. TAA was established to aid in the orderly transfer of resources to alternative uses, and to help with adjustments to new conditions of competition. Trade-affected firms can also receive technical assistance from the International Trade Administration of the Department of Commerce.

Workers qualify for TAA funding through certification by the U.S. Department of Labor. The law requires certification in 60 days, but delays have been frequent. With recent improvements in the process, about half the petitions now receive a decision within the 60-day legal mandate.

Once certified as having been displaced due to the effects of trade, workers are eligible to receive Trade Readjustment Assistance (TRA), or weekly income support payments. Through 1981, these payments were made over and above any payments made through State unemployment insurance (UI); since that time, however, TRA has been tied directly to UI. Workers may now receive TRA and UI payments combined for one year, and TRA must be at the same

[7] Alex Kotlowitz and Dale D Buss, "Localities' Giveaways To Lure Corporations Cause Growing Outcry," *The Wall Street Journal,* Sept. *24, 1986,* p.1.

[8] Ibid.

[9] This section is based largely on *Technology and Structural Unemployment: Reemploying Displaced Workers,* op. cit., pp. 196-198

Box C.—Current Federal Programs for Job Transition*

Title III of the Job Training and Partnership Act of 1983 (JTPA) responded to renewed concern about displaced workers. JTPA's Title III helps displaced workers to train for, and find, new jobs, through programs that are generally directed by State Governors. Title III calls for the States to determine exactly what services will be provided, how, by whom, and for whom. Title III programs will be supported by Federal funding of $223 million in fiscal year 1987, plus some matching contributions by States. Title III serves approximately 120,000 workers per year.

The Employment Service (ES), created by Federal law during the Great Depression, is the oldest government service available to displaced workers. Essentially, ES is a job brokering service, matching jobseekers with requests from employers. ES can also offer counseling, testing, assessment, and "job development," or unearthing jobs that are not yet listed. However, ES never actually provided these services for more than a small minority of clients, and recent cutbacks of staff and funding have curbed ES services still further.

Unemployment Insurance (UI), administered by ES offices, is designed to provide temporary income replacement for workers who have lost their jobs through no fault of their own. Regular UI benefits last 26 weeks, and can be extended another 13 weeks when a State's "insured unemployment rate"—that percentage of a State's workers covered by UI who are actually collecting benefits—is high. UI's two main objectives are to provide a cushion for unemployed workers between jobs, and to help stabilize the economy in recessions. UI can also provide a source of income for displaced workers while they learn job search skills or retrain for a new occupation.

*This information is drawn from U.S. Congress, Office of Technology Assessment, *Technology and Structural Unemployment: Reemploying Displaced Adults*, OTA-ITE-250 (Washington, DC: U.S. Government Printing Office, February 1986), ch. 5.

level as UI. While receiving this support, workers can take advantage of considerable retraining and relocation assistance-ranging from reimbursement of 90 percent of out-of-area job search expenses (up to $800) to subsidized "on-the-job training" in new jobs. Workers enrolled in approved classroom training can continue to receive TRA payments for an additional 26 weeks after 1 year has expired.

TAA benefits were cut back sharply in the first half of the 1980s. Outlays for TRAs dropped from $1.6 billion in fiscal year 1980 to $35 million in fiscal 1984. In December 1985, Congress failed to pass legislation that would have reauthorized the program (the Omnibus Budget Reconciliation Act). However, funding for TAA services to workers was extended. No provision was made at the time for TRAs.

In April 1986, a 6-year extension of the TAA program was approved, retroactive to December 19, 1985. TAA outlays were about $146 million in fiscal year 1986, including $118 million for TRAs. Government estimates of outlays for fiscal year 1987 forecast a total program expenditure of over $200 million. These levels are similar to those of the 1970s.

In addition to TAA, box C describes several other Federal programs for job training and transition.

TRADE ALTERNATIVES

In the arena of public policy, no issue is as important to the future of the U.S. textile industry as trade. But the specifics of a coordinated trade strategy are the subject of debate, If the United States wishes to gain greater access for domestic producers in the protected markets of other countries, it

could announce that retaliatory measures will be taken unless foreign trade barriers are lowered. Such an approach, however, must be weighed against the fact that any effort to gain trade concessions for U.S. textile and apparel firms—by either increased protection of domestic markets or pressure to open foreign markets—is likely to affect trade negotiations in other areas.

Most experts agree that programs designed to revitalize U.S. textile and apparel firms will probably have little impact without a trade strategy that gives the industry time to complete its massive restructuring. On the other hand, many economists oppose the principle of trade protection, and contend that if such action must be taken, it should be in the form of temporary tariff increases. Tariffs, they argue, are preferable to quotas and other ontariff mechanisms—tariffs make the cost of trade restrictions clear to consumers, and the revenue from tariffs goes to the U.S. treasury, not to foreign exporters who may react to quotas with higher prices.[10]

Where the U.S. Government has intervened in textile and apparel trade, its interventions have tended to be ad hoc and reactive rather than comprehensive. While most major textile and apparel producing nations have implemented sectoral industrial policies—featuring industry promotion subsidies and import protection—the U.S. Government has played a comparatively passive role, seeking to patch up particular problem areas as they develop rather than implement a more systematic approach. And, as indicated in chapter 4, many charge that existing trade regulations concerning textiles and apparel have been ineffectively implemented.

The surge of textile and apparel imports into the U.S. market is a reflection of an export drive by developing nations trying to bolster their domestic economies, and of a defensive response by a number of industrialized nations. The impetus for these developments has been provided by foreign governments. [f the United States fails to address this problem, much of the future of U.S. textile and apparel industries may be determined by decisions in other countries.

Export Promotion

U.S. textile exports have never been a significant part of domestic production, and most experts would agree that they are unlikely to emerge as the major answer to the current crisis in U.S. textile trade. Nevertheless, there is growth potential for the U.S. textile industry in export markets. In 1986, U.S. textile and apparel exports increased 11 percent to about $3.47 billion; textile products accounted for approximately 75 percent of the total value of these exports, and for about 60 percent of the increase.'] It must be emphasized, however, that a substantial amount of this growth was due to 807 trade—where U.S. firms move early stages of production overseas and then reimport the final product, on which is placed a tariff that applies only to the value added outside the United States.

One way for most textile and apparel firms to improve their viability is to be sure that they share in the growth of worldwide demand for textiles. Textile firms must focus attention on penetrating foreign markets, but they will likely need the help of the U.S. Government to seek reductions in such restrictions as nontariff barriers, import licensing tactics, and 200-percent duty rates. Of course, any U.S. proposal in this area may be met with counterdemands concerning existing U.S. trade barriers in textiles and apparel and other industries, and may raise questions pertaining to past and present U.S. policies toward international exchange rate fluctuations.

Proposals and actions to promote exports include the following:

- In 1979, the United States initiated a long-run program to promote textile and apparel export expansion. Implemented by the Office of Textiles and Apparel at the Department of Commerce—responsible for attempting to reduce foreign barriers to the export of U.S. textile products—in cooperation with Commerce's Bureau of Export Development, a major study of the foreign sales potential of U.S. textiles and apparel was undertaken. Textile and apparel markets in 47 countries were surveyed. A series of seminars was held in 1980, geared to the

[10] Robert Lawrence, *Can America Compete?* (Washington, DC The Brookings Institute, 1984), p 129

[11] American Textile Manufacturers Institute, *Textile Highlights*, September 1 986, p. IV

needs of the manufacturers of textile and apparel products. The Department of Commerce has also examined the viability of developing U.S. export trading companies for textile and apparel products, in order to facilitate the entry of firms that think of themselves as too small or too unfamiliar with foreign trade to seriously consider exporting.[12]

2. In 1981, the Office of Textiles and Apparel published the known nontariff barriers to U.S. textile and apparel exports in 138 countries.[13] The goal was to use this publication as a basis for examining the regulations in reference to multilateral trade negotiations. The office established a special "trade facilitation" staff, charged specifically with the investigation of nontariff barriers and other trade problems encountered by U.S. textile exporters.[14] Such tools can strengthen the U.S. position during trade negotiations,
3. Export financing is another method of promoting exports. Because some exporters have complained that U.S. export financing for textiles and apparel is not competitive, the U.S. Department of Commerce set up a task force to study the subject.
4. The appropriate executive branch agencies could enforce existing laws and regulations that affect market access for U.S. textiles and apparel more strictly—such as Section 301 of the Trade Act of 1974, which allows the President to retaliate against unfair trade practices of other countries in world markets. However, analysis of the full value and impact of Section 301, and of possible modifications to this provision, are beyond the scope of the current discussion.
5 Another proposal is for the government to offer export subsidies to U.S. firms, in order to offset the advantages that foreign exporters receive from their governments. In the United States, this would most likely involve setting special interest rates.

[12]B. Toyne, *et* al., *The Global Textile Industry* (London: George Allen & Unwin, 1984), pp. 113-114.

[13]U.S. Department of Commerce, International Trade Administration, Office of Textiles and Apparel, "Foreign Regulations Affecting United States Textile/Apparel Exports," August 1981.

[14]Toyne, et al., op. cit, p 114.

Import Regulation

As stated, import regulation is a contentious public policy issue, one for which many strategies have been proposed. Besides the political and philosophical debates about whether a free trade approach as opposed to some governmental involvement in trade policy is appropriate, there is also an ongoing debate about whether import protection, if developed, should be implemented as a long- or short-term strategy. The Fiber, Fabric, and Apparel Coalition for Trade laments:

> In the United States, textile trade issues are too often debated in an ideological context of "free trade" vs. "protectionism. " These terms have little real applicability to an industry which, at the world level, is characterized by pervasive government intervention in, and management of, the terms of trade.[15]

Proposals to regulate imports are numerous. They include:

1. Enacting trade legislation that could:
   —Require or encourage the President to act against foreign governments' '(export targeting, " or subsidization of textile and apparel exports.
   —Require or encourage the President to impose duties against "diversionary dumping," in which textiles, apparel, or textile machinery are dumped in a third country and then incorporated into a product to be exported to the United States. The European Economic Community (EEC), for example, has introduced an "antifraud" clause, which provides that fraudulent shipments may be charged against the quota of the genuine country of origin. This significantly reduced imports originating from South Korea.[16]
2. Enforcing bilateral agreements more rigidly. In the latest agreement with Japan, signed in November of 1986, the U.S. Government said that Japan would limit annual growth of textile and apparel exports to the United States to about eight-tenths of 1 percent; 1986 exports, however, had already grown 18 percent, In addi-

[15]Thomas R, Howell and William A, Noellert, "The EEC and the Third Multifiber Arrangement," study prepared for the Fiber, Fabric, and Apparel Coalition for Trade, 1986, preface to Executive Summary.

[16]Howell and Noellert, op. cit., p. 99.

tion, when the last bilateral agreement expired on December 31, 1985, Japan assured the United States that its exports would be held at 1985 levels. I[T]

3. Imposing tougher import restrictions. Under the terms of the Multi-Fiber Arrangement (MFA), for example, the EEC reduced access to its markets between 1982 and 1986 in 14 of 15 categories of its dominant suppliers. Also, quota provisions from MFA could be extended to fibers not currently controlled; in the agreement to extend MFA from 1986 to 1991, products of vegetable fibers other than cotton and silk blends are included as products available for quota control.
4. Limiting the growth of textile and apparel imports to the United States to the growth of the U.S. market; allowing the President to set specific quota levels within the overall total.
5. Taking action against U.S. trading partners that have developed an "excessive trade surplus" with the United States stemming from unfair trade practices, for either textiles and apparel or all trade. The definition of unfair trade could range from direct subsidies to the denial of internationally recognized labor rights and standards. One example of such retaliation might be a surcharge on imports from any country maintaining a substantially positive trade balance with the United States. A congressional proposal has called for a 25 percent surcharge when a country's exports exceeded their buying from the United States by 65 percent, with an exemption earned in a year in which trade surplus was reduced by 10 percent. Had such a proposal been in effect in 1985, it would have had an impact on Korea, Taiwan, Brazil, and Japan.[18]
6 Requiring that the U.S. Government turn over tariffs collected on textile and apparel imports to the industry for capital expenditure assistance.
7. Implementing an import licensing system for textiles and apparel. Such a system could work to prevent overshipments, since goods would need a quota allocation to be shipped; 'g and could limit fraud and transshipment for the purpose of quota evasion.[20]
8 Establishing a data bank on cost of manufacture of specific textile and apparel products by country, with details of the cost components. In this manner, import shipments data and antidumping and/or countervailing duty petitions could be monitired promptly where appropriate.
9 Reexamining those aspects of the Caribbean Basin Initiative which allow "maximum access" to goods sewn in Caribbean nations from U. S.-made fabric.

Other Trade Policy Areas

Several general proposals, which relate to trade policy for textiles and apparel in so far as they relate to all industries, have been suggested:

- **Education: Government support** to improve the general level of "technological literacy" of the U.S. population is a high priority for public policy.
- Tax Policy: It has long been a recommendation of the AFL-CIO to "purge the tax code of incentives for the movement of U.S. jobs overseas through eliminating the foreign tax credits and the deferral of taxes on nonrepatriated foreign earnings."[21]

  Some believe that tax allowances for small operations could help them to increase their productivity. Others propose the use of targeted investment credits, aimed at adoption of state-of-the-art technology. Changes in tax laws on depreciation are also part of many proposals.
- **Tariff Policy: Several groups believe** that items 806.30 and 807 of the Tariff Schedules of the United States (TSUS) should be repealed.
- **Policy on Multinationals: Existing codes of conduct for multinational enterprises might be strengthened to protect the rights of workers employed by these firms, and to provide effective remedies when these rights are denied.**
- **U.S.-Supported Loan and Investment Programs for Overseas Businesses:** It has been argued that the Overseas Private Investment Corporation (OPIC) should be terminated. As

[1] "American Textile Manufacturers institute, *Textile* Trends, vol XXXIV, No 45, No\ 14, 1986, p 1
[18] "The New Trade Strategy," *Business Week*. Oct 7, 1985, p. 93
[19] Senator Ernest Hollings, Statement on Thailand, Nov.13,1985,p2
[20] Testimony of Sol Chaikin, President, International Ladies' Garment Workers' Union, Subcommittee on International Trade, Committee on Finance, U.S. Senate, July 15, 1985, p. 3.
[21] AFL-CIO Executive Council on Trade, "Executive Council statement, " Feb. 18, 1986, p.2.

a government agency that insures private investment abroad, it is argued that OPIC has contributed to the export of U.S. jobs.

Another international program that may need reconsideration based on U.S. trade interests is loans from the International Monetary Fund (IMF), which often require that the borrowing countries curb imports and push exports in order to pay their debts. Instead, the IMF might be urged to promote balanced growth in both borrowing and in lending countries.

While Export Import (Exim) Bank funding—including direct loan authority, which provides U.S. industry with tools necessary for international competition—is likely to be maintained, the AFL-CIO has proposed that funds should not be used to develop projects in other countries in industrial sectors where a significant excess in U.S. capacity exists.[22]

[22]Ibid., p. 30.

RESEARCH AND DEVELOPMENT (R&D)

Maintaining a technological edge over competitors has been a long standing strategy in the United States for maintaining a productivity edge and a comparative advantage. Some R&D for textiles and apparel is for new product development; other R&D is for process improvements. Much research within the industry complex could be systemwide, not just centered around automating a small part of the activity. Many current research efforts involve groups outside the traditional textile industry and its supporting research facilities, since the new generation of equipment—including computers, communication software, and sensors—requires contributions from industries that formerly did not participate in R&D for textiles and apparel. Because of this need for generic, system-level research, government help may be required in many areas of technological development.

Public/Private Ventures

Coordinated R&D is a policy option receiving greater attention as a mechanism to increase the competitive strength of U.S. textile companies. This coordination could be done privately, through greater funding of research institutes by textile companies; presently, the Textile Research Institute in Princeton, New Jersey, serves such a function. Further movement in this direction may require review and/or amendment of some anti-trust restrictions.

Coordination could also be accomplished through public funding, or some combination of private and public funding. The Textile/Clothing Technology Corp. ($(TC)^2$) is a modest effort at coordinated public/private R&D efforts; representatives from industry, government, and academia are working together in the development of advanced automation of apparel production, $(TC)^2$ technology is currently being applied by the Singer Sewing CO. *S Such efforts could be expanded.

One example of coordinated, government guided and funded R&D in the apparel field is in Japan; the goals for this R&D program were discussed in chapter 2. In 1982, the Japanese Government created the Automated Sewing System Technology Development Association, in response to complaints from Japanese apparel firms of a labor shortage in sewing. The purpose of such research is to cope with shorter production cycles and an increasing variety of consumer needs with a smaller labor force. The Japanese project is funded at $60 million, and is due to be completed in 1989. The research segments have been undertaken by the 28 companies that comprise the association—firms that include major apparel manufacturers; fiber manufacturers; sewing manufacturers; and manufacturers of microelectronics, robots, and computers,

Another Japanese example of public/private cooperation in R&D is in microelectronics, a field crucial to the textile industry. From 1976 through 1979, the government spent 30 billion yen, or about $125 million, on a 72 billion yen public/private budget, A joint laboratory was setup to develop a large-scale, integrated circuit technology. Added to the coordinated activities of the research scientists of these

[23]Frank Bray and Vince Vento, "(Chapter Two Begins With Singer," *Bobbin Magazine*, September 1986, p. 170.

firms was the heavy involvement of management, including company presidents.[24]

Some experts recommend that the coordination of R&D be international in scope, arguing that the speed of technology transfer makes any technological breakthrough and its economic advantages to the developer short term at best. An example of such coordination can be found in a broad EEC program, "Basic Research in Industrial Technologies in Europe" (BRITE). Over 10 projects related the manufacture of textiles and apparel have been approved under BRITE's auspices, ranging from research of automated sewing and ironing techniques to the development of sophisticated management information networks. Each BRITE project involves at least two companies from at least two countries, and the EEC contributes half of BRITE's funding .25

Currently, most basic R&D is performed in universities, with the more applied research carried out by industry. Du Pont chairman Edward Jefferson looks toward an important government role in providing support for the basic research establishment in the universities, and in encouraging cooperation between industry and universities.[26]

One suggestion to promote R&D is to consider further revisions of U.S. anti-trust laws, which would allow competing firms to pool and coordinate R&D resources. While there has been some relaxation of anti-trust legislation, proponents of pooling resources suggest that the industry should consider supporting greater movement in this direction. This, they argue, would allow companies to more often and more effectively share the costs, risks, and benefits of major R&D projects. Such large-scale joint efforts exist in Japan, where major fiber manufacturers reached an agreement to develop an innovative, high-efficiency fiber production process. Aimed at quicker polymerization goals, the results of this effort include 50 percent reduction of energy consumption, 40 percent lower labor costs, and 10 percent lower total costs. The proposed 1983 budget was $9.6 million, and the project is expected to be complete in 1988.[27]

Investment Incentives

The high cost of new technology may make government investment incentives for the industry necessary-especially for the apparel sectors, which remain far behind their textile cousins in terms of innovation and productivity growth. In fact, (TC)[2] represents the first large-scale corporate effort to invest in apparel R&D. The industry may need stronger stimulus toward investment; tax policy could be a likely vehicle. According to Kurt Salmon Associates, "The government should give the industry money to help itself, not just burial insurance."[28] John Gregg, chairman of the Fiber, Fabric, and Apparel Coalition for Trade, and president of Avtex Fibers, Inc., has also voiced support for investment incentives.[29]

Other Strategies

A public/private strategy to make R&D in textile manufacturing a dynamic force for industrial revitalization will not be easily formulated, especially in an industry where most important machinery development is done by firms which are not themselves manufacturers of textile products, but of textile machinery. Indeed, because most R&D is done by machinery manufacturers, textile and apparel firms have little control over the types of developments that occur. In addition, the majority of R&D done by machinery manufacturers is being done by foreign-owned firms.

More control over future innovations is believed to be important for the development of the U.S. industry. It is too simplistic, however, to assume that R&D could simply be relocated from the machinery manufacturers to the textile manufacturers. The expense of R&D alone makes it prohibitive to all but the largest firms.

One area of textile research that does not "belong" to the machinery manufacturers is fiber research—an area in which many of the goals are for the development of new products, or new applications for

[24] *Japan Economic Newspaper*, July 7, 1983, P 1

[25] "BRITE—The Community Programme of Research in Industrial Technologies–Gets Under Way, " Press Release, Commission of the European Communities, Brussels, Feb. 4, 1986.

[26] EG Jefferson, Chairman, E.I du Pent de Nemours & CO., 40th Anniversary of the Society of Fiber, Science, and Technology', Tokyo, May 11, 1984, p.9.

[27] *Japan Times*, June 21, 1983, p.12

[28] Bruce Stokes, "Getting Competitive," *National Journal*, June 7, 1986, p. 1365,

[29] Ibid

emerging products. Typically, these efforts are undertaken by large chemical corporations and universities. Coordinating trends in fiber R&D with policy to encourage innovation is important, especially to producers of textile products for industrial use. The related field of geotextiles, for example, is growing, and yet science and technology seem to lag behind the broad range of geotextiles applications—ranging from road construction, to beach erosion control, to highway drainage control, to railroad track stabilization.

Ludwig Rebenfeld of the Textile Research Institute has suggested that work on pore structure of textiles, and on such fiber properties as cross-sectional shape, is necessary if further control of factors like durability, dimensional stability, abrasion resistance, bursting strength, and permeability are to be achieved.[30] The use of fibers in composites and as polymeric reagents are also burgeoning fields, in which successful R&D could well promote the development of new products for sale. According to Rebenfeld, the research community for fiber needs to be integrated into the overall field of materials science; cross-fertilization among those developing new materials and material applications with those developing fibers could have important synergistic effects .3'

[30] Ludwig Rebenfeld, "Textile Fibers—Past Trends and Future Opportunities," *International Dyeing* Seminar, Apr. 17, 1986.
[31] Ibid,