

# Chapter 3

## The Global Responsibilities of an Economic Superpower (1981–1992)



### 1 Keynotes of the Japanese Economy and Trade Policy in the 1980s

#### 1.1 *Fiscal Restructuring and Stable Growth*

The combination of steep inflation and slow growth rates was a common problem faced by industrial economies in the late 1970s and early 1980s. Japan responded to these issues on the micro level by pursuing policies for “streamlining” businesses, especially through energy conservation, and on the macro level by promoting financial reform.

Companies cut costs by reducing energy use per unit of production and recovered their international competitiveness in tandem with their progress in conserving energy. Meanwhile, adjustments were made for employment in the short term through temporary leaves and transfers as well as the expiration of construction contracts and the dismissal of temporary workers. As these practices spread, the problem of the incompatibility of employment adjustment policies and the need for employment security became evident to both labor and management.

On the macroeconomic side, after the negative real growth of 1974, Japan’s growth rate slowed dramatically, and the problem emerged of mounting fiscal dependence on deficit spending. Dubbed “the first year of welfare,” 1973 saw a substantial increase in the budget for welfare-related expenses such as free medical care for the elderly. This was followed almost immediately, however, by a focus on “welfare policy review” and a policy reversal that stressed that “even the welfare budget isn’t off limits [from cuts]”.

The 1980s Liberal Democratic Party administrations of Prime Minister Zenko Suzuki and his successor, Yasuhiro Nakasone, prioritized administrative and fiscal reform. The Provisional Commission for Administrative Reform was established to formulate policies on administrative reform, while at the same time, a “zero-

ceiling principle” was adopted with regard to the budget in order to restrain spending increases, meaning that budgets were to be held to the previous year’s level (budget for FY 1982) or lower (budget for FY 1983 and beyond). In addition, the government promoted the division and privatization of three public corporations—the Japan National Railways, Nippon Telegraph and Telephone Public Corp., and Japan Tobacco and Salt Public Corp.—and “fiscal reform without tax increases.” Tax increases were considered under names such as “sales tax” and “value-added tax,” but such measures were judged too difficult to effect at the time, given the instability of the conservative electoral base. It was only in 1989 that the consumption tax was finally introduced. For this reason, simple administrative reforms were needed in order to realize cost savings, and reviews were undertaken of the kinds of authority exercised by the various bureaucratic agencies, along with attempts to relax unnecessary regulations. In other words, Japan pursued neo-liberal economic policies aimed at “small government” of the kind then being adopted by the Thatcher administration in the UK and the Reagan administration in the US.

## ***1.2 Publication of the 1980s Vision***

The “Industrial policy for the 1980s” (“*1980s Vision*”), submitted to the MITI Minister in March 1980 by the Industrial Structure Council, represented an effort to formulate a new vision, comparable to the Industrial Structure Research Advisory Council’s 1963 report, “Heavy and Chemical Industrialization” and its “Knowledge-Intensive Structure” report of 1971 (Okazaki 2012, p. 1). The *1980s Vision* pointed out that Japan (1) had entered an era of “diversified energy use” through its shift from oil to alternative energy, (2) was developing a multipolar political economic structure centered on the United States, (3) had completed its “catch-up modernization” and was in a new phase of economic growth, and (4) now accounted for 10% of the world’s total gross domestic product. Based on the recognition of these changes, the report articulated new long-term “national goals” and laid out the issues involved in realizing these objectives. The new goals were defined as (1) contributing to the international world as an “economic power,” (2) overcoming the constraints of being a “resource-poor country,” and (3) achieving a lifestyle balance between “vitality” and “comfort.”

With these points in mind, Chap. 9 of the *1980s Vision* addressed “the kind of industrial structure demanded by the times,” dividing its requirements into four categories: (1) dynamic comparative advantage (based on the development of a technology-intensive, high value-added, technologically autonomous industrial structure), (2) fulfillment of the needs of the people (responding to growing social needs arising from the aging of the population and changes in public consciousness, lifestyle, and so on.), (3) Energy- and resource-conservation, and (4) security (meaning guarantees of economic security). These were combined under the term “Creative Knowledge Intensity” and defined the fundamental task for industrial policy as ensuring that the changes that occurred in the industrial structure in the 1970s

be solidified through the exercise of creativity in the domestic development of technology, among other areas. Underlying this outlook was the recognition that Japan had gradually caught up with the advanced economies of Europe and the United States and therefore had to ask itself how to devise policy for the future when it was already at the cutting edge technologically. The *Vision* also reflected an awareness of the problem of how to cooperate with and contribute to the international community. Biotechnology, new materials, new energy, and fifth-generation computers, among others, were suggested as specific new industries that could take the lead in advancing the necessary shift in the industrial structure.

The *1980s Vision* held the premise that these four highlighted needs would be met by the voluntary efforts of businesses, but also addressed the possibility that it might not be desirable from a long-term point of view to rely on market mechanisms alone. It accordingly asserted that industrial policy had a role to play in: (1) realizing an appropriate international division of labor based on the maintenance and formation of dynamic comparative advantage, (2) establishing the foundations for long-term development and economic security, (3) responding to the external diseconomies that accompany corporate activity, and (4) enabling smooth industrial adjustment.

The *1980s Vision* went into detail regarding the concrete measures involved in these industrial adjustment policies. That is, temporary policy intervention was regarded as necessary if friction were to mount over such problems as employment or oversupply in “specific industrial sectors that were shrinking or undergoing conversion to other sectors.” This “industrial adjustment” was to be applied in a limited manner and in accordance with the following principles: (1) efficiency, (2) complementarity (complementing the changes taking place through the market mechanism), (3) non-permanence (the adjustment phase was to be temporary), and (4) clarity (the scope of measures were to be limited and the contents clear). The basic approach, which saw industrial adjustment as occurring through market mechanisms but invoked policy intervention as merited in specific cases, was in accord with the Positive Adjustment Policy (PAP) set forth by the OECD in June 1978. In that sense, it represented an early adoption of OECD policy.

This approach to industrial adjustment policy was based on assumptions about the basic materials industries (petroleum refining, petrochemicals, vinyl chloride, and others), the performance of which had been deteriorating due to the increase in raw fuel and energy costs with the twin oil crises of the 1970s. The transformation of the industrial structure required addressing expectations both of decline and of growth. The basic material industries in this period (1) were intensive consumers of energy, (2) had difficulty with product differentiation given the character of general-purpose materials, (3) had large fixed costs which meant that any contraction in operations made the burden of interest payments that much heavier, (4) were at a disadvantage in their bargaining power over prices because of their many large-scale customers, and (5) were extremely capital intensive.

Meanwhile, since the 1970s, as resource nationalism began emerging in various countries, the government had been wary of rises in the basic material industries’ import ratios. For this reason, MITI regarded policy on basic materials industries not

merely as a set of measures to address recession but as an issue of national importance with bearing on the entire industrial structure and economic security of Japan.

For these reasons, there was a need for coordination of the basic materials sector as a whole, and MITI began exploring policy frameworks for the period to follow the expiration of the Law on Temporary Measures for Stabilization of Specified Depressed Industries (“Industry Stabilization Law”). As will be explained below, the resulting Temporary Measures Law for the Structural Adjustment of Specific Industries (May 1983 “Structural Improvement Law”) represented a plan for a shift in industrial structure policies and industrial adjustment policies, including the Antimonopoly Law.

### *1.3 Yen Appreciation and International Contributions*

Prime Minister Nakasone, returning home after his summit meeting with US President Ronald Reagan in January 1985, instructed the Cabinet to set out market-opening measures for the US and to proceed with simplifying import procedures and improving standards and conformity assessment systems in the fields of communication equipment, electronics, timber, medical devices, medicines, and so on. Additionally, on April 9, the Prime Minister issued an unusual “call to the people” on TV, declaring that, “In order to maintain the free trade system, we must open the Japanese market to the utmost extent, ‘on the principle of freedom with a minimum of exceptions.’” He called for a radical reduction in government regulations on imports and for entrusting choice, and responsibility for that choice, to consumers. He also called on “each citizen to buy at least \$100 worth of foreign products” for the sake of expanding imports.

In October that year, Nakasone launched the “Study Group on Economic Structural Adjustment for International Cooperation,” a private advisory group charged with examining measures for converting Japan’s industrial structure from export dependence to external cooperation. Its chair was Haruo Maekawa, former Governor of the Bank of Japan. The group was asked to consider measures for (1) medium-term structural adjustment to enable harmonization with the demands of the international economy, (2) maintenance of an appropriate balance of trade, and (3) international cooperation to stabilize and maintain appropriate currency values. The study group’s “Maekawa Report” had a significant influence on the subsequent course of economic policy.

The Maekawa Report was compiled within the context of Japan’s particular international position in the 1980s. Western countries, which had maintained tight money policies for a long time in efforts to curb the inflation caused by high oil prices, were plagued by zero and negative growth, as well as high unemployment and inflation rates. Interest rates in the US reached their highest level since World War II. The official discount rate hit 14%, which in turn led interest rates to reach 18%. High interest rates worldwide exerted strong deflationary pressures on each economy, hindering economic growth. The burden of high interest payments also had the adverse

effect of producing high cumulative debt in non-oil-producing developing countries. The impact on the Japanese economy was also significant: high interest rates in the US led to the depreciation of the yen, complicating Japan's efforts to maintain low interest rates that were designed to stimulate growth, and acting as a drag on the recovery of domestic demand.

As the gap between domestic and foreign economic conditions widened, European and US criticism of Japan's growing exports mounted, creating a need for currency adjustment. In response to the criticism against Japan, the government promoted import expansion and market-opening policies. Repeated efforts were made to resolve trade problems bilaterally, including Japan-US negotiations on steel, automobiles, machine tools, and semiconductors, among others, and industrial cooperation plans with European countries.

However, these measures were not immediately sufficient to resolve the various problems in the world economy, including the worsening of the US trade balance. The Conference of Ministers and Governors of the Group of Five (G5) that met at New York's Plaza Hotel in September 1985 therefore agreed to undertake a large-scale currency revaluation, or depreciation of the dollar, in what became known as the Plaza Accord. The result was a sharp appreciation of the yen. This posed a challenge to the Japanese economy, but the adjustment phase was not long. Japan gradually advanced measures for expanding domestic demand and the economy made progress toward recovery. Based on rising personal consumption and capital investment, the steady growth of this period was the longest in duration after the Iwato boom of 1958-1961 and the Izanagi boom of 1965-1970.

#### ***1.4 "The Basic Design of 21st-Century Industrial Society"***

The yen appreciation in the latter half of the 1980s brought new challenges to Japanese industry, beginning with the basic materials industries. First, domestic demand stagnated due to the relocation overseas of high-demand industries, the expansion of products and parts imports, and the shift to service industries. Second, domestic market conditions deteriorated due to changes in both domestic and foreign supply and demand and in the price structure. The government therefore formulated the "Law of Temporary Measures to Facilitate Industrial Structural Adjustment" and other measures to support companies and regions whose economic situation had deteriorated markedly for the above reasons, and developed new approaches to shifts in the industrial structure.

Meanwhile, the Planning Subcommittee of the Comprehensive Group on Industrial Structural Adjustment in May 1986 issued a report titled "The basic design of 21st-century industrial society." The report was a response to these new circumstances and pointed out the following new trends (Okazaki 2012, p. 6): (1) The growing interdependence of the world's economies meant that the world was moving from an era centered on the US to one of maintaining order through cooperation

and solidarity among major countries; (2) technological innovation and an information revolution, tantamount to a third industrial revolution, were underway (including the trend toward “fusion” among disparate industries and diversification of industry); (3) social consciousness was shifting toward a greater emphasis on a rich spiritual and cultural life. Given these trends, the report cited three tasks for Japan: “international cooperation and international contribution,” “the maintenance of industrial vitality based on the exercise of creativity,” and “creation of a new lifestyle culture.” Among these, “international cooperation and international contribution” was especially important in defining the basic approaches of policy-making and industrial policy. The report called for a fundamental reliance on market mechanisms, much as the *1980s Vision* had, but said that the role of industrial policy was to reduce the domestic friction accompanying industrial adjustment and to respond promptly to the international economic environment. The need to respond to external economic imbalances and international economic friction was highlighted because of the mounting urgency of these problems. In that sense, the underlying thinking of the committee and its policy discussions had much in common with the Maekawa Report issued by Prime Minister Nakasone’s private advisory body in 1986.

### ***1.5 Progress in Deregulation***

The administrative and financial reform promoted by the Second Provisional Commission for Administrative Reform after the early 1980s constituted a review of policy with an eye to reducing the administrative role. This was symbolized in the July 1982 announcement in the “Third Report” of a “shift away from guidance, regulation, and protection of the private sector by civil administration toward a reliance on the private sector and an administrative emphasis on assisting with the establishment of a direction, and with coordination and complementarity.” In line with this policy, the final report of March 1983 recommended concrete deregulation measures concerning banks, property insurance, alcoholic beverage sales, silk threading, the petroleum industry, the freight-forwarding industry, and others. Such deregulation would transform the domestic economic structure through regulatory reform, while also easing international tensions by opening the domestic market.

The Administrative Reform Commission established in July 1983 took over from the Second Extraordinary Investigative Committee to deliberate on the role of government regulation of private activities. The result of this examination was summarized in the February 1985 report titled “Administrative reform for promoting the vitality of the private sector.” On the premise that regulation and protection restricts private business activity and preserves inefficient enterprises, the report called for a review of the public sector aimed at promoting “the market and competition principles in the private sector” and eliminating or reducing permits and subsidies. Deregulation was divided into two categories: “economic regulation” that regulated business activity on everything from entry into business, to facilities, quantities, and pricing; and “social regulation” for safety and sanitation. Deregulation was aimed at minimizing the

former of the two, but also targeted the latter where administrative divisions had led to duplication. Deregulation was thus clearly positioned to be one of the key points of administrative reform.

Additionally, the April 1986 Maekawa Report, seeking to harmonize with the world on the issue of current account imbalances, advocated limiting exceptions to the free-market principle. It thereby added new impetus to deregulation as a means of responding to economic friction with the outside world. The Second Provisional Council for the Promotion of Administrative Reform, established in April 1987, formed a Public Regulation Subcommittee for a fundamental regulatory review, and based on its deliberations, issued a “Report on the relaxation of public regulations” in December 1988. The Second Reform Council, like its predecessor, had favored administrative reform and an emphasis on private sector vitality. The Public Regulations Subcommittee added an emphasis on improving the quality of life of the Japanese by making structural adjustments of the external imbalances and eliminating the gap between domestic and foreign prices. Regulatory reviews were carried out in seven specific areas: distribution, logistics, information and communications, finance, agricultural products, new businesses, and the inspection certification system and qualification systems. In December 1988, a Cabinet Decision was issued to respect “to the utmost” the report titled “Directions for the Promotion of Deregulation.” Meanwhile, because US pressure on Japan was a constant feature during this period, deregulation took place within the framework for implementing the 1989 Japan–US Structural Impediments Initiative (SII) and the April 1993 US–Japan Framework for a New Economic Partnership. A Third Administrative Reform Council was established in October 1990 and its first report, submitted in July 1991, confirmed implementation of the final report of the Second Reform Council, and stated that public regulations would be halved in number within 10 years. Deregulation therefore remained a consistent feature of policy from this point forward.

## **2 Economic Superpower Status and International Contributions: Responses to Economic Friction**

### ***2.1 Export Adjustments—From Market-Oriented Sector-Specific (MOSS) Talks to the Structural Impediments Initiative (SII)***

#### **2.1.1 Japan–US Trade Friction and the MOSS Talks**

Economic friction between Japan and the United States worsened significantly in the early 1980s, extending beyond sector-specific trade issues, and giving rise to criticism of Japan, such as accusations of unfair trade policy in high-tech industries. While rebutting such arguments, Japan also responded by implementing market-opening measures in six stages from December 1981 to March 1985. However, with the US

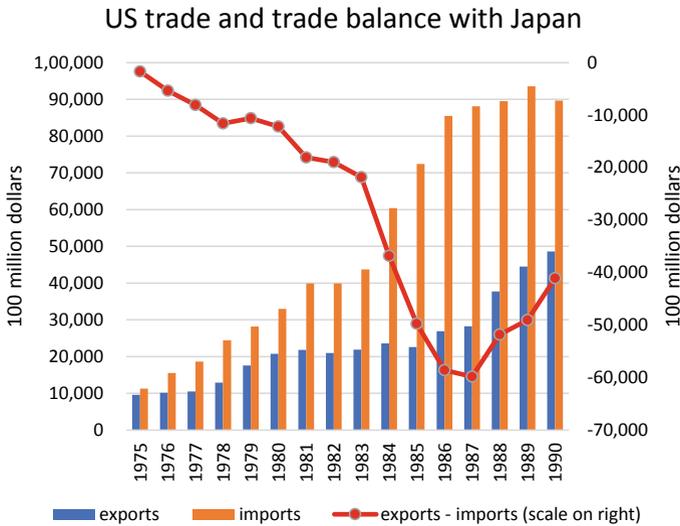


Fig. 1 US trade and trade balance with Japan. Source Abe (2013, pp. 54–55)

maintaining its policy of high interest rates and a high dollar value, Japan’s trade surplus continued to expand, and the trade friction did not subside.

It was in this context that in the late 1980s the MOSS (Market-Oriented Sector-Selective) talks began. This was an approach to negotiations agreed upon at the Japan–U.S. Summit meeting of January 1985, with the objective of eliminating barriers to entry into the Japanese market by relaxing government regulations and reducing tariffs on individual items of interest to the United States. The MOSS talks took up four industrial sectors: telecommunications, medicines and medical equipment, electronics, and forest products. In October 1986, Japan and the United States announced an agreement reaffirming the “desirability of these discussions for promoting the increase of imports to Japan by achieving unrestricted market access for the United States and other foreign countries.”

MITI was involved in the electronics and forestry talks. In the former, “items for implementation” included reducing tariffs on electronics by 20%, eliminating tariffs on telecommunications equipment in which the US had an interest, and other measures. The MOSS talks, citing these positive results, added “transport equipment” as a new sector in May 1986. Auto parts eventually joined the list (Fig. 1).

### 2.1.2 Responding to US Super-301

In 1988 the United States enacted the Omnibus Foreign Trade and Competitiveness Act of 1988. Previously, the US had addressed unfair or unreasonable foreign trade practices with the harsh measures of Section 301 of the Omnibus Trade Act of 1974.

Section 301 made it possible to call on the government to adopt retaliatory measures where negotiations had not yielded the desired results (Abe 2013, p. 66). The US government had not ever applied Section 301, because depending on how it was exercised, it could potentially constitute a violation of GATT (the General Agreement on Tariffs and Trade). But Congress became more vociferous in calling for it from 1985 on. In September 1985, therefore, the Reagan administration announced its “new trade policy” of firmly opposing unfair foreign trade through the utilization of Section 301. The comprehensive trade law mentioned above, enacted in response to this “new trade policy,” made numerous changes, including amending Section 301 and establishing the Super 301 Provisions of the 1988 Omnibus Trade Act. Depending on how they were handled, these changes could have a protectionist impact. In adopting them, therefore, the United States was showing a stronger inclination toward unilateral action.

The amended Section 301 enabled the Office of the United States Trade Representative (USTR) to initiate investigations, based on appeals from interested parties, into whether foreign government measures or policies were “unfair,” “irrational,” or “discriminatory” and in violation of trade agreements, and to apply sanctions where cause was found. However, because the criteria for judgment were unclear and the USTR was in the role of both prosecutor and judge, the new system did not satisfy the standards of neutrality and fairness. Super 301 required the USTR to submit reports to Congress about cases of foreign unfair trade practices, to undertake negotiations with the country in question with the aim of removing the trade barriers, and to adopt sanctions where the problem could not be resolved within one year.

Super 301 was said to be aimed at Japan, but in May 1989, the USTR designated India and Brazil, along with Japan, as Super 301 “priority countries.” In Japan’s case, government procurement of supercomputers and satellites and technical import restrictions on forest products were singled out for negotiation. Nevertheless, the decision was made that Japan should not be judged as unfair across the board, and that negotiations should proceed outside the scope of Super 301. Moreover, the Japanese government adhered to its position that it could not participate in negotiations based on a Super 301 designation. As a result, bilateral negotiations were transferred to the Japan–U.S. Trade Committee, which convened in Hawaii in September 1989.

Supercomputers were among the cases under negotiation (Abe 2013, p. 70). Underlying this problem was the decline in market share of the US companies that in 1980 had dominated the world supercomputer market, and the simultaneous rise in market share of Japan’s general-purpose supercomputers that had swept into the market in the latter 1980s. Therefore, the main issues under negotiation were (1) the adoption by the Japanese government of preferential policies for domestic products, and (2) the US argument that Japanese companies were making substantial discounts in order to eliminate US companies from the market.

The negotiations resulted in Japan’s undertaking to ameliorate the discount issue. Beginning with the budget requests for 1990, its budget plans would reflect appropriate market prices for supercomputers. It also undertook to promote “computer

installation procedures” for procurement. There were limits to improving the situation, as evidenced, for example, in the July 1996 lawsuit against dumping, filed by US supercomputer maker Cray Inc., but certain improvements were seen as a result of the bilateral negotiations.

### **2.1.3 Japan–US Structural Impediments Initiative (SII) Talks**

In April 1986, Foreign Affairs Minister Shintaro Abe and US Secretary of State George Schultz agreed to hold talks on the structural problems affecting the economic balance between the two nations. Because cooperation on macroeconomic policy has a limited effect on correcting external imbalances, structural improvements and adjustment at the microeconomic level were deemed necessary by both sides. The talks based on this agreement began in October 1986, and because of the overlapping issues involved, President George H.W. Bush in May 1989 proposed holding Japan–US talks on structural issues in a framework separate from the Super 301 talks (Abe 2013, p. 77).

The Japan–US talks on structural issues were intended “as a supplement to macroeconomic policy coordination, wherein the two parties would identify to each other the structural problems in the two countries that are thought to impede the adjustment of the trade imbalance, and each take steps to resolve these issues.” The first meetings were held in September 1989, followed by an interim report issued in the fourth round of talks in April 1990, and a final report in the fifth round in June of that year. The report called for Japan to increase public investment, amend its Anti-Monopoly Law to strengthen it, and other measures.

Not only were the Japan–US SII talks linked to the resolution of specific issues, they also were greatly significant in generating a change in attitude toward negotiations on the part of the US. At the time, the US had conceived of negotiations in which the US would seek systematic increases in US exports to Japan. This marked a change from the Reagan administration approach of regulating Japanese imports.

Japan, however, demanded and achieved two-way talks, in which each country identified problems in the other. As a result, the US realized that the current-account imbalance between Japan and the US was basically a macroeconomic problem. Given its earlier assumption that its trade deficit was due to the closed nature of other markets and that the aim of trade talks was therefore to open those other markets, this constituted an epochal change in perspective. The talks were founded on the recognition that the special economic and social structure of Japan hindered US exports to Japan, but the SII talks of the Bush Administration were limited to seeking a voluntary improvement of procedures on the part of Japan. This was a significant feature of the talks and fundamentally different from the Clinton Administration’s “results-oriented” approach that followed in the 1990s.

## ***2.2 Negotiations on Specific Issue Areas Across Many Sectors***

### **2.2.1 The Issue of Voluntary Controls in Automobiles and Auto Parts**

The automobile and auto parts issues emerged against a backdrop of structural changes in the US auto market triggered by the oil crisis (Hasegawa 2013, p. 336). US manufacturers had maintained an overwhelming advantage within their market sectors, mainly large passenger cars in the 5,000 cc class, but with the impact of the second oil crisis in 1979, consumer preferences shifted to fuel-efficient compact cars. Under these conditions, imports of small Japanese-made cars rose sharply. Automobile imports to the US in 1979 were up 16.4% over the previous year, with Japanese autos posting a 30.5% increase even as domestic car sales decreased by 10.5%. With the decline in performance by the Big Three and in particular the crisis faced by the Chrysler Corp., the US auto industry, labor unions, and Congress were highly critical of Japan. In 1979, the US Trade Representative (USTR) Ruben Askew indicated that the US government was ready to impose import restrictions on Japanese-made cars. At the January 1980 general meeting of the United Automobile Workers (UAW), UAW president Douglas M. Fraser strongly urged restricting Japanese exports to the US while at the same time calling on Japanese automakers to manufacture locally in the US.

Amid strong protectionist pressures domestically, the Carter Administration in 1980 announced its opposition to imposing import restrictions on Japanese cars or requiring Japan to adopt export restrictions, instead calling for Japanese makers to invest in the United States and for the expansion of US-made autos and auto parts exports to Japan. These issues were then left to intergovernmental negotiations between the two countries. Two administrative-level meetings of Japanese and US auto specialists were held in April 1980. In May, Japan announced voluntary measures in the form of a “Japan–US Auto Package,” and the US took this as a positive step. Japan’s automakers had not made any clear expression of intent to invest in the US. In light of this, the package included the promotion of Japanese automakers’ investment in the US and measures to liberalize the Japanese market. This was intended to address the two principal demands of the US: first, that strict import inspections and standards impeding the export of US-made autos to Japan be relaxed, and second, that the gap be reduced between the taxes imposed on large autos and on small. These measures were not enough to resolve the issue, however.

With the recession deepening in the US auto industry, the UAW in June 1980 and Ford Motor Company in August filed suit with the US International Trade Commission (ITC) based on Section 201 of the 1975 Trade Act. In November, the ITC rejected the lawsuit, whereupon strong anti-Japanese sentiment emerged in Congress: the House actively sought enactment of legislation to restrict imported vehicles, and Congress adopted a joint resolution calling for the US government to respond to the situation. In April 1981, the newly inaugurated Reagan administration responded to

the mounting demand for protection by announcing the rebuilding of the automobile industry through deregulation.

In response to the seriousness of the situation, MITI “requested sensible exports” of the Japan Automobile Manufacturers Association (JAMA), and given the judgment that legal restrictions on exports would be undesirable, the automakers began considering plans for self-regulation to restrain exports. On the US side, the ITC indicated that “the increase in imported cars is not the main cause of the slump in the US automobile industry,” but the calls for strong regulation persisted nonetheless.

For this reason, the still new Reagan administration clarified that USTR would be the contact point for consultations with the Japanese government, and that while some import control measures were necessary for the domestic automobile industry, the United States should avoid actions that would violate the free-trade principles it advocated, and unofficially signaled that it would leave the regulation of imported vehicles to the voluntary judgment of its trade partner. The Japanese government announced its export projections based on the expected totals of exports of each vehicle maker, and through discussions with MITI Minister Rokusuke Tanaka, sought the reaction of the United States. Based on MITI instructions, it decided to regulate exports to the US for a three-year period from April 1981 to March 1984, and that its initial framework would limit the number of automobile exports to 1.68 million.

The second-year numbers would include the first-year numbers plus 16.5% of whatever growth had been achieved in the market. The condition of the US passenger-car market as of the end of the second year would be evaluated in the third year, and the question of whether to continue with the restrictions would be considered. These Voluntary Export Restraints (VER) continued to be implemented beyond FY 1984, through FY 1991, while the upper limits on exports were raised. Local production in the US by Japanese automakers also advanced from 1981 forward (see Table 1).

Regarding the issue of parts procurement, auto parts became subject to the MOSS talks mentioned above. As the US saw it, even with the premise that auto parts were not subject to institutional barriers such as tariffs, access to the Japanese market was a problem. Surveys were therefore conducted of the relationships between Japanese automakers and auto parts suppliers, and talks followed three times in 1986. The final report, issued in August 1987, called for JAMA to make regular disclosures to the US of procurement data regarding US-made auto parts, to provide US parts suppliers with clear information about contacts, and to promote plans for the expansion of trade in imported auto parts, and to follow up on them.

Technical survey teams and auto parts purchasing missions were dispatched from Japan and US personnel were hired to direct purchasing. Through these means Japan was able to obtain recognition that the relationships between Japanese automakers and parts suppliers were neither closed nor unique, and that they were rational and based on their superiority relative to others in the international market. However, due to differences between Japan and US in parts-procurement practices, the effect of measures for expanding purchasing was limited.

Table 1 Local production by Japanese automakers

Company name	Local manufacturer name	Est. date	Capitalization unit = \$10,000	Form	Production start year	Product	Production capacity 10,000 vehicles/year	Number of employees
Honda	Honda of America Mfg., Inc.	1978	57,800	Solo	1982	Accord, Civic	36	6,300
		1986			Engines, drives, systems parts		1,600	
		1989			Civic	15	500	
Nissan	Nissan Motor Mfg. Corp., USA	1980	37,500	Solo	1983	Datsun, Sunny	25	3,500
Mazda	Mazda Motor Mfg. (USA) Corp.	1985	20,000	Solo	1987	MX-6, Ford Probe	24	3,500
Mitsubishi Heavy	Diamond-Star Motors	1985	19,950	Joint venture with Chrysler	1988	Eclipse, Mirage	24	2,900
Toyota	New United Motor Mfg., Inc.	1984	26,000	Joint venture with GM	1984	Prism, Corolla	20	3,100
	Toyota Motor Mfg., USA, Inc.	1986	54,000	Solo	1988	Camry engines, axles	20	3,000 500
	Toyota Motor Mfg. Canada Inc.	1986	25,000	Solo	1988	Corolla	7	1,000

(continued)

Table 1 (continued)

Company name	Local manufacturer name	Est.date	Capitalization unit = \$10,000	Form	Production start year	Product	Production capacity 10,000 vehicles/year	Number of employees
	Canadian Autoparts Toyota, Inc.	1983	1,400	Solo	1985	Aluminum foil		120
Fuji Heavy/Isuzu	Subaru-Isuzu Automotive Inc.	1987	25,000	Joint venture	1989	Legacy, small trucks	16	1,900
Suzuki	CAMI Automotive	1986	15,000	Joint venture with GM Canada	1989	Cartus, Escudo	20	2,000

Source Hasegawa (2013, p. 342–343)

### 2.2.2 Setting Numerical Targets for Semiconductors

Friction over semiconductors surfaced around 1981, when Japan began adopting voluntary restrictions on its automobile exports to the US (Hasegawa 2013, p. 729). The semiconductor issue arose in the context of Japanese semiconductor manufacturers' rapid advance into global markets in the latter 1970s, particularly in the industry's memory chips sector. The growth was particularly marked in Japan's exports to the US. In February 1983 the US Semiconductor Industry Association (SIA) launched various denunciations of Japan's actions, including a report titled "The Effect of Government Targeting on World Semiconductor Competition: A Case History of Japanese Industrial Strategy and Its Costs for Americans." In June 1985, the SIA intensified its offensive by filing suit under Article 301 of the 1974 Trade Act.

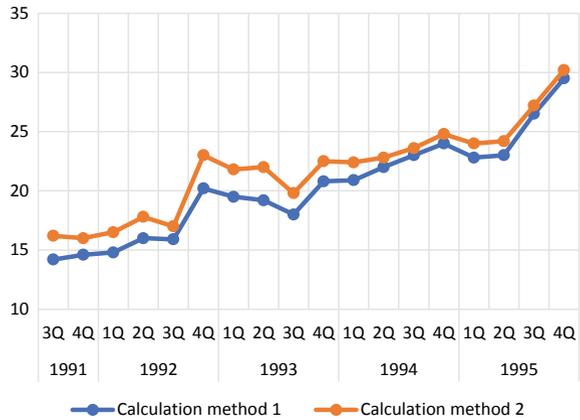
MITI Minister Michio Watanabe and US Trade Representative Clayton Yeutter reached an agreement in principle at a May 1986 meeting, in accordance with which the contents for an agreement were put together in July, including expanding opportunities for entry by foreign semiconductor makers into Japan's market and instituting a monitoring system to prevent dumping. These became the core of the September 1986 US–Japan Semiconductor Agreement. Its most important feature was not incorporated in the agreement per se, but rather in a side letter saying that, "The Government of Japan recognizes the U.S. semiconductor industry's expectation that semiconductor sales in Japan of foreign capital-affiliated companies will grow to at least slightly above 20% of the Japanese market in five years. The Government of Japan considers that this can be realized and welcomes its realization." The US side interpreted this to mean that the Japanese government acknowledged numerical targets, which was to create significant problems in later years.

Following the conclusion of the agreement in March 1987, the United States announced that it regarded Japan to be in violation of this agreement. Its reasons were: 1. that entry by foreign semiconductors into Japan's market was insufficient, and 2. that dumping by Japanese firms in third-country markets was continuing to take place. The announcement said that in order to offset the sales opportunities lost by US industry, the US would impose a 100% tariff (totaling roughly 300 million dollars) on Japanese-made electronic instruments such as personal computers and color televisions, triggering the imposition of these measures in April that year. While continuing discussion with the US, the Japanese government concluded that the agreement violated GATT and proposed bilateral negotiations based on Article 23 Paragraph 1. The US accordingly eliminated the measures that were based on reason 2 above, but those based on Reason 1 remained in place until a new Japan–US Semiconductor Agreement was concluded in June 1991 (Fig. 2).

### 2.2.3 Measures to Address Steel Industry Trade Friction with the US

In the early 1980s, the US steel industry, whose profitability was deteriorating due to a high cost structure based on the high cost of labor, attributed its sluggishness to

**Fig. 2** Share of foreign-made semiconductors. *Source* Hasegawa (2013, p. 886). Original material from MITI (1997, p. 229)



unfair trade practices by Japanese steel-makers and in December 1982 filed for USTR application of relief measures under Article 301 of the Trade Act (Yamazaki 2011, p. 235). Its complaint was not accepted, but the US steel industry continued to raise similar issues thereafter. US–Japan Steel talks began in October that year, following President Reagan’s statements that he would be seeking cuts in steel imports and improvement in the competitiveness of the US steel industry.

MITI entered the negotiations while in frequent exchanges of information with trading companies and steelmakers, and in March 1985 concluded the “Japan–US Steel Trade Agreement, Voluntary Restraint Agreement (VRA). “This limited imported products (not including semi-finished products) to 18.5% of the volume of domestic consumption and restricted Japanese steel imports to the US to a 5.8% market share. In principle, the target items were all steel materials, and the target period was the five years from October 1984 to September 1989. The same VRAs were established with other countries, but for Japan, which had sought to maintain a 6% share of the US market, this represented a major concession. Based on this arrangement, MITI issued the following instructions to the domestic steel industry in April 1985: 1. to establish a new export association to cover all the items subject to regulation, and 2. to establish an export cooperation association for exporters to the US in order to conclude an agreement among producers that would cover the items targeted by the regulations. The Association of Exporters of Steel to the US was established in May 1985, and adopted an Export Approval System based on the exercise of the outsider regulations of Article 28, paragraph 2 of the Export–Import Transaction Law, and took responsibility for issuing export certificates and exchanging information among companies and between companies and MITI. MITI considered this a short-term measure, and because the US too was concerned that it constituted a violation of antitrust law in the US, the Antitrust Division of the US Department of Justice also worked in close cooperation with MITI.

The “Association of Exporters to the US” was responsible for frameworks coordinating the volume of exports allotted to each manufacturer. The export quotas set

up to control export volumes allowed for the following to some extent: (1) Advance Use, meaning the advance use of the next fiscal year's quota for the prior year; (2) Carry-overs, meaning the carry-over to the following year of export limits which were not reached in the current year; and (3) substitutions of yearly quotas, product types, and exporting companies, in instances of quotas not being met for certain types of products. That Japan's insistence was able to secure this flexibility in operations helped enable the concessions on quantitative targets. In October 1989, a bilateral agreement was concluded to extend the VRA for 30 months. Japan's export quota would be 5.0% for the first 15 months and 5.3% in the second 15 months. While the export quotas were reduced from 5.8%, the flexibility was enhanced. The VRA expired in March 1992.

The above VRA had the following effects, showing the Japan was not simply bearing the burden of export reduction. Japanese steelmakers' exports to the US were extremely profitable at the time when the agreement was concluded, and securing stability in that market was of great importance. In fact, Japan was earlier than other countries to reach agreement with the US in the negotiations for its extension. Moreover, because of the rapid appreciation of the yen, the dollar-denominated steel prices remained unable to keep pace with the rise in prices; sustaining the VRA export quotas was therefore preferable to following the usual path of accusations of dumping. In these ways, Japan's steel industry benefitted from the VRA.

Meanwhile, Japanese steelmakers expanded their exports to Asia to offset the decrease in exports to the US. These included supplying Japanese companies that were entering Asian markets. In the latter 1980s, Domestic demand expanded as well in the latter 1980s. Steelmakers therefore found themselves unable even to fill the quotas set under the VRA, in the final year exporting only just over 50% of the quota volumes. Thus the VRA did not prove burdensome to Japan's steelmakers. The US steelmakers, however, while standing to benefit from the restrictions on Japanese exports, were unable to achieve sufficient rationalization of their industry.

#### **2.2.4 Machine Tool Industry and Trade Friction with the US**

For about 10 years beginning in the late 1970s, the United States' increasing reliance on imported machine tools became an issue (Abe 2013, p. 139; Hasegawa 2013, p. 729). One reason for this increased reliance on imports was the advance of low-priced small and medium-sized Japanese goods, centered on numerically controlled (NC) machine tools, which were well-regarded in the US because of their ability to respond to specific user needs. For this reason, dissatisfaction and a sense of crisis gradually increased among US makers and was expressed at the September 1977 National Machine Tool Builders Association (NMTBA) meeting. MITI was concerned that the dumping issue, already prominent in steel, would spread to the machine tool industry. While working to overcome the opposition of Japan's machine tool industry, MITI implemented an export certification system in February 1978 based on the Export and Import Transactions Law. This "Approval System for exports of horizontal numerically controlled lathes, horizontal and vertical machining

centers, and related numerically controlled accessories” was implemented regarding exports to the US and Canada in March. In response, the NMTBA, which had been examining the issue, delivered an objective analysis of the competitiveness of Japan’s machine tool industry in May 1981, finding no sign of unfair trade practices on Japan’s part or of actions to restrict competition.

US dissatisfaction was not thereby eliminated, however. In 1982, trade friction between Japan and the US entered the field of machine tools when Houdaille Industries, Inc. of the US made an appeal to the president, by way of USTR, to exclude Japanese-made machining centers and numerical control punching machines from the investment tax credit target, based on Article 103 of the 1971 Revenue Act. The relevant associations in Japan put together a document arguing against this action, but letters of opinion continued to be submitted to the USTR. The USTR and US Department of Commerce thus began focusing on Article 301 of the 1974 Trade Act with machine tools as a new target. In February 1983, US Trade Representative Brock expressed to MITI Minister Sadanori Yamanaka his suspicions that Japan’s industrial policy constituted an unfair trade practice, and hinted that the US might apply Article 301 in order to rectify the situation.

Meanwhile, the NMTBA continued with its suits. In March 1983, it sought from the Department of Commerce restrictions on the import of foreign machine tools based on Section 232 of the 1962 Trade Expansion Act. Based on a MITI proposal, a Japan–US Industrial Policy Coordination Committee was established and in mid-May 1983 held its first meeting.

Through this committee, affiliated Japanese companies argued that the content of the NMTBA litigation was based on a misunderstanding of industrial policy. No major developments followed in the case until January 1986. This was because analysis of Japan’s machine tool industry showing that NC machine tools were a rational product of innovation, and the US machine-tool industry did not have the political power to impose constraints on user choice in the US. However, after deliberations on the NMTBA case resumed in January 1986, President Reagan in May issued a statement calling for voluntary export controls by Japan. Consultations followed several times between the US and Japanese governments, and in November 1986, the two countries came to an agreement on the voluntary regulation of export volumes of six machine tools for a five-year period beginning in January 1987 (Table 2).

Volume export restraints were applied to three types of NC machine tools in line with the Export Trade Control Order of the Foreign Exchange and Foreign Trade Control Law. The three non-NC varieties of machine tools were subject to a monitoring approach, and the volume of exports to the US in fact remained at the same levels as they were when self-regulation began. The voluntary export restraints saw some temporary relaxation in 1988 and 1989, but in December 1991, the restraints on four of the models were extended by agreement for an additional two years, until 1993.

The effect of these restraints was a decline in the volume of NC machine-tools exports to the US from 1985 forward, and because Japanese production and exports both increased after 1988, the rate of increase of exports to the US fell by comparison. Self-regulation was recognized as effective in the sense that it limited exports to

**Table 2** Voluntary export controls on machine tools, 1987 (Rate of Reduction)

Machine type	1986 number of units	Original restrictions	July 1987 Revision of restrictions
Machining centers	3,435	2,800 (-18.5%)	2,400 (-34.80%)
NC machine tools	4,456	3,200 (-28.2%)	2,560 (-42.60%)
NC drilling machines	N.A.	250	N.A.

NC numerically controlled

Source Hasegawa (2013, p. 243)

**Table 3** Status of implementation of the action program on the assessment process for standards and conformity of imports

	Number of items as of March 1988	Number implemented	Number implemented as of March 1990
Standards and certification areas	81	72	80
Reducing government intervention	33	30	33
Reducing the number of applicable items	10	9	10
Moving from government certification to self-certification	15	13	15
Reducing or relaxing the number of regulations and standards	5	5	5
Other	3	3	3
Comprehensive determinations by the coordination headquarters for standards and conformity	48	42	47
Proactive use of foreign inspection data and organizations	20	18	20
Assuring transparency	7	7	7
Aligning with international standards	11	7	10
Simplifying/speeding up certification (conformity) procedures	10	10	10
Import process areas	10	10	10
Reducing the scope of procedures' applicability	3	3	3
Simplifying/speeding up of procedures	7	7	7
Total	91	82	90

Abe (2013, p. 297)

the US. At the same time, however, the per-unit price of US imports of Japanese machine-tools rose. This was due in part to the yen's appreciation but also reflected the Japanese industry's shift to more sophisticated and higher-value added products.

### **2.2.5 Japan-Europe Trade Friction and Negotiations**

The growth in European imports of general and electric machinery from Japan became an issue in the early 1980s amid the trade imbalance between Japan and the EC (European Community) and the recession in EC countries. In July 1980, the EC Committee issued "EC's trade policy towards Japan—a reexamination" and demanded that Japan adopt voluntary restraints on its exports in exchange for the EC's eliminating discriminatory restrictions aimed at Japanese products (Abe 2013, p. 147). Japan responded by adopting voluntary restraints on exports of the products in question while also continuing to negotiate with Britain's Department of Trade and Industry on industrial cooperation. However, the EC Committee in February 1982 issued a report on economic relations with Japan and expressed its intention of filing suit with GATT on the issue of the openness of the Japanese market. Because the EC was unable to obtain the desired conclusion from the GATT deliberations, the EC Committee twice extended its system of monitoring Japanese imports: once in December 1982 and once in March 1983, adding to its list of "sensitive items" such products as VTRs, light commercial vehicles, motorcycles, and then forklifts, hi-fi equipment, and quartz watches. These monitoring measure were maintained until 1985.

Separately, France introduced its own import supervision system and required a longer period than usual for obtaining model certifications of Japanese-made cars. In October 1982, it decided on "economic relations measures for improving the trade balance," adopting a series of measures that made international access to France's market more difficult, such as requiring the use of French in customs documents, and centralizing in its inland Poitiers office the customs offices handling VTRs. These measures potentially violated GATT in many ways, but in February 1983, MITI announced a three-year implementation of minimum export pricing system on VTRs based on the Export and Import Transaction Law, and released a plan on voluntary export restraints regarding the EC. In addition, in response to the EC Committee's presentation of revisions to its comprehensive list of demands of Japan in April 1984, MITI announced its projections regarding exports to the EC of specific items such as VTRs and communicated its intention to maintain voluntary controls.

The so-called Japan Problem meanwhile deepened in the mid-1980s. Discussions were sought on such issues as improving Japan's distribution system and standards and certification systems, promoting government procurement, simplifying import procedures, and adopting measures to counter illegal products. In response to these demands, which came not only from the US but also from the EC, Japan, as mentioned above, announced in July 1985 a "framework for action programs for improving

market access.” From November to December that year, Japan and various EC governments held talks on industrial cooperation, and the EC–Japan Center for Industrial Cooperation was established in Tokyo, as proposed by Japan.

This effort at mutual cooperation was expanded through regular consultations on Japan–UK industrial cooperation launched in 1981. The first meeting of the Japan–EC Symposium was held in November 1982 with the theme “Japan–EC Economic Relations and the World Economy—Exploring Paths to Improved Coordination.” The EC discussed the trade imbalance and the closed nature of the Japanese market while Japan pointed out the lack of effort on the part of the EC to develop its market in Japan and also the need for concrete explanations of the closed nature of the market. These meetings were to be held about once a year thereafter. At the Second Japan–EC Symposium, it was agreed that discussions on industrial cooperation would be held between MITI Minister Yamanaka and EC Committee Deputy Chair Étienne Davignon on a regular basis. It was in the course of this process that the Japan–EC Industrial Cooperation Center was established in 1985.

## ***2.3 Liberalization of the Domestic Market and Deregulation***

### **2.3.1 Market Liberalization**

In the early 1980s, “non-tariff barriers” became the focus of criticism of Japan, beginning with issues related to Japan’s import systems. Domestic industry, too, was beginning to raise criticisms of Japan’s import systems (Abe 2013, p. 246). The Product Import Measures Council, a new subcommittee of the Import Council at the July 1979 Trade Convention, discussed reviewing trends in product imports, evaluating existing measures to promote imports, and deliberating on import-promotion measures for the future. The subcommittee met five times before June of 1980, and submitted its conclusions as proposals to the Import Council, pointing out problems in import procedures and also putting together an overview to introduce overseas audiences to some particular features of the Japanese market. The May 1982 Ministerial Conference on Economic Measures decided that issues of Japanese business practices and Japan’s distribution system would also be taken up by the Product Import Measures Council, and reviews were launched of systems related to imports.

Meanwhile, the Federation of Economic Organizations (Keidanren) issued the “Request Concerning the Improvement of External Economic Relations” in December 1981, and as “measures to further open the market,” proposed tariff reduction, the relaxation of unit and volume import restrictions and the elimination of non-tariff barriers, along with the implementation of “various measures effective for promoting imports,” such as expansion of product imports and emergency imports.

Keidanren also issued a proposal to the government in December titled “Views on Import and Export Procedures and Inspections” and called for the simplification and rationalization of customs procedures and a review of import inspections. At the same time, the Import Promotion Measures Council established by MITI in October

issued an interim report citing the necessity of (1) tariff reduction, (2) relaxation of restrictions on imports, (3) improvement of import inspection procedures, and (4) improvement of other areas such as non-tariff barriers. In December 1981, the government decided on “external economic measures” at the Ministerial Conference on Economic Action and called for concrete policies in the five areas of market opening, import promotion, exports, industrial cooperation, and economic cooperation.

Furthermore, in the Ministerial Conference on Economic Action in January 1982, the government adopted “market-opening policies” focused on measures to improve import inspection procedures. The main content of the measures for the “first step” of market opening included implementation of remedial measures on 67 cases selected from the 99 cases of import inspection procedures that had been under review at the meetings on measures regarding product imports; the addition of nine further improvements for consideration; and establishment of an Ombudsman Office of Trade and Investment (OTO) to handle complaints from other countries related to import inspection procedures. Particular to these measures was that many of them were safety standards of the past that were in effect cases of barriers to entry.

These safety standards had been created not as trade policy but because of particular sectoral needs and were not necessarily intended to shut out foreign products, but many could easily be criticized as over-regulation. Complaints on imports, which used to be brought to the US–Japan Trade Facilitation Committee (TFC), the Product Import Measures Council, and the liaison for each of the agencies and ministries, were now brought to the OTO, which held its first deliberations in February 1982.

However, the United States continued to exert strong pressure on Japan to open its market. Keidanren conducted its own independent investigation and in April 1982 put together its “Proposals on Easing Economic Friction with Foreign Countries,” asserting that “Once protectionism spreads, it cannot fail to shake the free trade system and even the liberal economic system itself” and “The way our country can contribute to world peace is by realizing a new role in international society and cooperating with other countries to maintain and strengthen the free-trade system and build stable interdependent relationships.” In May, the government decided on its “second step,” which was “measures to open up the market.”

Import-promotion measures were implemented in the following areas: improvement of import inspection procedures; reduction of tariffs; relaxation of import restrictions; expansion of imports; improvement of distribution facilities and business practices; liberalization of trade in services; and cutting-edge technologies. Thus, the efforts to expand imports, which had been under way since the latter 1970s, were given the force of policy in the fall of 1982. The written opinion of the General Committee submitted to the Trade Council in October was the first example of a concrete and comprehensive system of Import Promotion Policies, which shaped the development of subsequent measures. Suggestions were made about the need to promote foreign countries’ export expansion efforts through JETRO and MIPRO (Manufactured Imports and Investment Promotion Organization), leading to events and import fairs with input from the Trade Council (Fig. 3).

## (1) Political support measures for importers

- \*Creation of tax system for promotion of product imports
- \*Elimination of tariffs on 1,004 items, centered on machinery  
(reduction of tariffs on a further four items)
- \*Expansion and reinforcement of import finance
  - Expansion and reinforcement of Export-Import Bank (EIB) import financing
  - Expansion of Japan Development Bank (JDB) import financing system
  - EIB and JDB financial system for promoting aircraft introduction
  - Expansion and improvement of the lending system to facilitate the sale of imported goods by small and medium-sized retailers through JASME and JFC
  - Expansion of direct lending system by Hokuto Financing Corp
- \*Support for the promotion of sales of imported goods (assistance to *shotengai* shopping districts, etc.)
- \*Import promotion seminars (targeting regional wholesalers)
- \*Advancement of import promotion projects in the distribution industry (Comprehensive international distribution centers)
- \*Expansion and improvement of insurance for prepayments on imports
- \*Support for partner countries exporting to Japan
  - Support by JETRO:
    - Cooperative projects to support exports to Japan  
(policies regarding advanced economies of Europe and the US)
      1. establishment of Economic Internationalization Centers  
(providing information on imports on a national scale)
      2. inviting business people from Europe and the US
      3. dispatching specialists to seek out products to export to Japan
      4. dispatching and receiving missions
      5. Comprehensive Import Promotion Centers and pilot projects
    - Provision of surveys and information
      1. information on import trade
      2. domestic marketing surveys
      3. surveys of overseas products
      4. creation of US state-specific catalogs of products of export interest
      5. other
    - Support for developing countries
      1. invitations
      2. guidance for the development and improvement of export products
      3. LDC (Least Developed Countries) centers, S/C projects
      4. Projects to foster small and medium-sized businesses
  - Support by MIPRO:
    - exhibition projects
    - projects to introduce quality import products
    - other

**Fig. 3** Comprehensive plan for import expansion (Abe 2013 p.191). *Note* JFC, Japan Financing Corporation; JASME, Japan Finance Corporation for Small and Medium-Sized Enterprises.  
*Source* A similar chart is found in Tsusansho kōhō (October 2, 1990, p. 8)

- (2) Requests to industry for import expansion (314 companies)
- (3) Public campaigns for the expansion of imports
  - Import expansion month (October each year)
  - Import bazaars and fairs, and exhibitions of all types (JETRO, MIPRO)
  - Fostering of individual importers, consultation corners for individual importers (MIPRO)
  - Support of import fairs at department stores, supermarkets, etc.
  - Projects for import penetration, projects to provide information on import products

**Fig. 3** (continued)

### 2.3.2 Simplification of Standards and Conformity Procedures

The second step, “market-opening policies,” was well-received by the US up to a point, but the tensions remained. In the closing meetings of the Japan–US administrative-level trade talks in August 1982, the US said it was ready to ask Japan for bilateral discussions, based on GATT, on Japan’s inspection procedures for imports of metal baseball bats. Import systems had previously been a relatively minor problem between the two countries, but the metal bats issue was related to the systems, practices, and ways of thinking of the two nations, and proved a trigger for entering more deeply into each other’s domestic systems.

It was in this context that Keidanren in December 1982 submitted to the government its “Recommendations on Improvement of Trade-related Permissions and Inspections.” This proposal was noteworthy because rather than adhering to Keidanren’s earlier reactive stance regarding economic friction, it suggested a strong recognition that the comprehensive establishment of the “principles of free trade” would be positive for private enterprises. It argued that, since procedures and inspections were “complicated and opaque” and the “confusion around the interpretation and operation of the law” acted as a “bureaucratic barrier,” “we should abolish excessive inspections, simplify and unify complicated procedures, and standardize the operation of laws and ordinances, in order to actively promote smoother and speedier distribution.”

Against a background of domestic and international criticism, the government in the January 1983 Ministerial Conference on Economic Measures decided on “Market-opening policies” in five areas, of which measures on non-tariff barriers formed a major part. The government also established the Liaison and Coordination Headquarters on Standards and Certification Systems (Headquarters for Standards Coordination) to put together a bulk amendment bill by the end of March for simplifying the standards and conformity assessment system (Abe 2013, p. 270).

Meanwhile, Keidanren submitted to the government its “Opinion concerning the amendment and improvement of trade-related laws and regulations” in March 1983. It argued that:

From the general viewpoint of the national economy, not just the limited matter of the standards and conformity system for import inspections, we should bring about substantive reform through a change in consciousness regarding trade-related permits and inspections and seek not only to ease the trade friction but also to reduce the burden on the people and simplify and rationalize administrative affairs in order to invigorate the private sector.

The Opinion urged revision and operational improvement of 41 laws and ordinances to encourage firms to become less passive about US–Japan friction.

After consideration by the Headquarters for Standards Coordination, the government decided at the Ministerial Conference on Economic Policy to apply the principle of “nondiscrimination between domestic and foreign firms” with a comprehensive revision of 17 laws including the Electrical Appliance and Materials Control Law so that foreign firms could apply directly for inspections of import products. Various measures, including revision of the law, were undertaken in response to strong demand from Europe and America. But MITI stressed that the revisions were aimed at equal treatment for domestic and foreign firms, not at altering fundamental principles, and that they would not come at the cost of consumer safety. Because the revisions did not bring about an immediate rise in imports, they did not eliminate trade friction either. In February 1984, MITI simplified the standards and conformity procedures so as to accept foreign inspection data, in hopes of gaining the understanding of those countries that were most critical of Japan.

### 2.3.3 Advancing the Action Program

In 1983, the Product Import Measures Council began reviewing issues concerning the distribution system. The Japanese government took the position that it was reasonable that Japan’s distribution mechanisms would be adapted to their home environment, that non-rational systems were in the process of being improved, that foreign exporters should show an understanding of Japan’s unique environment, and that Japan was ready to cooperate in promoting that understanding. This was not an argument that foreign critics of Japan were ready to accept, but neither did the critics have a clear position about what precisely was needed to be resolved.

The Product Import Measures Council responded in June 1983 with a report titled “The Japanese distribution system and business practices: analysis recommendations.” The Council clarified in detail the particularities of the Japanese system where it differed from European and American systems, and while pointing out a number of features for improvement, also emphasized those that had a certain rationality and explained them to those overseas. Because the current account imbalance was expanding principally as a result of differences in macroeconomic policy, however, the Council’s market-opening policies could not necessarily result in a direct expansion in imports.

Prime Minister Nakasone therefore instructed MITI Minister Keijiro Murata in November 1984 to examine the market-opening policies vis-à-vis the United States (Abe 2013 p. 283). The US wanted concrete results in the four fields in which high-level negotiations were taking place (communications equipment, timber, electronics, and medical equipment and medicines). With the focus on how to provide relief to the domestic plywood industry in the face of timber tariff reductions, even weak parts of the Japanese economy were being viewed in terms of market-opening possibilities.

The March 1985 “Report” of the Government’s External Economic Problems Advisory Committee” expressed regret that the six-stage market-opening policy of

the government was a passive response to overseas requests and urged that the basic “principle of free trade (not including energy and food)” govern economic exchanges with foreign countries. The frameworks confirmed in July 1985 accordingly consisted mostly of items that required aggressive policy involvement to promote the expansion of imports.

The “Framework for an action program for market access improvement” was officially decided on in July that year. Among the basic principles introduced in the general discussion were: (1) that the fundamental perspective of “free trade in principle, with a minimum of exceptions” meant the government should intervene as little as possible, leaving the outcome to consumer choice and responsibility, (2) that Japan should be active in conformity with its own stance of pursuing a new round of talks, and (3) that Japan should be especially concerned to be of use in promoting the economic development of developing nations. Based on these principles, the Framework set out various action plans on the three items: concerning tariffs, restrictions on imports, and standards and conformity in the import process.

Further reforms of the standards and conformity system included: (1) reducing the number of targeted items, (2) furthering the shift from government certification to self-certification, and (3) eliminating or relaxing the number of planning and standards items. This meant that there would be a wide range of regulatory easing for domestic firms as well. MITI actively pursued these reforms in line with government policy.

## ***2.4 Progress on the Uruguay Round Negotiations***

### **2.4.1 Moves to Opening a New GATT Round**

GATT, which came into force in 1948, provided a trade order based on the principles of free trade and nondiscrimination and a place for multilateral free-trade negotiations, and contributed to the expansion of world trade in the postwar period. The Tokyo Round of 1973–1979 achieved results in the form of the first real reduction and elimination of non-tariff measures (Imuta and Washizawa 1994, pp. 215–219) and agreements were formed in 12 areas, but protectionist trends expanded on a global scale thereafter. Deregulation therefore remained a consistent feature of policy from this point forward.

Negotiations were challenging at the November 1982 GATT Ministerial Meeting in Geneva, but they resulted in a political declaration on the maintenance of the free-trade system and in the formulation of the “GATT Work Plan” according to which GATT would take up 17 areas, including safeguards, trade in agricultural products, textiles and clothing, dispute resolution procedures, trade in illegal goods, and trade in services (Abe 2013, p. 403). The Williamsburg Summit in May 1983 confirmed the content of the agreement, and Japan began active preparations for a new round. At the November Japan–US Summit, Japan proposed preparations for a

new round under Japanese and US leadership and obtained agreement; it also began strengthening its outreach to the EC on the same subject. As these activities proceeded among advanced economies, however, developing economies sought adjustments in the balance of interests. They argued that: (1) the merits of a new round were not clear, (2) past rounds had served the interests only of advanced economies, (3) advanced countries were promoting the liberalization of trade in products from tropical regions. Developing countries were also concerned about negotiations on the liberalization of services, an area in which they were not competitive. Amidst the standoff between advanced and developing countries, the US in 1985 proposed a vote based on the provisions of Article 25.4 to decide whether to hold a special general meeting of GATT. This was followed by a special general meeting in September at which it was decided that a preparatory process would begin, and in November by a GATT regular general meeting decision to establish a preparatory committee. These movements were said to have been influenced in part by the “New Trade Policy” announced by the US in September, which represented the US’s expression of intent to continue pursuing trade agreements at the bilateral and regional level. Subsequent coordination with developing countries remained difficult, but against the background of the US “new trade policy” stance, the Uruguay Round began in September 1986.

#### **2.4.2 The Start of the New Round**

In previous negotiations, one draft was prepared for the ministerial declaration to initiate negotiations, but the Uruguay Round saw drafts both from hardline developing nations such as India and Brazil and from the advanced economies and the moderate faction of the developing nations. Negotiations were launched with both drafts in parallel. The two differed on whether or not to include new areas (trade in services, measures on trade-related investment, trade issues related to intellectual property). Ultimately, the ministerial declaration (the Punta del Este Declaration) starting negotiations on a new round adopted the new areas, in line with the draft presented by the advanced economies and the moderate wing of the developing economies. The declaration said the Uruguay Round would conclude negotiations on 15 areas within four years, and that it would adopt a “single undertaking” approach. “Single undertaking” meant comprehensive talks requiring agreement on all areas. If agreement could not be reached in any one area, the entire agreement would be rendered moot.

Fourteen of the 15 areas under discussion addressed trade in goods, but classified by content, they covered: (1) improvement in access: tariffs, non-tariff measures, tropical products, natural resources products, textiles and clothing, agricultural markets; (2) negotiation matters: GATT provisions, safeguards (SG), multilateral trade negotiations (MTN), various regulations/provisions (anti-dumping, AD), subsidies and offset/compensatory measures, dispute management rules; and (3) new areas of negotiation: services, TRIPS (agreement on trade-related aspects of intellectual property rights), TRIMs (agreements on trade-related investment measures). Areas of dispute can be categorized as follows: (1) those in which developing countries had many demands to make of advanced economies: tropical goods, natural resource products,

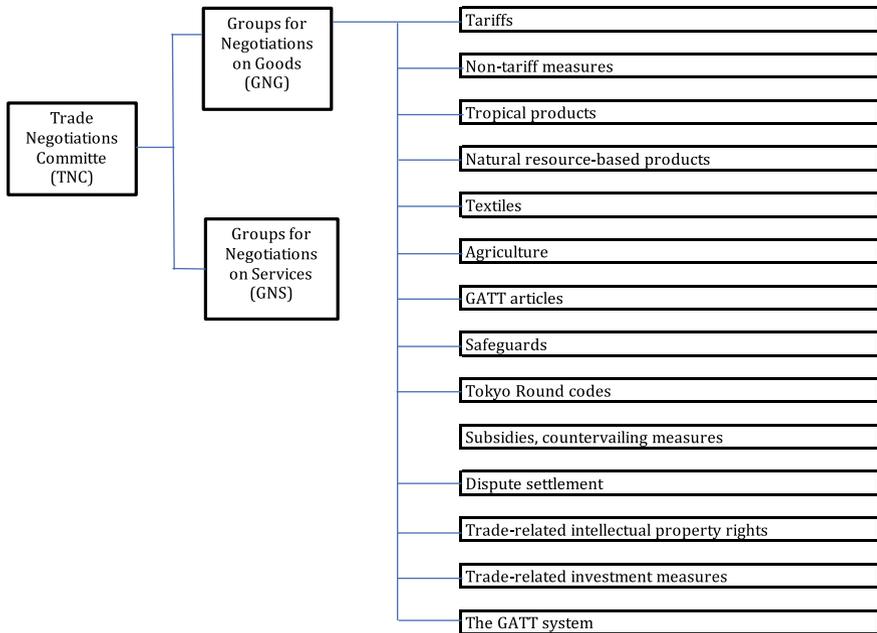


Fig. 4 Organization of negotiations in the new round (Abe 2013, p. 414)

textiles, and safeguards; (2) those with conflicts of interest not only between advanced and developing economies but also among advanced economies: MTN rules and dispute resolution; (3) those in which advanced economies had many demands to make of developing countries, principally regarding the new areas under negotiation (Fig. 4).

### 2.4.3 The Reduction of Tariffs on Industrial Goods

The addition of talks on agricultural products and new areas reduced the relative weight of the talks on tariffs on industrial goods but they still remained highly significant (Abe 2013, p. 425). The effectiveness of GATT talks in reducing tariff rates in advanced economies only highlighted the non-tariff barriers that affected industrial products. Furthermore, these negotiations centered on the advanced economies, while the percentage of items with a set bound rate in developing countries was low, causing problems when the tariff rate was also high.

The US opposed using the Formula System of prior rounds as the approach to lowering tariffs through negotiation, demanding instead the use of the Request Offer System. The EC proposed using the Formula System for those products on which tax rates were high, and the Request Offer system where tax rates were in the middle range. It was agreed at the December 1988 Montreal Ministerial Meeting that there

would be an overall reduction of tariffs as there had been at the Tokyo Round, or in other words a reduction of 33% on a trade-weighted average basis. Determination had not been made on the question of how to achieve these reductions, but in February 1990, an agreement was reached allowing countries to pursue their own approaches. Thereafter, the various member countries explored ways of reducing their own tariffs. The fourth ministerial meeting in Tokyo in July 1993 saw a breakthrough, and four points of agreement were reached on access to markets for manufactured goods. This became the catalyst for achieving a final package in December.

The results of the negotiations on the reduction of tariffs on industrial goods can be categorized as follows: (1) overall reductions, (2) sector approaches, (3) the treatment of high-tariff items, and (4) developing countries. The average overall rate of reduction of tariffs in industrialized countries was 38%. Developing countries had a 20% reduction in the bound tariff rate. Japan's reduction rate was 56%, representing the high end. Also, the proportion of items with tariffs bound at zero was 44% for advanced economies overall: this broke down into 38% for the EU, 40% for the United States, and the prohibitively high 71% for Japan. Discussions on high-tariff items did not produce satisfactory results, but the fourth category saw a significant improvement in the scope of GATT discipline extended to tariffs on developing countries: the percentage of items with a bound rate in developing countries rose significantly from 21% to 73%. Nevertheless, tariff reduction in developing countries remained inadequate.

#### **2.4.4 International Agreement on Textiles and Clothing**

The 1974 Multi-Fibre Arrangement (Multi-Fibre Arrangement Regarding International Trade in Textiles (MFA)) separated the framework for trade in textiles from that for the products subject to GATT's general principles. This special framework was developed because the textile industry was highly localized and reflected the particular interests of each country, such as the need to create abundant upstream, midstream, and downstream employment. The MFA covered trade in cotton, wool, and synthetic fibers and permitted more moderate triggering conditions than the normal safeguards (SG) accepted in Article 19 of the GATT.

Member states had deep-rooted criticisms of MFA, charging that it impeded free trade in textiles. In 1982, the GATT Ministerial Conference agreed to consider liberalization and approaches to including textiles in GATT (Abe 2013, p. 434). In the Uruguay Round that began in 1986, the US, EU, Canada, Australia, Norway, and Finland, all active users of the MFA, urged the GATT integration to be as gradual as possible. The most difficult negotiations were to be addressed in high-level administrative meetings in April 1989. The statement that the Ministers "agree that measures on the process of integration into GATT will cover the elimination of MFA-based regulations" confirmed an approach to eliminating the MFA. This issue would later be reviewed as an individual item in WTO negotiations, discussed in Sect. 3 below in relation to the Uruguay Round negotiations.

### 2.4.5 Issues in Trade in Services

The major areas to be newly negotiated were trade-related investment measures, intellectual property rights, and trade in services. Global trade in services had seen a remarkable expansion, despite the many domestic regulations that remained in effect in all countries in the 1970s and 1980s (Abe 2013, p. 484). This area therefore became part of the agenda for international negotiation for the first time, introduced by the US at the 1973–1979 Tokyo Round. Subsequently, as discussions continued at GATT, the conditions for what would be the Uruguay Round negotiations were also put in place. These included talks on four areas: the application of Most-Favored Nation status, National Treatment status, systemic issues such as the definition of “services,” and how the demands of developing countries should be handled.

In the early stages of the negotiations started in February 1987, the major countries exchanged various ideas. The EC proposed a universal approach targeting a wide range of services, from the point of view of ensuring effective market access. It also proposed establishing an organization to monitor discrimination due to domestic regulations. The United States initially wanted liberalization of the service sector overall, but gradually shifted to a sectoral approach to exclude sectors such as shipping. Japan supported the US’s orientation, with a position of seeking the liberalization of transportation, tourism, finance, etc. Meanwhile, developing countries generally favored the universal approach, but Latin American and Caribbean countries adopted a sectoral approach. Developing countries also proposed that export promotion and infant-industry protections should be incorporated into the agreement. One of the major issues that surfaced in 1989 in the discussion of individual service areas was whether to adopt a “negative list method,” according to which the obligations under the agreement would be applied to all service areas except for specified exceptions, or the “Positive List System” in which the agreement would apply only to those fields specified in it.

Although the United States advocated the former approach of promoting the principle of liberalization, and the EC agreed, developing countries advocated the latter approach, and negotiations proceeded along parallel lines. Similar stalemates occurred in other areas of discussion. In December 1991, the results of all the negotiations were presented in the “Draft final act embodying the results of the Uruguay Round of Multilateral Trade Negotiations” (the Dunkel Draft), with a number of issues in the service sector still outstanding.

As a result of the Uruguay Round negotiations, the “General Agreement on Trade in Services (GATS),” which provided a disciplinary framework for trade in services, came into force as an annex to the WTO Agreement. However, because the promises made by member countries did not involve significant changes in existing domestic regulations, the agreements did not necessarily result in an expansion of market access. While member countries promised internationally to assure transparency of their domestic regulations, they were able to offer legal stability by retreating from the promises made and restricting them thereby.

#### 2.4.6 Japan-Related GATT Disputes

Before the 1970s, Japan's trade policy did not make any use of GATT dispute settlement procedures. That changed completely in the 1980s, however (Abe 2013, p. 503). For example, Japan requested bilateral consultations under Article 23 for the first time, following on Article 22 consultations, in response to a changes made in the tariff classification of the cab chassis by the United States in 1981. In this case, the negotiations did not result in agreement and no panel was set up. Japan also tried to resolve the 1982 VTR dispute with the French government through GATT mechanisms, but a panel was not set up in this case either.

The import restrictions on leather goods that began in 1983 marked the first occasion on which Japan was able to ask for a substantive judgment from the panel. Since Japan had already assumed IMF Article VIII status in 1964, it had no grounds for maintaining its limitations on quantity, and the US asserted that Japan's import restriction measures violated GATT Article 11. Japan tried to justify its quantity restrictions on the basis of social policy needs but without referring to specific exception clauses such as GATT Article 20. Although the Panel showed an understanding of Japan's situation, it dismissed its defense on the grounds that the Panel was limited to considering the problem in light of GATT provisions. The report was adopted at the meeting of the Board of Governors in May 1984, and Japan announced the substantial liberalization of Wet Blue (a semi-finished product of chemical-treated leather). In March 1985, the United States once again requested consultation based on Article 23 paragraph 1 of GATT. This targeted import restrictions on leather footwear. The United States announced the suspension of the procedure in December, following Japan's November announcement to the Board of Directors that it was abolishing its quantity restrictions on footwear. This compromise was brought about by a reduction of tariffs on 149 items by Japan and the US decision to limit its pursuit of sanctions on Japanese leather products. Other panel consultations occurring against the general backdrop of Japan-US economic friction included the 1981 EEC (European Economic Community) complaints against Japan and the US regarding a third-country semiconductor export-monitoring incident.

Japan was not necessarily in a situation to actively apply for panel consultations in the early 1980s, but towards the end of the decade began to refer its disputes vigorously as the complainant country.

The turning point was an EEC tax case on Parts Anti-Dumping (AD). The panel that Japan requested in October 1988 met twice in July and September 1989. The EEC's new AD tax-bypass deterrence prevention rules, in which taxes were assessed ex post facto on parts, were intended to prevent AD taxes on finished goods being bypassed through the so-called "knockdown methods" of importing and then assembling parts. Japan's argument was that the tax on parts was not applied at the point of import and therefore constituted domestic taxes, and that the imposition of those taxes only on imported goods was contrary to Article 3, paragraph 2, 1 of GATT. Also, the exemptions on the taxation of parts, on the condition of increases in local procurement, would promote priority being given to EEC products, which Japan

claimed was contrary to GATT article 3.4. The panel report in March 1990 generally approved Japan's claim.

#### **2.4.7 Japan's Economic Cooperation Policies and Asia**

One of the pillars of the economic cooperation policy from 1985 to 1991 was the Yen Loan System. Based on the June, 1975 Memorandum of Understanding between the relevant ministries and agencies, the system was solely the responsibility of the Overseas Economic Cooperation Fund (OECF) (Abe 2013, p. 767).

Under this mechanism, the OECF decided on individual lending operations, and the Economic Planning Agency, Ministry of Foreign Affairs, Ministry of Finance, and MITI approved the decisions. MITI advocated the use of yen loan provisions to promote economic and social development in developing countries, its position being that such development would benefit Japanese companies and Japan's national economic interests.

The benefits to Japanese companies can roughly be classified as follows: (1) promoting exports through loan projects procuring material from Japanese companies, and (2) providing ODA loans for infrastructure in order to facilitate investment by Japanese companies. Regarding the first there were two approaches: either secure or expand yen-loan procurement volumes based on "tied conditions" or raise the rate of procurement from Japanese companies in the loan provisions through "untied conditions." providing ODA loans under untied conditions. Although international regimes for regulating the use of tied conditions in ODA (Official Development Assistance) had been constructed over time, they had little influence on Japan's economic cooperation policy before 1985.

However, in 1985 the OECD Arrangement on Officially Supported Export Credits was revised, and the ODA loan system was forced to change its policy based on the Wallen Package agreement of 1987. This was because a discount-rate calculation method was adopted that prohibited many low-interest loans by donor countries, with Japan as its implicit target. In addition, except for exceptional measures, the Helsinki Package of 1991 prohibited the ODA loans with any tied conditions for projects of a potentially commercial nature. MITI strongly argued for maintaining tied conditions but was unable to win acceptance. Japan made the shift to untied conditions at the beginning of 1988.

After the G5's Plaza Agreement of 1985, Japanese companies also began to urge creation of an environment that would support overseas investment. ASEAN countries were inspired by the 1980s success of South Korea, Taiwan, Hong Kong, and Singapore and were seeking foreign capital-driven development strategies. Improving the investment climate could involve either the development of new target countries or advancements in existing infrastructure. An example of an effective case was the ODA loans advanced to Thailand in the latter 1980s. This case was treated as "the Japan ODA Model" in the 2005 interim summary of the Economic Cooperation Subcommittee of the Industrial Structure Council.

## ***2.5 International Harmonization of Intellectual Property Rights***

### **2.5.1 The Intellectual Property Strategy of the US and the Japan–US Problem in the 1980s**

Trade in electronics products such as computers, telecommunication equipment, and electronic components saw particularly marked growth within the overall expansion of world trade in the 1980s. US President Ronald Reagan, who regarded the loss in international competitiveness of high-tech products of this kind as a matter of national security, organized the Presidential Commission on Industrial Competitiveness in June 1983. The report stated that “US technological strength is still at the highest level in the world” and that the fact that its strength was not reflected in world trade was “due to [other countries’] inadequate protections for intellectual property.” The report therefore proposed promoting enhanced protection of intellectual property rights (Nakayama 2013, p.72).

This point of view was at the core of the Reagan administration’s September 1985 “New Trade Policy,” and was slated to be pursued in the new Uruguay Round the following year.

Meanwhile, Japan’s exports to the US increased sharply in the 1980s, and Japan–US patent disputes were frequent as well. As US industry saw it, the Japanese patent system and its operations presented the following problems: (1) the Japan Patent Office delayed the review of patents and thereby interfered with the opportunities of US companies for entry, (2) the scope of the rights interpreted by the court was narrow and could not be used effectively against infringements of US companies’ patents. With these dissatisfactions in industry, the US Senate resolved in July 1989 to demand that the US government investigate 16 items. The Japanese and US governments planned intergovernmental talks to address the patent problem and included it on the agenda of the Japan–US Structural Impediments Initiative talks of 1989–1990 and the US–Japan Framework for a New Economic Partnership in 1993–1994. Japan adopted the following measures: (1) accepting applications in English, (2) shifting to a post-grant opposition petition system, (3) improving the operations of the early screening system, and (4) restricting compulsory licenses on use relations. For its part, America undertook to (1) optimize the starting dates for patent terms, (2) introduce an early publication system, (3) introduce a re-examination system and (4) issue compulsory restrictions on licenses on use relations. However, the necessary revision of the law was delayed by about five years, and a number of issues remained unresolved.

### **2.5.2 The Uruguay Round and the TRIPS Agreement**

After the announcement of its New Policy on Trade in September 1985, the United States promoted the creation through GATT of multilateral rules regarding intellectual property (Nakayama 2013, p. 95). The reason GATT was chosen rather than

the UN's World Intellectual Property Organization (WIPO) was first and foremost because of the difference between the two in enforcement mechanisms: GATT had economic sanctions. Second, under GATT it was possible to put together a package deal that included other items of negotiation, and third, America was in an isolated position in the ongoing WIPO negotiations on a patent harmonization treaty.

In response, Japan concluded that its position was basically the same as that of the United States, namely, that improving intellectual property protection in developing countries would be beneficial. The multilateral approach was also desirable for Japan, which wanted to resolve its bilateral issues with the United States in a multilateral forum. Some developing countries, by contrast, strongly opposed the formulation of international rules and called for utilization of WIPO.

Amidst these various considerations and interests, the TRIPS negotiations were launched with the Uruguay Round Ministerial Declaration (Punta del Este Declaration) in September 1986. Of the "submissions" made by the end of 1989 by each country as the starting point of discussion, the US proposal focused on "the developing countries problem," Japan's addressed "the developing countries problem" and the "US problem," and the EC stressed all of them (especially the "protection of geographical indications"). These proposed negotiation items were based on political considerations.

This means that despite the fact that the main concern of the US regarding Japan was "review delays caused by the large volume of applications," it put that issue aside, and Japan, too, abandoned its "First-to-File System" proposal. Both the submission of the agenda and the process of coming to agreement were deeply colored by political resolutions.

Once the overall outcome of the 15 Uruguay Round fields had been agreed upon at the Morocco Ministerial Meeting in April 1994, the TRIPS agreement came into force in January 1995. Despite opposition by developing countries, the TRIPS agreement was achieved based on the adoption of the collective consignment method in the Uruguay Round agreement. Developing countries accepted the agreement as a whole, and multilateral rules were constructed on intellectual property to correspond to the globalization of the economy. Meanwhile, separate from international cooperation in WIPO, the Government of Japan agreed that it would cooperate in a three-way effort with the United States Patent and Trademark Office (USPTO) and the European Patent Office (EPO) in areas such as development of more advanced computer systems. The first meeting based on this agreement was held in October 1983, after which repeated discussions were held, mainly on computer-related topics. Concrete policies for cooperative relationships with developing countries were explored, including (1) bilateral cooperation through the Japan International Cooperation Agency (JICA), (2) multilateral cooperation through WIPO, and (3) a combined bilateral and multilateral cooperation using funds contributed by Japan to WIPO.

### 2.5.3 Revision of the Industrial Property Rights System

Intellectual property policy from the 1980s on aimed to respond to the explosive expansion in the use of industrial property systems, and proposed revisions to the system emphasized the establishment of an institutional infrastructure that would quickly grant patent rights as a precondition to responding to demands for international institutional harmonization (Nakayama 2013, p. 216) (Fig. 5).

The Patent Law revisions of 1985 involved mainly the introduction of “Domestic Priority.” The Paris Convention on the Protection of Industrial Property (“Paris Convention”) adopted a “priority rights system” according to which patent applications submitted first to one Convention member country would not be disadvantaged so long as they were submitted to other member countries within one year of the first: their filing would have priority over others made after the “priority date” of the “basic application.” In addition, where patent applications were being filed in multiple countries, it would be permitted to incorporate into one application the multiple applications related to a single invention, in order to take into consideration differences in the degree to which inventions were regarded as unitary in different countries. The system was one that would play a tremendous role in the smooth acquisition of comprehensive rights, covering a series of linked inventions without leaving gaps between them.

Japan’s domestic application system, by contrast, did not permit reapplication based on applications made in a home country. For this reason, domestic Japanese applicants could not acquire comprehensive rights by adding further inventions to the basic invention, which meant that an imbalance arose between them and non-Japanese who could use the Priority Rights stipulated by the Paris Convention. In order to correct this unfairness, Japan explored the introduction of a domestic Priority Rights system, with the Paris Convention as a model, and ultimately began to recognize applications that asserted priority rights for comprehensive inventions.

While international harmonization was thus achieved, the contents of the patent application became more and more advanced and therefore increasingly complex.

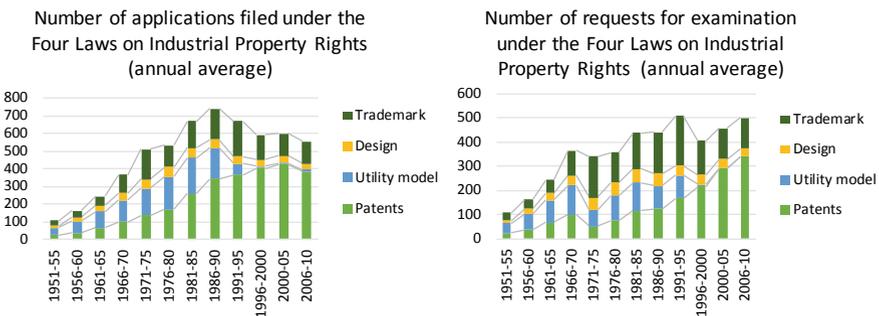


Fig. 5 Applications under the four laws on industrial property rights, requests for examination Source Nakayama (2013, p. 412–413)

Furthermore, there were strong demands that Japan review its procedural provisions based on international approaches. Following on the December 1986 report of the General Assembly of the Industrial Property Council, the Patent Law was amended in May 1987, with improvements such as the Multiple Claims System.

The Unfair Competition Prevention Law was also amended (Nakayama 2013, p. 249). Japan had no legislation intended exclusively to protect trade secrets, which fell under general laws such as the Civil, Commercial, and Criminal Laws, but demand for civil protection of trade secrets mounted in the late 1980s. First, “trade-related aspects of intellectual property rights including trade in fraudulent goods” were an important item on the Uruguay Round agenda, and included as well were “information assets,” at the core of which were trade secrets. In addition to the need for international harmonization, growing employment mobility heightened the need for protection domestically as well. From October 1989, therefore, the Industrial Structure Council’s Information Assets Subcommittee reviewed the protection of trade secrets and issued a summary report in March 1990. Revisions to the law preventing unfair competition were enacted in June. The revised law defined trade secrets as “technical or business measures that are useful for production, sales, and other business methods and that are not publicly known.” In other words, the requirements for characterization as “trade secrets” were the ability to control secrets, the usefulness of the secrets, and the fact that they were not public. The law established the types of acts related to trade secrets that would constitute unfair competition, and stipulated the right to demand damages.

### **2.5.4 Systematization of Software Protection**

There are two approaches to protecting software: the “Patent Approach” and the “Copyright Approach.” In the discussions that took place from the 1970s on, the views of the patent approach were predominantly negative (Nakayama 2013, p. 266). Patent law at the time defined invention as: “the highly advanced creation of technical ideas utilizing the laws of nature.” It was hard to regard software as using the laws of nature, which meant that it did not constitute an invention under this definition. In response to this situation, the JPO created examination criteria in 1975 and decided that software could be protected in cases where natural law was used in the processing content of a computer program. Further efforts at protection were made in 1982, when the operational guidelines stated that where computer programs were used in various devices, they would be eligible for patent protection as inventions of “objects (devices).” However, methods for protecting the programs themselves were not yet institutionalized. The copyright approach meanwhile drew the attention of WIPO when US Copyright Law was amended in 1980 to enable the protection of computer programs. Japan, however, could not resolve the question of whether software could be regarded as an act of expressing creative thought or feeling, or something of the same quality.

In December 1983, the Industry Structure Council’s Information Industry Committee compiled a report regarding the discussions at the JPO and in international

forums. The report pointed to the increasing importance of software and proposed establishing a legal mechanism for clarifying the rights protecting programming, through a modification of the Copyright Law mechanism. The value of a software program is activated only once it is used, and the concept of usage rights was already well-established. The idea, therefore, was to place the copyright law at the center of the new legislation by introducing the concept of usage rights to it.

With the 1984 interim report of the 5th Subcommittee of the Copyright Council, the Agency for Cultural Affairs asserted the literary nature of computer programs, regarding it as sufficient to clarify the point. The Agency for Cultural Affairs garnered support for its proposal from the US Copyright Law clarifying the protection of computer programs. MITI pointed out certain issues, such as the short period of protection, but was unable to generate any support.

Thus, in January 1986, the Act Partially Amending the Copyright Law came into effect, and software received copyright protection as literary products under copyright law. Moreover, the TRIPS Agreement, which came into effect in 1995, stipulated that computer programs “should be protected as literary works prescribed in the Berne Convention for the Protection of Works of Arts and Literature,” so the matter was also resolved internationally. Nevertheless, with advances in the sophistication of computer use, the importance of software has only increased, and copyright law is being reconsidered as to whether the ideas themselves should come under its protection.

### **2.5.5 Improvement of the Operational Foundations of the Intellectual Property System**

The 1980s saw not only an increased number of applications for examination but also an increase in the number of patent applications for more advanced technical creations. With the revision of the law in 1987, a multi-item system was adopted to recognize applications claiming multiple uses because of the diverse uses of a single invention. The burden on examiners thus expanded, and so the need to improve the infrastructure for operating the examinations was urgently felt (Nakayama 2013, p. 411).

To that end, the JPO established the “Industrial Property Long-Term Problem Review Committee” as an internal committee in the summer of 1982, and in accordance with its report, promoted the “computerization of administrative processing and searching functions.” Given US dissatisfaction with Japan’s patent process, US aims were also a factor, so these efforts were also promoted for their applicability to the goals stated in the final report on Japan–US SII talks, which said: “The Government of Japan will use its best efforts to reduce the average patent examination period of Japan to 24 months within five years.”

In addition, the Patent Special Account system was put in place in July 1984, and with the financial foundation for the patent system thus established, the introduction and expansion of computer systems were aggressively pursued. Specifically, based on the deliberations of the Headquarters for the Comprehensive Mechanization of

the Patent Office established in the Agency in October 1983, a “paperless plan” aimed at the comprehensive computerization of and installation of databases for Patent Office administration was formulated in 1984. These plans were intended to (1) increase the efficiency of the screening process, (2) streamline administrative processing, (3) enhance patent information provision services, and additionally to (4) actively promote international cooperation. They also took into consideration the publication of a “searchable database” and electronic filing. Initiatives also began for outsourcing the application process and otherwise optimizing filing practices. To ensure that the preliminary examinations were complete and that the applications did not reflect only the most positive results of the assessment of the invention, the “public notice ratio”—indicating the degree of efficient acquisition of rights—was introduced as an important index for business for the patent administration process.

### **3 Coordination of Industrial Policy and the Antimonopoly Act**

#### ***3.1 Coordination of Industrial Policy and the Antimonopoly Act***

##### **3.1.1 Review of Guideline Methods**

Until the response to the first oil crisis, MITI and the Japan Fair Trade Commission (FTC) had maintained a policy of “responding to the short-term production adjustments that accompanied economic fluctuations with recession cartels based in principle on the Antimonopoly Law.” In the 1970s, MITI introduced a method of creating and announcing the outlook for demand in the short term (the “guideline method”). MITI also came to use this guideline method as a measure for soft landings and as a supply-and-demand stabilization measure after the termination of a recession cartel. The FTC, which became increasingly cautious about approving recession cartels in the latter half of the 1970s, acknowledged the need for such measures, but judged that approach would in some cases trigger “synchronous reduction” (sympathetic production cuts). Thus, in the late 1970s and early 1980s, differences in opinion began to emerge between MITI and the FTC regarding the appropriate response to the problem of recession cartels (Okazaki 2012, p. 227).

The background of this issue was an incident in an oil price cartel. In February 1974, the FTC filed criminal charges against 12 oil dealers and 25 of their company executives, and the Petroleum Association of Japan and four of its officers, for violating the Antimonopoly Act. The charges targeted: (1) Five price cartels formed in 1973 by 12 wholesale companies (price fixing cases) and (2) the production quantity cartels (production adjustment cases) formed in early November 1972 and April 1973 on the basis of decisions by the Petroleum Association.

In September 1980, the Tokyo High Court ruled that the price-fixing cases constituted a violation of the law. It found the production cartels in violation as well, but ruled that the accused were innocent because they were not aware of the illegality of the cartels and had not deliberately violated the law as they had reasonable cause for that unawareness. Appeals were brought on the price-fixing cases, and some of the accused were found innocent by the Supreme Court in February 1984.

In the September 1980 ruling, the point of dispute was the illegality of cooperative measures among companies that took place under “administrative guidance.” The defense argued that although there were no provisions for exemptions under the Antimonopoly Act, the Petroleum Industry Law of May 1962 did include content restricting competition promotion policy, and that if the actions were taken in response to MITI instruction under this law, a finding of illegality might be blocked. The ruling said that the actions in this case did not fall in this category while recognizing in general that a “block” of that kind on illegality was possible. In other words, it showed that there were circumstances in which such action would not be judged illegal, (1) if the action fell within the range permitted by the Petroleum Business Law, and (2) if the cooperation measures were conducted under MITI guidance in order to implement adjustments in supply and demand.

Furthermore, the September 1980 ruling on the price agreement found a degree of substantive significance in the requirement “Contrary to the public interest” referred to in Article 2, paragraph 6 of the Antimonopoly Act. With regard to cooperative action based on administrative guidance, the ruling held that the phrase “contrary to the public interest” in principle pertained to violations of an economic order based on free competition protected directly under this law, and that even if the actions formally corresponded to it, the above interests protected by the law, and the interests protected by these actions, were in comparative equilibrium. The ruling recognized exceptional cases in which such actions would not substantively violate the ultimate aim of the law, which was “to secure the interests of the general consumer and promote a democratic and healthy development of the national economy” (Article 1), inasmuch as it indicated the need to interpret the purpose of exempting such actions from the rules regarding “unfair trade restrictions.” The thinking was that even if an action constituted a formal violation of the “economic order of free competition,” there were cases in which the judgment should be made in terms of the equilibrium with the interests being protected.

With this ruling, the FTC in March 1981 released its “Ways of thinking about the relationship between the Antimonopoly Act and administrative guidance” and MITI set forth its basic views in “Ways of thinking about administrative guidance.” MITI’s opinion was that the Antimonopoly Law regulated the actions of business operators and was not intended to apply to the acts of administrative agencies, while the FTC stressed that administrative guidance must be undertaken with due care so that it is not the businesses in question who violate the Antimonopoly Act. The two statements revealed the gap between the two parties. The FTC therefore continued to strengthen its cautions against administrative guidance by MITI. The number of authorized recession controls therefore decreased substantially in the early 1980s.

### 3.1.2 Establishment of the Structural Improvement Law, Based on the Six Yamanaka Principles

The turning point in the relationship between the Antimonopoly Law and industrial policy, including those issues accompanying administrative guidance, came with the coordination that occurred in the process of establishing the Temporary Measures Law for the Structural Adjustment of Specific Industries (Structural Improvement Law). This law was devised to respond not only to the worsening environment after the second oil shock, but also to the emergence of new “structurally depressed industries.”

In 1981, the Aluminum Industry Committee and Chemical Industry Committee of MITI’s Industrial Structure Council considered measures to rebuild these industries. Their December report evaluated the role of basic materials industries in economic security, and pointed out the need for reviewing the laws and regulations related to it. In February 1982 it presented the idea of enacting a new law on structurally depressed industries to coincide with the expiration of the Industry Stabilization Law. The new law would expand the number of target industries and would also include exemptions to the application of the Antimonopoly Act.

However, as discussed above, the FTC since the oil cartel incident was wary of recession cartels and said that caution was required in expanding the scope of exemptions beyond that of the Industry Stabilization Law. The Special Committee on Basic Material Industry Special Measures for the General Conference on Production Statement and Adjustment established in August 1982 therefore issued an Opinion Brief in December 1982 titled “On measures for basic materials industries.” Two aspects of its thinking are revealed in the Opinion Brief. First it advocated shrinking as quickly and smoothly as possible those parts of the industries that were losing their economic viability and showed no signs of future recovery. Second, it advocated measures to address (1) the cost of raw materials and energy, (2) high value-added, technological development, and (3) the consolidation of firms. It also stated that the role of government was to facilitate coordination along these lines.

Given the principles of industry self-help, elimination of measures for preserving industries, and maintenance of the open system, the Opinion Brief emphasized the limited time available for policy intervention. This accorded with the Positive Adjustment Policies (PAP) guidelines of the OECD. Its emphasis on market mechanisms and PAP guidelines reflected not only a response to FTC criticism but also a change in MITI opinion that was gradually clarified in the 1980s, namely, its perspective that industrial policy served as a complement to market mechanisms.

These judgments came together in the principles underlying proposed Industrial Structure Law, which were introduced by MITI Minister Yamanaka in late January 1983, just before the expiration of the Industry Stabilization Law. Dubbed the “Six Yamanaka Principles,” these were: (1) contraction and revitalization, (2) mitigation of the impact on employment and regional economies, (3) implementation of comprehensive measures, (4) respect for private-sector autonomy, (5) focus on competition policy and adherence to open systems, and (6) time-limited policy responses

(Okazaki 2012, p. 49). Among these basic principles, the fifth—focusing on competition policy and adherence to open systems—meant “business alliances that did not require exemption from the application of the Antimonopoly Act, but that aimed to lower costs through the advantages of scale within a group.” Because MITI recognized that its preliminary coordination with the FTC on the Industry Stabilization Law had not gone smoothly, this plan stated clearly that coordination with the FTC and full discussions between the competent minister and the Fair Trade Commission were to take place (Table 4).

The Industrial Structure Law (ISL) of May 1983 was limited legislation set to expire in June 1988. It shared many features with the Industry Stabilization Law but differed in that it included not only capacity reduction but also optimization of scale and production methods. The designations under the Cabinet Order also differed from the ISL, which could be described as “industry-led” in that it was premised on applications made by business operators to the MITI Minister.

The Minister prepared a basic plan for structural improvement with methods for capacity reduction. It stipulated that the Minister could direct joint action where the autonomous efforts of business were not sufficient to reduce capacity, and it stipulated that the Minister could direct joint action. This instruction was essentially based on the concept of “exemption from applicability” of the Antimonopoly Act. However, the approval system newly established for business alliances did not exempt Ministerial approval from the application of the Antimonopoly Act, but rather was to be carried out within the scope of what was permissible under the Act, determined through consultation with the FTC.

This “specific industries” category covered 26 industries, 11 of which were the same as those covered by the Special Law and 15 of which were new designations (see Table 3). The Industry Stabilization Law had covered shipbuilding, spinning (including cotton and other fibers), and worsted spinning, but the Industrial Structure Law did not. Capacity reduction rates (target rate and completion rate) varied widely from 55–302%. Research confirming the outcomes suggests that the facilities closures and capacity reduction based on the Industrial Structure Law had a positive effect on profitability and productivity.

The Industrial Structure Law was related to the Antimonopoly Act in that it strengthened industrial policy to reflect its complementarity with competition. This was clear in the explanation provided, which stated: “The national economic significance of industrial coordination under the open economic system is that it aims at a shift toward industries that can achieve economic rationalization over the medium-to-long term through efficiencies in management and advantages of scale. It therefore can be harmonized with the Antimonopoly Act, which aims to secure competition” (Okazaki 2012, p. 255). It was thus clarified that industrial policy, while premised on market mechanisms, had the role of supplementing and occasionally reinforcing them, and that competition policy and industrial policy could be compatible with each other on a mid- to long-term basis. The Industrial Structure Law was epochal in that sense.

Underlying this rethinking was the fact that foreign countries in the 1980s were harshly critical of administrative guidance, regarding it as a barrier to imports. MITI

Table 4 Implementation status of the Industrial Structure Law (ISL)

	Relative to ISL: maintained (M) or new (N)	Equipment processed or eliminated	Date of specified industry designation	Target disposal volume (10,000 tons)	Rate, %	Disposal volume completed (10,000 tons)	Rate, %	Joint action designation (D), or none
Electric furnaces	M	Electric furnaces	1983.5.24	380	14	238	63	None
Aluminum smelting	M	Electrolytic furnaces	1983.5.24	93	57	148	159	None
Synthetic fibers	M	Spinning machines	1983.5.24	Completed under old law				None
	M	Spinning machines	1983.5.24	Completed under old law				None
	M	Spinning machines	1983.5.24	Completed under old law				None
	M	Spinning machines	1983.5.24	Completed under old law				None
Viscose short fibers	N	Spinning and refining machines	1983.8.2	5	15	3	66	None

(continued)

Table 4 (continued)

	Relative to ISL: maintained (M) or new (N)	Equipment processed or eliminated	Date of specified industry designation	Target disposal volume (10,000 tons)	Rate, %	Disposal volume completed (10,000 tons)	Rate, %	Joint action designation (D), or none
Chemical fertilizer	Ammonia	Raw gas production equipment, raw gas purification equipment, synthesis equipment	1983.5.24	66	20	112	170	None
	Urea	Synthetic equipment, decomposition and granulation equipment	1983.5.24	83	36	86	104	None
	Wet process phosphoric acid	Reaction equipment	1983.5.24	13	17	21	162	None
	Fused phosphate	Electric furnace, open-hearth furnace	1983.6.17	24	32	21	88	None

(continued)

Table 4 (continued)

		Relative to ISL: maintained (M) or new (N)	Equipment processed or eliminated	Date of specified industry designation	Target disposal volume (10,000 tons)	Rate, %	Disposal volume completed (10,000 tons)	Rate, %	Joint action designation (D), or none
	Chemical fertilizer	N	Reactor equipment, granulation equipment and drying equipment	1983.6.17	81	13	88	109	D
Ferro-alloy	Ferrosilicone	M	Electric furnaces	1983.5.24	5	14	14	274	None
	High-carbon ferrochrome	N		1985.1.29	6	10	14	244	None
	Ferronickel	N		1985.1.29	5	12	15	302	None
Western paper and board	Western paper	N	Papermaking machines	1983.10.7	95	11	89	94	D
paper	Container board	M	Papermaking machines	1983.5.24	154	20	85	55	D
Petro-chemistry	Ethylene	N	Decomposition equipment	1983.6.17	229	36	202	88	D

(continued)

Table 4 (continued)

	Relative to ISL: maintained (M) or new (N)	Equipment processed or eliminated	Date of specified industry designation	Target disposal volume (10,000 tons)	Rate, %	Disposal volume completed (10,000 tons)	Rate, %	Joint action designation (D), or none
	N	Polymerization equipment, granulation equipment, compression equipment	1983.6.17	90	22	85	94	D
	N	Polymerization equipment	1983.6.17	49	24	45	92	D
	N	Oxidizing equipment	1983.8.30	20	27	12	60	None
	N		1985.1.29	49	26	34	70	None
	N	Extruders	1983.8.30	12	18	12	100	None
	N	Decomposition equipment, crystal equipment	1983.9.27	100	3	90	90	None
	N		1984.5.2	3000	23	3100	103	D
	N		1984.9.26	9	14	9	100	none
Other								

Source Okazaki (2012, p. 54-55)

was therefore seeking to explain the concept of Japan's administrative guidance and industrial policy through periodic exchanges of views with overseas antitrust authorities and formal and informal consultations. It was in that context that MITI made an even further shift going into the 1990s.

### **3.1.3 Establishment of the Law of Temporary Measures to Facilitate Industrial Structural Adjustment**

Against a backdrop of external trade imbalances and economic friction with other countries, the Industrial Policy Bureau proposed to the Ministry in May 1986 that an Industrial Structural Transformation Policy be part of the new policy for FY 1986. This was the starting point of what became the Law of Temporary Measures to Facilitate Industrial Structural Adjustment (Okazaki 2012, p. 57). The major policies involved were (1) the creation of industry-specific visions, (2) the promotion of large-scale system development projects, (3) industry-specific administrative guidance aimed at international cooperation, (4) industry-specific employment and regional measures, and (5) legal measures pertaining to specific industries. The last of these aimed to change Japan's industrial structure to further international cooperation. The policy was intended to encourage reductions in domestic production capacity and entry into new business fields for those industries that would be facing significant increases in imports. The Industrial Structure Council meanwhile responded to the same situation in a December 1986 report titled "Specific measures for industrial structural adjustment." It said that foreign direct investment and domestic industrial adjustment had followed on the yen appreciation and stabilization after 1985. This meant the emergence of employment issues and their impact on regional economies, and therefore of a need for a smoother transition for Japan's industrial structure.

With these considerations in mind, the Industrial Policy Bureau summarized its thinking on the new law in January 1987. According to the "Basic Concepts of Twenty-First-Century Industrial Society," although it was to be assumed that industrial structural changes would occur autonomously in response to the market, policy support was needed in those sectors where relying on private-sector efforts alone would cause delays, such as employment and regional revitalization. Such measures included (1) supporting the reduction or consolidation of facilities and business tie-ups where business operators were struggling with a rapid decline in demand due to the rising yen and therefore with excess capacity; (2) aiding venture businesses and new businesses that would be linked to an expansion of new industrial sectors to revitalize areas struggling with employment issues and regional decline.

The specific features of the bill revealed a shift away from the framework of the Industrial Stabilization Law and the Industrial Structure Law. First, while these two laws were supposed to designate specific industries and provide policy support to them, the new law targeted certain kinds of facilities without designating the industries themselves, and granted policy support to each individual operator using such facilities. This shift was in part a response to US criticism that the competitiveness of Japan's exports to the US was enhanced by Japan's industry-specific industrial

policies. It also aimed to implement regional measures. The new law was enacted in April 1987 as the Temporary Measures for Facilitating a Smooth Transformation in Industrial Structure (“Facilitation Act”).

The Facilitation Act stipulated measures for “specific business operators” and “specific regions.” The former referred to mining or manufacturing firms that used “specific equipment” to produce products for which the demand had declined precipitously and the excess capacity was therefore extreme, and where such conditions were expected to persist over the long term. Specific enterprises could receive financial and tax support if the “business adaptation plan” and “business alliance plan” they created themselves were approved by the appropriate minister. Because business adaptation plans were prepared for individual companies, it was judged that there was no need to seek exemptions from the Antimonopoly Act as it applied to business alliances. “Specific regions” meant areas where the closure or contraction of businesses and business activities had occurred on a considerable scale, and where such establishments accounted for a substantial part of the business activities of the region and thus there had been an adverse effect on the local economy and local employment.

Thirteen types of specific equipment (four kinds of steel, six types of fiber, three kinds of nonferrous metals) were designated under the law in April 1987. However, these particular facilities were not necessarily in use by a large number of “specific business operators” whose business adaptation plans had been approved. A March 1988 survey found seven approvals in the mining and manufacturing industries and four in the synthetic fibers industry. Forty-three specific regions were designated in April 1987, and eight more in June. It can be verified that after designation under the Facilitation Law, the designated areas saw greater improvement than other areas in the growth rates of employment and real shipment values.

### **3.1.4 Creating New Industries and Improving the Business Environment**

The Technology Development Policy and Industrial Location Policy were the first of the 1980s policies to be developed with the aim of creating new industries along the lines laid out in the *1980s Vision*. This was followed by an examination of the actual conditions and policy issues in new developments in the service industries (Okazaki 2012, p. 93). R&D, for example, not only saw an expansion in related budgets but also had a role in regional recovery policies (industrial location policy), which led to the establishment in May 1983 of the Law for Accelerating Regional Development Based upon High-Technology Industrial Complexes (“Technopolis Law”). This was followed in May 1985 by the Law for the Facilitation of Research in Key Technologies aimed at promoting experimental research and raising the level of basic technology in the private sector. The law provided, for example, for the use of state-owned laboratories at low cost.

Based on “The key concepts for twenty-first-century industrial society,” MITI in the latter 1980s continued to expand and reorganize its systems of support for technology development and industrial location policies while also steadily introducing methods whereby businesses could themselves support the creation and nurturing of new areas of development. For example, under the May 1986 Private-Sector Participation Promotion Law, R&D/Research Core Facilities and information infrastructure began receiving MITI support for the purpose of facilitating experimental research, technical training, information disclosure, and commercialization of basic research. The Law to Promote the Group-Siting of Designated Types of Business Contributing to More Sophisticated Local Industrial Structures (“Key Facilities Siting Law”) was established in April 1988. Additionally, various financial support measures were advanced under the Basic Technology Research Facilities Act to support those enterprises that were developing new sectors and to concentrate higher-order industrial functions (“brains”) in non-central regions.

These developments notwithstanding, some policy issues carried over into the 1990s. These included inter-ministerial issues, such as the relaxation and legal regulations and review of the nature of business organizations and management, as well as the trade policy issues relating to globalization and stimuli for firms’ overseas business activities. All these awaited the progress of government discussions on trade policy and on administrative reform. In September 1988, a globalization unit was established under the Planning Subcommittee of the Industrial Structure Council’s General Committee to review these questions, and study groups were organized within MITI to discuss policy issues concerning the nature of business organizations and enterprises.

### **3.1.5 Policy on Small and Medium-Sized Businesses Aimed at the Transformation and Integration of Operations**

“The 1980s and the direction of SMEs and SME policy,” composed by the Small and Medium Enterprise Policy-Making Council in May 1980, laid out what was desired of SMEs. This included: (1) a shift in business strategy from quantity to quality, (2) the spurring of creativity and mobility and the nurturing of human resources to that end, (3) new developments through regional groups and groups of disparate industries, and (4) a social awareness of the values and social consciousness of the citizens who sought fairness, stability, and safety (Nakata 2013, p. 70). It thus emphasized a positive assessment of the active majority and a recognition of diversity. In these ways, the distinctive aspect of the mid-1980s was that policies such as these were being developed to support business transformation as an emergency response to the Plaza Accord. Measures were also expanded to strengthen soft management resources, including the promotion of technological development, and to support regional revitalization and concentrations of industry. These policies aimed to steer Japan away from the export-led economy that until the 1970s had pursued the goal of “strengthening international competitiveness,” toward “correcting external imbalances” and “promoting domestic demand.”

The policy on interaction and exchanges among different industries began as a “Technology Exchange Plaza Hosting Project” in 1981 (Nakata 2013, p. 277). The Small-and-Medium Enterprise Agency also issued a notice in August 1983, titled “Regarding guidance on the establishment and operation associations of disparate industries” and sought an elastic use of the Law on Cooperative Associations of SMEs. These policies became systematized with the April 1988 establishment of the Extraordinary Law Concerning the Promotion of the Development of New Business Areas through a Fusion of the Knowledge of SMEs in Different Industries (“Knowledge Fusion Law”). The temporary legislation, with an intended 1995 expiration, aimed to integrate the knowledge of SMEs in different fields and to open up new fields, so as to enable the improvement and development of SMEs. It not only conceived of business cooperatives as the initiators of integrated projects, but also made as targets of its policy the business and industry associations composed of SMEs and individuals and businesses conforming to them. For the enterprises targeted by these policies, financing was made available in the form of subsidies from the General Account, special cases of financing for advancement, and special loans for the promotion of SME fusion (undertaken by the Central Bank for Commercial and Industrial Associations).

In the seven years of its operation, the “fusion method” did not result in more than 309 cases of accredited partners, and the number of participating companies remained under 2300. Considering that 20,000 firms were participating in the inter-industry exchanges in 1987, it appears that it was hard to proceed beyond the stage of these exchanges. Even so, however, there were over 300 cases of conversions made to new fields (Nakata 2013, p. 312).

Meanwhile, the yen appreciated to unprecedented levels. Imports of textiles and miscellaneous goods, already present from Korea, increased from Taiwan and Singapore as well, and the action program that followed on the Plaza Accord began to be felt as well. All of these changes in the environment in the 1980s had a severe impact on SMEs. The Law on Temporary Measure for Business Conversion of SMEs had been in effect for 10 years and was approaching its expiry. MITI therefore announced “Special Adjustment Policies for SMEs” in November 1985, saying that there was a “need to plan for the business stability of small and medium-sized enterprises and for a smooth conversion of business operations.” The SME Agency, too, released a report titled “Special Adjustment Policies for SMEs” in December, and made clear its intent to forward legal measures for business conversions. The Small and Medium Enterprise Modernization Council in December 1986 issued the “On SME policies for responding to changes in the international economic environment,” in which it pointed out that SME business conversions would not only contribute to employment, but would also contribute to the stabilization and revitalization of regional economies and thereby the national industrial structure as well. A change in perspective was under way, in other words, such that policies to enable business conversions were not to be regarded as something unavoidable and backward-looking, but rather as important national

policies that would contribute to employment and the development of regional economies.

The February 1986 Law on Temporary Measures for Business Conversion by Designated SMEs (Business Conversion Law) was time-limited legislation set to expire in March 1988. Its aim was to serve as an emergency measure to facilitate the business transformation of SMEs in response to the “remarkable changes in trade structure and other circumstances in recent years” that had been triggered by the yen’s appreciation following the Plaza Accord. Specific SMEs covered by the Business Conversion Law could obtain financial, credit, and tax support if they devised a “business conversion plan” and received approval from their prefectural governor. The effectiveness of the mitigation measures was evident in the increased rate of use: the number of target industries increased from 116 to 203, and loans totaling about 407.6 billion yen were made in the seven years the law was in effect.

These measures were in line with development policies aimed at promoting SMEs as local industries from the vantage point of regional revitalization. SMEs were regarded as key players in regional economies. It was hoped and expected that they would have the potential to develop endogenously, and that they would bring stability and improved welfare to the lives of people in rural areas.

Attention was therefore also paid to small and micro enterprises. Industries and occupations in which family and business activities were blended were regarded as requiring specific support. The distinctive features of this support were (1) that prefectural governments formulated a vision for local industry promotion in order to solve regionally specific problems in cooperation with cities, towns, and villages, (2) that local industrial promotion projects were launched to foster the capability to develop new products, to develop demand, and to develop human resources, and (3) that third-sector Local Industry Promotion Centers were established and regarded as a core institution for SME promotion. The Business Conversion Law took its place in the development of these new policies.

In addition, the Law on Temporary Measures for SMEs in Specified Areas (“Specific Regional Law”) was established in November 1986. It applied to SMEs in specific areas, stipulating that where suppliers carried out projects to adapt to the new economic environment, it would be possible to provide support subsidies and thereby to stabilize economic activity in specific areas (Nakata 2013, p. 848).

The Business Conversion Law was revoked in December 1991, and the Special Regional Law was revoked as planned in February 1993. Twelve thousand adaptation plans were approved under the latter between December 1986 and December 1991. Of the 216 municipalities designated in the legislation, 134 shipped more industrial goods in 1991 than they had in 1985. The ratio of job offers to job seekers increased during the same period in 159 municipalities.

## 3.2 *Industrial Adjustment and Structural Improvement*

### 3.2.1 **Structural Improvement of the Petrochemical Industry**

The Material Problems Study Group, established by the Japan Petrochemical Industry in October 1979, issued its final report in January 1981. The report sought improvements in the following areas: (1) the inability of petrochemical companies, under the Petroleum Business Law, to import naphtha freely, (2) the imposition of oil taxes and customs duties on raw materials, namely naphtha, (3) the obligation to stockpile naphtha. In July 1980, MITI also set up an advisory body to the Director General of the Basic Industries Bureau to study the problem of raw materials in petrochemicals from a long-term perspective. Both the public and private sectors explored ways of avoiding the impact of soaring petroleum raw material prices (Yamazaki 2011, p. 60).

Meanwhile, the precipitous rise in naphtha prices, driven by the second oil crisis, was having a serious impact on the petrochemical industry. Amidst a sharp decline in domestic demand in 1980–1981, imports of petrochemical products from North America rose significantly. This was because the price gap between naphtha and ethane, which is contained in natural gas, began to widen, causing a decline in the international competitiveness of naphtha-dependent Japanese petrochemical products relative to resource-rich countries such as the US and Canada, which used ethane as a raw material. With declining profits because of rising raw material prices, and rising fixed costs due to lower utilization of capacity, it was inevitable that Japanese petrochemical companies would respond to the pressure of cheap imported goods in the domestic market by competing more intensely with each other. The Basic Industries Bureau issued the “Regarding measures on naphtha, raw material in petrochemicals” as a Decision of the MITI Departmental Council and pursued the following measures. (1) Petroleum refining and petrochemical companies were to decide on quarterly planned quantities and to notify MITI of plans to import anything in excess of them: naphtha imports covering excess in demand would not be regarded as violating that limit. (2) Domestic naphtha prices would be determined in conjunction with import prices. (3) After FY 1983, domestically produced naphtha would be treated as tax-exempt, like imported naphtha.

Regarding the problem of excess capacity, the June 1982 report by the Industrial Structure Council found that the outlook for the petrochemical industry was harsh and called for the following systems to address it: (1) Joint production by petrochemical companies and consignment of production, (2) joint investment, (3) joint purchases of petrochemical raw materials, (4) joint imports of petrochemical products (5) the rationalization of logistics, (6) joint sales, (7) establishing rules for the reduction of excess capacity and capital investment, and (8) joint research and technology development. The examination of individual products undertaken by the Industrial Structure Council’s Chemical Industry Committee was expected to advance corporate consolidation. The Industrial Systems Subcommittee proposed the following in its December 1982 submission, “On industrial systems development in the petrochemical industry”: (1) Set product-specific numerical targets for reducing excess capacity

and make progress on them by grouping companies; (2) promote rationalization and concentration based on the grouping of companies; and (3) carry these out under a new law replacing the Industry Stabilization Law. Petrochemical companies proceeded to establish product-specific joint sales for the moment. In November 1981, 17 companies divided into four groups to set up joint-sales companies, the establishment of which reflected capital ties and geographical considerations. However, joint sales was not a sufficient means for resolving the problem of excess capacity.

With the enactment of the Industrial Structure Law in May 1983, the petrochemical, ethylene manufacturing, and polyolefin manufacturing industries sought designation as “specific industries” and received that designation in June. The vinyl chloride resin industry received the designation as well. The reduction of excess capacity was carried out jointly according to government instruction. The ethylene oxide and styrene monomer industries, by contrast, adopted a policy of pursuing capacity reduction at the discretion of each company. The industries that pursued joint capacity reduction saw a high achievement rate. Policy promoted the consolidation into higher-efficiency facilities, leading to a concentration of production into large plants producing 300,000 tons or more annually. Meanwhile joint sales also began to be effective in reducing costs, but price competition was unavoidable. Solutions continued to be explored: for example, in December 1986 each company put together an action program and tried bundling what had been manufacturer-brand products into one common brand (Tables 5 and 6).

The special designation under the ISL was lifted in September 1987 in those industries where the reduction of facilities had borne fruit, but because ethylene demand increased rapidly beginning just at that time, MITI was concerned about the reemergence of excess capacity. It therefore sought to maintain appropriate investment by introducing the “Declare System” (advance reporting system). The target industries

**Table 5** Overview of petrochemical industry facilities closures under the industrial structure law. Unit: 10,000 tons/year, %

	Capacity prior to capacity reduction A	Target capacity reduction volume B	Capacity reduction ratio B/A (%)	Real amount of capacity reduction C	Achievement rate C/B (%)	Remaining capacity
Ethylene	635	229	36.1	202	88.2	433
Polyolefin	413	90	21.8	85	94.4	328
Vinyl chloride resin	201	49	24.4	45	91.8	156
Ethylene oxide	74	20	27.0	12	60.0	62
Styrene monomer	180	47	26.1	34	72.3	146

Source Yamazaki (2011, p. 76)

**Table 6** Concentration of ethylene production through capacity reduction

	Before capacity reduction		After capacity reduction
	Reported capacity	Active capacity	Active capacity after reduction
Number of factories	18	16	14
Production capacity (1000 tons/year)	6347.7	5352.8	4316.4
Number of plants	32	20	14
Over 300,000 tons	11	11	8
200,000–299,999 tons	3	3	5
100,000–199,999 tons	8	4	1
Under 100,000 tons	10	2	0
Production capacity per plant (1000 tons/year)	198.4	267.6	308.3

Source Yamazaki (2011, p. 77)

were ethylene and polyolefin, and investment adjustments based on this method were implemented beginning in November 1987 and March 1988, respectively.

### 3.2.2 Conversion to Non-mercury Methods in the Soda Industry

The soda or alkali industry was making enormous capital investments to convert to non-mercury production following the pollution controls laws of the 1970s. Supporting this endeavor was regarded as a policy issue (Yamazaki 2011, p. 110). However, it was becoming difficult to promote these efforts due to the increasing cost of raw fuel in the oil crisis. In May 1977, MITI provided financial and tax support under the plan of completing the conversion of all facilities by the end of the fiscal year, but only two-thirds of the conversion from mercury electrolysis to asbestos diaphragm electrolysis was completed by the end of that period. This was because businesses had seen marked deterioration and also because the asbestos diaphragm electrolysis method was inferior in terms of quality. Faced with these obstacles, MITI presented a plan to the 1979 Mercury Pollution Control Promotion Meeting to support the development of the ion exchange membrane method that offered quality at the level of the mercury method and thereby to complete the conversion by the end of 1984. The conversion was completed in June 1986. This was an unprecedented achievement anywhere in the world. In a context of rising public unease and opposition to pollution and mercury contamination, the soda industry faced deteriorating market conditions. Offering lateral support to the industry, MITI overcame the friction with it and was able to induce the industry to make the shift in manufacturing method.

### 3.2.3 Structural Improvement of the Aluminum Smelting Business

The aluminum smelting industry was typical of energy-intensive industries, and based on the November 1977 interim report of the Aluminum Industry Committee of the Industrial Structure Council, a plan was in place to shrink its production system through a freeze on its facilities and other measures (Yamazaki 2011, p. 286). It was therefore designated a “structurally depressed industry” in February 1978, and measures were adopted for it based on the Industry Stabilization Law. The basic plan for stabilization was put together in January 1979 and called for scrapping or suspending 530,000 tons of its domestic smelting capacity (suspension to continue until June 1983) to reduce capacity to 1.1 million tons by the end of FY 1979. This constituted a significantly greater reduction than that called for in the 1977 report. The tariff quota system was also utilized to support structural improvement. The application of tax-free or low tax rates up to a certain amount of imports guaranteed a supply of low-priced imported goods in order to maintain a competitive environment by applying a high tax rate for imports exceeding this limit. However, it aimed to allow time for the rationalization of the refining sector by placing the burden for high tariffs on the aluminum industry as a whole. (The plan was in effect for two years beginning in FY 1978).

However, the second oil crisis in 1979 aggravated the situation, and the existing plans were judged inadequate. This was because inexpensive imports were flowing into Japan from the stagnant world aluminum ingot market, exacerbating the domestic industry’s troubles. The aluminum subcommittee began studying the matter in April 1981. Its review of structural improvement measures based on an annual production capacity of 1.1 million tons was presented in its October report titled “The Aluminum Smelting Business and Related Measures Going Forward.” The report held that domestic supply should be maintained from the point of view of maintaining the demand–supply adjustment function and bargaining power, namely, ingot imports. Furthermore, by maintaining and developing the superior technology that had been cultivated, the industry was expected to be able to develop new materials or participate in overseas development projects. It proposed reducing production to about 700,000 tons a year by 1985, and said that in order to do so, the following structural improvement policies were necessary: (1) Reduction of electricity costs, which accounted for 40% of smelting costs, (2) reimplementation of the tariff rebate system, and (3) promotion of the development and import of semi-domestic products.

The specific countermeasures called for in the report included concentrating production in high-efficiency facilities, as proposed in the May 1983 structural improvement plan formulated under the Industrial Structure Law, and cost reductions through the elimination of transport complexities on the logistics side. Capital investment for revitalization included conversion to coal power in order to reduce electricity costs, and other investment in facilities to reduce the cost of energy and raw materials, as well as investments leading to higher-quality products such as high-purity aluminum. The plan went smoothly, with shutdowns covering 9,300 tons in facilities completed by the end of May 1983, and 530,000 tons worth scrapped as of April 1984. Despite

the large scale of the scrapping, however, capacity utilization remained stagnant, and the market environment remained harsh.

In December 1984, the Nonferrous Metals Industry Committee (renamed from the Aluminum Committee in April that year) compiled its own report (also titled “The Aluminum Smelting Business and Related Measures Going Forward”). Determination of the appropriate capacity for the smelting industry emphasized the following criteria: (1) that it carry out the minimum production necessary for guaranteeing a stable supply to the domestic market, (2) that it retain the technical base necessary for developing overseas projects, and (3) that it secure a supply of the high-purity bare metal for which import substitutions were not easy to access. This led to a plan for a 350,000-ton system, and the report called for realizing this by FY 1988. MITI in response put together a basic plan for structural improvement in line with these recommendations, and as concrete measures, prohibited the installation or expansion of electrolytic furnaces excluding those used for experimental research, and promoted business alliances aimed at concentrating production in high-efficiency facilities and at joint sales and purchasing, joint transportation, and so on. It also maintained the tariff regime, but with the market-opening action program announced in July 1985, the government was forced to cut the 9% tariff on bare metals to the 1% level of the United States in January 1988. That meant that it would be difficult to maintain the 350,000-ton regime. After this, corporate efforts in the aluminum industry focused on cost reduction and high added value in the rolling process, and with regard to the supply of bare metals, sought out stable supplies through long-term import contracts and development projects intended for import to Japan. However, with the search for a stable supply of bare metal, the major producers lost their ability to control prices in the international market of the mid-1980s, and the increase in competitive suppliers reduced their *raison d’être*.

### **3.2.4 Structural Improvement Policies for the Electric Furnace and Ferrosilicon Industries**

The electric furnace and ferrosilicon industries also implemented structural improvement policies in response to long-term supply and demand problems (Yamazaki 2011, p. 220).

In the ordinary steel electric furnace industry, 27 out of 58 companies were operating one electric furnace as of 1983; in other words most were micro operations and their facilities were aging. Small bars and small- and medium-sized steel accounted for 80% of electric furnace industry products and were low value-added products. Most were intended for the construction industry, which was dominated by on-the-spot and commercial transactions. In the early 1980s, earnings dropped due to excess competition, and the industry began exploring structural improvement measures. The “cartel faction” in the industry suggested ways to try to reduce capability across the industry but also hoped for coordination from the government on capacity reduction, while others such as Tokyo Steel Manufacturing Co. argued that the reduction should

take place through bankruptcies. Policy coordination was expected to be complicated in this industry.

Twice before February 1980, the Non-Integrated Steel Producers' Association had considered the question of electric furnaces and MITI addressed it as well for three months beginning in April 1981, through the Flat Electric Furnaces Facilities Subcommittee of the Industrial Structure Council. The subcommittee proposed extending the "basic stabilization plan" to June 1983. Because the scrapping of plants under the Industrial Stabilization Law invited if anything an expansion of capacity through the rationalization efforts of electric furnace makers, the development of steelmaking technology, plant upgrades, and so on, "corporate restructuring and consolidation" was added to the plan upon its extension. As a result, the formation of groups within the electric furnace industry advanced under the initiative of blast furnace manufacturers.

The ordinary steel electric furnace industry received ISL designation again in May 1983. MITI convened the Steel Industry Committee of the Industrial Structure Council in July that year and proposed a "Basic Plan for Structural Improvement." Capacity reduction, business alliances, and capital investment for revitalization aimed to lower production costs and establish a stable foundation suitable to open economic system. The business groupings planned a concentration of production in high-efficiency plants as well as joint sales of products and other measures.

Demand for electric-arc furnace (EAF) steel recovered around 1987 especially in the construction industry, and although the plan's extension was postponed due to the expiration of the Industrial Structure Law, the industry had by then seen a reduction in personnel and a consolidation of firms, so that the results of structural improvement were evident. The number of workers in the industry in 1987 was down to almost 40% of its 1982 levels, while the number of companies had decreased from 78 in 1975 to about 50 in the early 1990s. Likewise, the number of electric furnaces was down from 146 in 1978 to 93 in 1988. Some electric furnace manufacturers were thus able to increase their market share rapidly. Since the construction of new electric furnaces had been frozen for 10 years under the Industrial Stabilization and Industrial Structure Laws of 1978 and 1983, Tokyo Steel and others that operated the most advanced electric furnaces were able to acquire a greater share of the market.

### **3.2.5 Structural Reform of the Cement Industry**

The cement industry also suffered serious deterioration in performance after the second oil crisis. The Cement Association of Japan set up a Structural Problems Study Group in October 1982, which conducted repeated investigations. Its February 1983 interim report cited as basic problems: (1) stagnation of demand, (2) excessive production capacity, (3) expansion of the distribution sector (posing logistics problems for cement and related industries), and (4) excessive competition in cement. Recommendations included (1) scrapping of excess capacity, (2) gathering cement makers into groups, and (3) responding aggressively to the needs of related industries. The

Association decided in April to adopt the recession cartel formulation and to undertake structural improvements based on the Industrial Structure Law (Matsushima 2012, p. 302).

A third-sector recession cartel was approved in August 1983. This time, it set limits not only on production amounts but also on sales quantities. As a result, improvement progressed most markedly in regions where the price decline had been particularly sharp. Cement was recognized as a designated industry under the second Industrial Structure Law in April 1984, and a basic plan for its structural improvement was formulated in August. Its contents included (1) reducing capacity by 30 million tons of equipment, equivalent to 23% of the cement clinkers' annual production capacity as of March 1984, with "reduction" in principle, meaning "scrapping," and (2) undertaking joint sales and logistics management, through the establishment of companies for joint operation. Thirty-one million tons were scrapped by March 1986. A plan for company groupings was put together in January 1984 and joint operating companies were established.

Although some advances were achieved, import pressures increased due to the appreciation of the yen after 1985, and capacity utilization remained at 72% even after the scrapping of plants. It was not easy to dispel concerns about excess capacity, so the cement industry sought the application of the "Facilitation Act" when it came into being in April 1987. "Cement kilns" were designated as "specific facilities" under Article 4 in October and capacity reduction continued. Rationalization through the mechanism of joint operating companies also continued. The plant scrapping and production freezes proceeded as planned, covering 10.71 million tons by the end of March 1991. Additionally, the final report of the Japan-US SII talks in February 1990 indicated plans for an increase in public investment, and in May 1991, the Cement Industry Fundamental Issues Committee, a private advisory body of the Director-General of the Consumer Goods and Service Industries Bureau, decided to cancel the industry's designation under the Facilitation Act.

Regarding the joint venture company, the committee indicated that it was hard to judge whether the various activities to secure the foundations of the business—unifying sales systems and organizations, securing profits, and holding assets—were sufficient. In line with the committee's judgment, the joint operating companies chose either to dissolve or to continue to attempt greater rationalization. Of the five original groups, two were dissolved. The Committee pointed out in its May 1994 report titled "The Cement Industry Going Forward" that "unification of sales had not progressed" since August 1984, that cooperation on reducing costs had not progressed since the dissolution of the two groups, and that profits were therefore deteriorating further. It proposed measures for the dissolution and merger of the joint operating companies. An announcement was made terminating the policy that had envisioned organizing the entire industry into groups, and thereafter, the industry's reorganization took new paths based on the merger of large firms to respond to internationalization, technological development, and environmental policy.

### 3.2.6 The 1980s *Vision of the Paper and Pulp Industry*

The *1980s Vision of the Paper and Pulp Industry*, compiled by the Pulp and Paper Industry Committee of the Industrial Structure Council in March 1981, said that because of the two oil crises, the paper and pulp industry was facing rising energy costs and reduced demand. It pointed out three issues: (1) structural improvement, (2) reform of business consciousness, and (3) securing stability in raw materials (costs). The most important area for structural improvement was the issue of excess capacity (Yamazaki 2011, p. 135). This was linked to the second issue above. It was understood that the reason excess capacity remained despite the low capacity utilization rate that followed the first oil crisis was that businesses were adhering to their rapid growth-era assumption that excess capacity would be resolved through economic growth and demand recovery. In other words, the assumptions of the rapid-growth era had become entrenched. The *Vision* advocated a shift in business attitude toward sharing and moderation, and said that the change should be voluntary even if it required some degree of public intervention. A third challenge was the emerging fears of a raw material shortages, because Japan was dependent on foreign countries for half its pulpwood in 1980. The Committee called for (1) urgent implementation of development imports centering on overseas afforestation, (2) stabilization of the supply of domestic pulp material, (3) and expansion of waste paper collection use and promotion of supply and demand stabilization.

The fundamental problem was structural improvement. Although the paper manufacturing industry did not meet the requirements of the Industrial Stabilization Law, businesses were still under pressure from the high cost of raw fuel and reduced demand. As an emergency measure, wood-free and coated paper were granted permission in May 1981 to form a recession cartels, which remained in place until the end of February 1982. This was the first such case for printing paper. Unglazed grocery-paper businesses formed a recession cartel in June 1982, the second in that sector since 1978. The waves of structural recession were spreading throughout the paper manufacturing industry.

MITI therefore strengthened its policy of restraining expenditure on capital investment, and in February 1982, organized a Paper Supply and Demand Council (renamed “Paper Demand Council” in 1992 and abolished in 1996). The Industrial Structure Law was also applied to the paper industry, because of its substantial excess capacity. In August 1983, 44 companies in the paper manufacturing industry (excluding the newspaper manufacturing industry) submitted a request to MITI and in October the industry was given the “specified industries” designation, with a basic plan announced in October that set the goal of structural improvement by FY 1988. The main content was to reduce facilities and equipment by 950,000 tons (capacity reduction rate of 10.6%) by September 1986. In November 1983, MITI also issued instructions under Article 5.1 of the Industrial Structure Law on joint action limiting or prohibiting new establishments and the expansion or rebuilding of facilities.

Designation under the Industrial Structure Law was not limited to paper manufacturing. Corrugated fiberboard manufacturing, already covered by the Industrial Stabilization Law, was also designated under the Industrial Structure Law in May

1983. In August, a basic plan was established for structural improvement by 1988 through the suspension of 385,000 tons, focused on paper machinery. Parts of the plan were revised in March 1984, with production capacity to be reduced by 1,537,000 tons (a reduction rate of 19.8%) by a target date of June 1987.

The paper manufacturing industry's designation ended in March 1988 due to the economy's recovery. The plan for corrugated fiberboard ended in June due to the cancellation of the Industrial Structure Law. Adjustment was not abandoned, however. Against a background of strong demand in 1988, the paper industry saw successive plans for expansion, but the Paper, Pulp and Printing Industry Division of the Consumer Industries Bureau required each company to report its capital investment plans to the Ministry. The "Declare Method" referred to these announced plans in the expectation that each company would adjust its own plans voluntarily. This approach remained in place until March 1991.

### ***3.3 Basic Industries, Consumer Goods Industries, Coal Industry, and Others***

#### **3.3.1 Introduction of Energy-Saving Equipment and Policy Support for Technological Development in the Steel Industry**

In the early 1980s, the government supported the introduction of energy-saving plants. The Iron and Steel Industry was subsidized in two ways: through financial assistance by way of the Japan Development Bank loans and through taxation support (Yamazaki 2011, p.187). However, since major steel manufacturers' dependence on bank loans declined, it was the "investment tax credit" established in 1978 and the "tax system for energy measure promotion" established in FY 1981 that was most useful for the investment in equipment. The support aimed at the introduction of advanced facilities that would enhance energy utilization in accordance with "The Energy Infrastructure Advanced Facilities Investment Promotion Tax System" of 1986. The support applied to investment in either (1) advanced energy utilization manufacturing equipment or (2) advanced energy utilization equipment additions. The first was for the energy-consuming production facilities to introduce machinery and other equipment that would improve the manufacturing function, institute automated or continuous production processes, or improve manufacturing or assembly methods in other ways. High-performance steelmaking rolling mills are typical of such facilities, including high-temperature continuous casting equipment, high-temperature direct-feed rolling equipment, roll-cooling continuous grinding machines, automatic adjustment thick-plate cooling equipment, and so on. Typical of the second were equipment for rationalizing fuel combustion as a heat source, recovering and utilizing waste heat, preventing loss of heat or power, rationalizing heating, cooling, and electric heat, and low pressure-loss waste-power recovery

**Table 7** Rate of penetration of major energy-saving equipment in the steel industry (1996)

%	Japan	South Korea	United States	United Kingdom	Germany
Coke dry quenching equipment	85	50	0	0	33
Top recovery turbines (TRT)	100	100	12	0	24
Converter gas recovery facilities	100	25	11	18	0

*Source* Yamazaki (2011, p. 196)

devices, devices for the storage of by-product gases, and dry coal distillation devices using waste heat (Table 7).

The introduction of energy conservation equipment through tax system supports resulted in the active introduction of coke dry quenching equipment (CDQ), top pressure recovery turbines (TRT) in blast furnaces, and converter gas recovery facilities. The improvement in the rate of penetration of energy-recovery facilities led Japan's steel industry to become the world's leader in energy efficiency.

With regard to technical development support, MITI in the 1980s and 1990s expected a growing need for (1) product differentiation through superior quality and cost reduction, and technological development leading to the development of new demand, (2) basic and creative research and development bringing advances to the cutting edge worldwide, (3) global environmental measures, alternative energies, and measures for waste disposal and recycling. In collaboration with manufacturers, MITI in November 1990 established a Research Group on Steel Production Information Infrastructure Technologies and provided support such as the compilation of development plans in the first two areas.

For more direct technical development support, steel, nonferrous and ferroalloy manufacturers jointly established a Research Association for New Foundations in Smelting Technology in 1982 with the aim of developing energy-saving smelting technology. It received subsidies for basic research under the "Shared Infrastructure for the Development of Energy Substitutes for Petroleum" adopted by MITI as a policy target in FY 1982. This Association pursued development in two tracks during this period: (1) direct steel and iron ore smelting reduction processes, and (2) molten slag sensible heat recovery technology. The first arose from a recognition of the limits of the existing blast furnace method. The use of coke as a blast-furnace reducing agent was important both for diversifying energy sources and for addressing the problem of aging plants. In addition, as capacity reached excessive levels, it was expected that flexible operations could be realized with the blast-furnace approach, which would contribute to energy-source diversification by using ore and coal in powder form.

Full-fledged development was triggered by a report from the Basic Materials Industries Council in 1987. Independent development of smelting reduction technologies by various makers was supported with national subsidies beginning in 1988 through the Japan Iron and Steel Federation, which established a Committee on the

Development of Smelting Reduction in April. In 1993 support went to test plant operations, and 2000 was chosen as the target year for launching practical applications of the technologies. From FY 1995, the Japan Research and Development Center (JRCM) served as the nucleus for collaboration between industry, academia, and government on technological development, and research on practical applications of basic technologies was undertaken according to a 10-year plan.

MITI had been issuing guidelines on production volumes since 1966, but these were abolished with the mounting overseas criticism of Japanese trading practices and administrative guidance in the latter 1980s.

### **3.3.2 Conversion of the Textile Industry to an Advanced Industrialized Industry**

As the Law on Extraordinary Measures for the Structural Improvement of the Textile Industries (“Textile Industry Law”) approached the next expiration date, the continued slump in domestic demand, excess capacity, high cost of raw fuel, and import pressures for the most part remained unchanged. A Joint Committee of the Textile Industries Council’s Coordination Committee and the Industrial Structure Council’s Textile Committee issued a report in October 1983 titled “About the Textile Industry in a New Age.” The report expressed the view that new development of an “advanced economy-type industry” could be launched through the efforts of the textile industry (Matsushima 2012, p. 59).

What was meant by “advanced economy-type industry” was that “Advanced economies have broad markets that are highly sophisticated and diverse, with high potential for industrial technology and cultural creativity and abundant human capital, and the industry that can fully utilize that latent strength can maintain its dominance internationally.” The report considered the existing production contraction, low profitability, and capacity reduction to be the result of structural factors in the industry. These included: (1) stagnant demand due to structural changes, and at the same time rapid progress in individualization, diversification, and upgrading, and ever-shorter fashion cycles, with the result that the industry was forced to shift to high-variety, small-lot production; (2) new competition with foreign countries with the emergence of developing economies; (3) the difficulty of securing young workers.

On the other hand, signs of revitalization were also evident, including: (1) the advance of vertical linkages among different industries in various forms around the planning and development of new products, and (2) advances in innovation such as combining the results of technology developments at each level of the textile industry, including yarn, woven fabric, dyeing, and so on, to create new products.

Development into an “advanced economy-type industry” offered the industry new directions: (1) becoming an “information- and technology-intensive industry that would satisfy lifestyle and cultural needs” supplying “not only the necessities of daily life but rather social goods and goods that represent value and that satisfy human sensibility” and (2) becoming a “system-type industry based on utilizing the industry as a whole...[to] supply products that could meet actual demand through

the smooth distribution of information, and by linking product planning and high technology, could meet the consumer needs for high quality.” Besides this, a third area was discussed, namely, the path to an “international industry based on utilizing an international division of labor.” Various measures were presented to foster these types of development, including measures for aggressively promoting structural improvement in the apparel sector. The decision was made to extend the Textile Law for five more years and the Law was enacted in May 1984 (Table 8).

Through repeated extensions, the Textile Law was in effect for 15 years from 1974 to 1989 and consistently advanced policies aimed at knowledge consolidation. The results came in the form of projects for product development centers, equipment leasing, business improvement, and so on.

Textile firms formed knowledge-consolidation groups, which created business plans and promoted improvement projects with the Minister’s approval; large companies with planning experience and capability also participated in these groups. Over the 15-year period, 77 knowledge-consolidation projects and 30 joint-facilities projects were approved by the Minister. The total cost of these projects was 102.7 billion yen, of which 66.4 billion yen came from upgrade financing and 6.7 billion in the form of debt guarantees by the Textile Industry Rationalization Agency for funds raised by the firms themselves.

### 3.3.3 New Trends in Policies on Consumer Industries

Industrial policy reflected the intensifying calls from the 1980s on for Japan to expand its domestic demand, and many issues in consumer life and culture were explored under the heading, “consumer industries policy.” This also reflected the shift in priorities then taking place in policy making, from production to quality of life. The establishment of the Life Culture Forum in November 1985 was the opportunity to make this shift manifest. The Forum, which was distinctive in its use of freely grouping experts, clarified the basic concepts and significance of a renaissance in “life culture” and made recommendations to the relevant sectors (Matsushima 2012, p. 248).

The Forum met in four stages, producing proposals titled “Creating a beautiful, comfortable, and worthwhile lifestyle” (first recommendation, May 1986); “Design: the point of view of fashion” (second recommendation, June 1987); “Toward a rich information environment—life culture and information” (third recommendation, June 1988), and “Movement and life culture—towards the creation of a new lifestyle of mobility” (fourth recommendation, June 1989). The fourth proposal said that, “The improvement of social infrastructure such as networks and means of transportation to accompany increasing social mobility naturally begins with improving safety measures. Administrative responses appropriate to Japan as a lifestyle power are needed in other areas of people’s lives as well, namely leisure, education, medical care, welfare, and public services.” It went on to raise concrete issues such as the reduction of work hours, realization of a long-term leave system, and corporate support for free-time activities.

**Table 8** Structural improvement projects in the textile industry, industry comparison

1974–1988	1989–1993	1994–1998
<i>Projects by structural improvement groups</i>		
① Projects related to development of new projects or new technologies (obligation of establishing product development centers)	① Projects related to development of new projects or new technologies	① Projects related to new products or new technologies (including design-related)
② Projects related to modernization of facilities/plants and equipment	② Projects related to modernization of facilities/plants and equipment	② Projects related to modernization of facilities/plants and equipment (including leasing of facilities)
③ Facilities-leasing projects	③ Facilities-leasing projects	③ Projects on the improvement of scale or mode of production
④ Projects on the improvement of scale or mode of production	④ Projects on the improvement of scale or mode of production	④ Projects on the rationalization of sales or inventory management (information networks projects, etc.)
⑤ Projects on improvements of business	⑤ Projects on improvements of trade/transactions	⑤ Projects on improving scale of business
⑥ Projects on industrial relations measures	⑥ Projects on industrial relations measures	⑥ Other structural improvement projects
⑦ Other structural improvement projects	⑦ Other structural improvement projects	· Projects related to business improvement
		· Projects for securing or fostering human resources
<i>Commercial and industrial associations facilitation projects</i>		
	① Projects related to the development of new products or new technologies	① Projects related to the development of new products or new technologies
	② Projects for the securing or fostering of human resources	② Projects for the securing or fostering of human resources
	③ Projects related to the provision of information	③ Projects related to the provision of information
	④ Projects related to establishing facilities to contribute to the business rationalization (joint projects such as distribution facilities; information infrastructure facilities; facilities leasing projects)	④ Projects related to establishing facilities to contribute to the business rationalization (joint projects such as distribution facilities; information infrastructure facilities; facilities leasing projects)
	⑤ Other projects related to the facilitation of structural improvement	⑤ Other projects related to the facilitation of structural improvement

Source Matsushima (2012, p. 105)

Although these recommendations did not immediately result in policies, they were reflected in the administrative organization of the Consumer Goods and Services Industries Bureau. For example, based on the first recommendation, a New Office Advancement Committee was established in August 1986 in the Household and Miscellaneous Goods Division, which was in charge of office furniture. The Committee was to serve as a private advisory body to the Directors General of the Consumer Goods and Services Industries Bureau, the Industrial Policy Bureau, and the Machinery and Information Industries Bureau, and to examine ideas for the ideal new office and policies for promoting it. Its focus was not the production of office furniture, but rather the office using that furniture. This represented a new, demand-driven perspective. Its December “Proposal on the promotion of the new office” treated the office as one of the venues of people’s lives, in other words, or as “a place for human life,” “a place at the core of the information era,” “a place expressive of corporate culture,” and “a place at the frontier of internationalization.” “What we are calling the ‘New Office’ is an office that is comfortable and functional, that is to say, a place where it is possible for the worker to live an intellectual and comfortable life, where companies can ensure high-quality production, and where management attitudes and ways of thinking are manifested. We appeal to the world, including corporate executives and office workers, to bring it to reality.” In April 1988, the Committee summarized “Guidelines for making the new office” and put this in concrete terms with the key points for realizing a comfortable and functional new office. This was followed in May 1992 by an interim report by the Daily Goods Division titled “Creating the ideal office of the future—a people-friendly office is a place where wisdom can be created.” This report, also known as the “Second Guideline for New Offices,” represented a shift to a psychological approach, including discussion of the ideal organization. As interest shifted to this direction, MITI withdrew its involvement and transferred the campaign to a private organization called the New Office Promotion Association established in June 1987 (incorporated in March 1989).

### **3.3.4 Promotion of Projects for the Development of New Housing**

As a successor to the 1975 “House 55 Plan,” which had been a joint project of the Ministry of Construction and MITI for high-quality, low-priced industrialized housing, MITI independently launched the New Housing Development Project in 1979 (Matsushima 2012, p. 347). This plan, which covered seven years from FY 1979 to FY 1985, consisted of developing (1) systems technologies for the care of the elderly and physically handicapped, (2) systems technologies for variable living spaces, (3) systems technologies for the utilization of basements, (4) systems technologies for natural energy-based housing, and (5) technologies for improving the durability of building materials for homes. The New Housing Development Committee was set up as a private advisory body of the Director of Consumer Industries Bureau and deliberated on possible directions of development. Fourteen groups, composed of 56 companies, participated in the development. Significant results were seen in (1)–(4)

of the above plans. In addition, MITI established a third project, the New Materials and Equipment System Development Project for Apartment Houses (the “21st Century Condominium Plan”) in FY 1984.

The Cabinet Decision on the Fourth Comprehensive National Development Plan in June 1987 aimed for a deconcentration of people and institutions in Tokyo and a shift to decentralized multipolar land use. The Industrial Council on Housing and the Urban Industry Committee then conducted a new review. According to the interim report presented in May 1988, a supply of housing was needed that would be appropriate for the era’s diversification of values and individualization of lifestyles, and that would meet the need for further cost reduction. MITI thereupon launched the New Industrialized Housing Industry Technology and Systems Development Project, its fourth solo project. With a seven-year plan beginning in FY 1989, it focused on (1) developing designs for living spaces and performance simulation systems, (2) developing high-performance building materials, housing equipment, and factory production technology, and (3) developing comprehensive energy-use systems for residential use. The first of these targeted the development of methods and systems capable of predicting and making calculations for moist heat, air, sound, light, and other environmental and housing functions (Fig. 6).

The publication of the *Vision for the 1990s* meant that new developments were sought in housing-industry policy. The Roundtable on Ideals in Housing and the Housing Industry, a private advisory body of the Director of Consumer Industries

	Project Name	Objective	Content
Shifting from quantity to quality in housing	House 55 Project 1976-79	To supply low-cost, quality detached residences	Supply of 100 m <sup>2</sup> houses in the 5 million yen (at then values) (jointly with the Ministry of Construction)
	New Housing Development Project 1979-1985	To upgrade the quality of detached residences	Development of technology for elderly- and physically handicapped-care systems Development of variable living space systems Development of residential systems using natural energy Improvement of the durability of residential building materials
Upgrading quality and supplying housing in metropolitan areas	Development of new materials and new appliance systems for housing complexes 1984-1990	To supply quality urban housing complexes	Development of improved durability technology R & D in technologies to improve habitability Development of energy use technology
	Development of new factory-built housing industry technologies and systems 1989-1995	To improve and upgrade production technologies and systems for factory-built housing	Development of space design by residents, development of performance simulation systems Development of technologies for high-functioning building materials, residential equipment and factory productivity
Responding to the diversity in housing needs	Development of housing that creates value in lifestyle 1994-2000	To make proposals for comfortable, low-cost housing	Improvement in the value of housing stock compatible with lifestyles Research and development for technologies harmonizing with the environment
	Development of technologies for resource-recycling housing 2000-2007	To construct resource-recycling housing	Development of 3R-compatible housing systems Development of comprehensive high-efficiency energy systems

**Fig. 6** History of housing technology development projects. *Source* Study Group on the Housing Industry of the Future [Kongo no Jyutaku Sangyo no Arikata ni Kansuru Kenkyukai] 2008. *New Paradigms for the Housing Industry* (Report for METI)

Bureau, was established in December 1993 and in June 1994 produced a report titled “Toward a Decade of Housing Industry Reform.” The report pointed to three directions for reform: a shift from a “luxury orientation” to an “authenticity orientation,” from “housing as an asset” to “housing for function,” and from “dispersed housing” to “housing integrated with the townscape.” A new Development Project for Housing That Creates Lifestyle Value was launched in FY 1994 to forward technological developments for the following: (1) improving and creating a housing stock of value, (2) meeting the needs of new lifestyles, (3) harmonizing with the environment.

The above-mentioned vision and technology development projects targeted prefabricated housing in particular. The ratio of prefab housing to total construction starts grew steadily from 7.3% in 1973 to 18.0% in 1992 and then remained in the 15.0% range in the latter half of the 1990s, meaning that construction could proceed at a certain rate. In addition, the development of prefabricated houses was also effective for triggering the development of a wide range of related material industries.

### 3.3.5 New Issues in Distribution Policy

The joint deliberations of the Distribution Committee and the SME Policy-Making Council Distribution Subcommittee from October 1982 forward resulted in a December 1983 report titled “1980s Distribution Industries Vision” (Ishihara 2011, p. 200). The report pointed out that a variety of retail formats were emerging as regional communities came to be seen as living spaces or societies with their own distinctive appeal, and as consumer needs became more individualized and diversified. In this sense small and medium-sized retailers were not losing their competitiveness in every instance. At the same time, *shotengai*, or shopping districts, which played an important role in creating a new commercial culture appropriate to the history and traditions of their cities, continued to need modernization. The report found that their functions could be reevaluated and that there were grounds for suppressing the entry of large stores to those areas. Issues to be addressed by policy included: (1) responding to the diversification of consumer needs, (2) supporting SME development to produce a vigorous majority, (3) strengthening the collaboration between commercial and urban policy, (4) actively responding to the emerging information society, (5) securing human resources, and (6) determining the role of distribution in an internationalized society. The report also recommended actively expressing the value of local commerce by changing the terminology from “shopping space” to “living space,” and suggested that this could be put into concrete form with the concept of a community mart. Accordingly, a Community Mart Center was established in March 1985 with funding from associations of small and medium-sized retailers.

The Forum on 21st Century Distribution was established in April 1987 as a private advisory body of the Director of the Industrial Policy Bureau to discuss ideal distribution structures looking ahead to the 21st century. The Forum submitted a report in July that year. The Forum had considered how the distribution industry could contribute to the harmonization of foreign economic relations with economic growth centered on domestic demand, and whether policy support could be given to that end. It also discussed the expansion of personal consumption, employment creation,

revitalization of regional economies, the expansion of imports, and contributions to international society. This report introduced fresh ideas in distilling the challenges of the distribution industry to two: transforming itself into a creative life industry and building open distribution mechanisms.

Meanwhile, with escalating economic friction with the US, negotiations were expected to focus in part on the barrier to imports posed by the laws on large-scale retail and by distribution practices. The demand for improvement in these areas became an important factor in setting the direction for distribution policy. This will be discussed in detail in Chap. 4.

### 3.3.6 Safety Improvements and Product Standardization

In November 1983, the 16th Consumer Protection Conference (established under the Consumer Protection Fundamental Law) decided to create a system linking the various Consumption Life Centers into a network (Ishihara 2011, p. 336).

Another focus of consumer-oriented administrative responses was product testing. The product-testing activity of the Industrial Manufacturing Inspection Institute was enhanced in accordance with the 1973 Consumer Product Safety Law, and in 1984 the Institute was integrated with the Textile Products Inspection Institute, forming the MITI Inspection Institute. Where the Institute had mainly conducted inspections of exports in the past, the reorganization accompanied an expansion of work related to consumer administration. In 1995, the MITI Inspection Institute was renamed the National Institute of Technology Evaluation, promoting further improvements in product testing and collaboration with prefectural Consumption Life Centers and other groups.

The Consumer Products Safety Law designated certain products as requiring safety regulation. Safety standards were determined at the national level, and those items could not be sold without the S-mark (for Safety) indicating that they were in conformity with the standards. Fifty-six items received this designation at the end of FY 1992. However, the US government, which was criticizing the closed nature of the Japanese market in the 1980s, raised the issue of this safety standard system and argued that it should be liberalized to the level of the American market. Keidanren also wanted simplification and rationalization of the safety requirements along American lines.

In March 1983, the government's Standards and Certification System Liaison and Coordination Headquarters decided on a comprehensive review of the standards and certification system in response to requests from the GATT Standard Code. As a result, foreign and domestic companies became able to obtain the same registration and approvals. With the amendment of the law in December 1985, government approval was still necessary, as before, for products designated Type 1, meaning products for which it was hard for business operators alone to guarantee the quality. Other designated products, however, were classified as Type 2 and were shifted to a system of self-evaluation and approval based on confirming a product's conformity with the standards. This made it possible to affix the S-mark to Type-2 products by notification to the Minister.

Meanwhile, with regard to relief for victims of accidents, the Tokyo District Court's August 1978 ruling on subacute myelo-optico-neuropathy and the Fukuoka District Courts Ogura Branch ruling on the Kanemi Rice Oil Disease Incident of 1968 both imposed heavy obligations for care on the manufacturer. The court rulings made evident the inadequacy of consumer protection laws and the need for such protection and became a major influence on the establishment of the Product Liability Law. At the same time, industry and MITI were both concerned that prioritizing consumers could endanger the survival of companies, and legislation did not make much progress. Nevertheless, in the event of an actual accident, there was no choice but to forward negotiations between the parties. It was becoming clear that there was a limit to the degree to which enterprises could rely only on judicial precedents and that the government could not continue to neglect the issue.

### 3.3.7 Responses to the Growth of Service Industries

Government administration respecting service industries was not so much a matter of responding to administrative needs as of exploring what the demands on administration were in a context of service-sector growth. The Commercial Affairs Division of the Industrial Policy Bureau was established in July 1973 and its jurisdiction described in MITI's Order of Organization included the term "service industries" for the first time. The Commerce and Service Industries Affairs Office was established in July 1978. A Study Group on Service Industries was organized immediately after its establishment to begin considering policy responses (Ishihara 2011, p. 407). The results of its investigations were summarized in the Industrial Structure Council's report, *The 1980s Vision*, which characterized service industries as supplementing the production activities of the various industries of the manufacturing sector. That was the extent of the attention paid them at that time, and no specific policy developments were made with regard to them.

In October 1984, the Senior Officer for Service Industries was established in the Commerce Policy Division of the Industrial Policy Bureau, and a Ministerial Office was established to focus on service industries. The organizational revision followed on the recommendations in a report by the Service Industry Study Group, a private advisory body of the Director-General of the Industrial Policy Bureau. The January 1985 report, titled "Hybrid Innovation: A New Era for Service Industries," made the point that newly emerging housework and health care services reflected the diversification of people's values and attitudes and that significant development was to be expected in these "new service industries." MITI began treating this sector as comprising "new businesses" that had not appeared in earlier classifications of industry, and took measures such as forming organizations for the operators, considering policy, and offering financial support, to give potential for growth to these novel and innovative industries.

It was after the September 1989 submission of the *1990s Vision* that MITI began to form related measures from this new point of view.

## **4 Promotion of Domestic Demand and the Vitality of the Private Sector**

### ***4.1 Towards an Advanced Information Society***

#### **4.1.1 Problems in the Liberalization of Data Communications**

Following the March 1980 report “Ideal approaches to industrial policy in the 1980s,” the Information Industry Committee of the Industrial Structure Council compiled an interim report in December, which said that a comprehensive and high-grade shift to information systems was essential to the survival of Japanese industry. It urged the need to boldly anticipate the next decade or two and recommended the following measures (Hasegawa 2013, p. 47): (1) development of an information architecture and the infrastructure necessary to it, (2) proactive advancement of technological development, and (3) active development in the international arena.

The Information Industry Subcommittee report of June 1991, titled “The information society and information industries in the 1980s and approaches to measures addressing them,” called for “removal of institutional constraints that hamper the smooth progress of the shift to an information [society and economy]” and called “the elimination of use restrictions on communication lines... an urgent task.”

In August that year, the Telecommunications Policy Roundtable, a private advisory body of the Minister of Posts and Telecommunications (MPT), recommended the liberalization of data communications, the introduction of market principles to the telecommunications field, and a review of the organizational structure of the public corporation Nippon Telegraph and Telephone Corp. (NTT). In August 1983, the MPT put together the Value-Added Networks (VAN) Bill for liberalizing the use of communication lines for data management (Hasegawa 2013, p. 650). There was strong opposition to the MPT bill, however, beginning with calls for the elimination of the regulations. Coordination among the parties proved difficult. Ultimately, the MPT gave up the VAN bill and aimed to prioritize revision of the Public Telecommunications Law, while MITI decided to propose VAN liberalization for SMEs. Based on coordination between the two ministers, it was decided that the MPT Ordinance (Second Line Liberalization) would be followed.

Along with this, MITI decided to develop measures to support the practical application of new media, but because significant restrictions remained on the institutional infrastructure related to telecommunications, “freedom of entry,” “freedom of business activities,” and “freedom of use” were necessary. A review of telecommunications systems led to the establishment of the three laws of telecommunications reform in December 1984: the Telecommunications Business Law, the Law on Nippon Telegraph and Telephone Corporation, etc., and the Law Concerning the Infrastructure for the Related Laws.”

#### 4.1.2 Establishment of the Basic Technology Research Facilitation Act

The Information Industry Committee examined the basic policy on information industry policy in the latter half of the 1980s in response to new circumstances such as the privatization of Nippon Telegraph and Telephone Corporation and released a report in January 1985 titled “Recommendations for the Realization of an Advanced Information Society.” The key issues for addressing the problems expected to arise with information technology were: (1) human resource development, (2) ensuring computer security, (3) open information, (4) making the shift to information systems according to local circumstances, (5) establishing laws for an advanced information society, and (6) standardizing information equipment and systems.

The framework established by the Law on Temporary Measures for the Promotion of Specified Machinery and Information Industries was nearing its expiration date in June 1985. At the same time a review of its measures was needed given the friction with the United States and Europe (Hasegawa 2013, p. 72). The Study Group on Prospects for Technological Development and the Industrial Structure Council released reports on Industrial Technical Policies at about the same time. MITI sought to reflect their recommendations as far as possible and accordingly made budget requests for the following: (1) to supply risk money, (2) to promote joint research for the purpose of strengthening collaboration between industry, academia and government, (3) to promote international research cooperation, and (4) to disseminate research information. MPT also envisioned the establishment of a special corporate telecommunications promotion organization. After coordination at the government and ruling party liaison meeting in December 1984, the decision was made to consolidate the ideas of both ministries and establish the Japan Key Technology Center for Special Accredited Corporations, and the Law for the Facilitation of Research in Key Technologies was enacted in May 1985. New legislative measures were established with cooperation between MITI, which acknowledged the need to promote policy development of high-tech industries based on legislation, and MPT, which was considering a telecommunications advancement promotion bill.

The pillars of the law included measures such as the low-cost use of state-owned testing laboratories and the flexible handling of patents in international research cooperation, and the establishment of a center for promoting basic research on technology. The main tasks of the center, which was established in October, included (1) investment, (2) lending, (3) joint research mediation, (4) invitations to foreign researchers, (5) provision of basic technology information, (6) research.

In FY 1985–1994, the center worked on a total of 99 projects, with expenditures rising from 2.2 billion yen in FY 1985 to 22.4 billion yen in FY 1991. It handled 305 loans (to 324 companies) totaling 60.9 billion yen between FY 1985 and FY 1994. However, the number of investment projects adopted remained in the single digits after FY 1988, and from the same year, the number of mining and manufacturing projects and telecommunications projects remained at only one to three each fiscal year. Owing to these circumstances, the center was dissolved in 2003.

Meanwhile, in October 1986, the Machinery and Information Industries Bureau established a Roundtable on Future Perspectives on the Machinery and Information Industries, which issued an interim report in August 1987 titled “On the ideal form of the machinery and information industries: Aiming for international cooperation.” The interim report pointed out that the machinery industry had a significant share of the international market and was heavily dependent on exports and said that, given the trade friction, declining profits due to the yen’s appreciation, and so forth, the machinery industry needed to find ways to coexist and share prosperity with other countries. This required, first, the establishment of appropriate corporate behavior in the international economy, including exporting in harmony with the world market, establishing local production, facilitating international partnerships, and so on, and, second, it meant developing technologies and new business areas, principally centered on domestic demand, in order to maintain the industry’s vitality. Concrete measures were considered with the following three principles in mind: (1) an emphasis on market mechanisms, (2) respect for the concept of progress through competition, and (3) contributions to realizing free trade.

International cooperation was thus named a policy objective, and the role of the government was limited to improving the environment so that companies’ voluntary efforts could have the desired effect and supplementing corporate activities by providing timely and appropriate information. This vision of policy was manifest in the *2000s Vision for the Information Industry* put together in June 1987 by the Information Industry Committee’s Subcommittee on Long-Term Perspectives and in the June 1989 report of the Machinery Industry Committee of the Industry Structure Council titled “The future outlook of the machinery industry: Looking to the year 2000.”

### **4.1.3 Promotion of Fifth-Generation Computer Development Project**

The Fifth-Generation Computer Development Project was carried out with a budget of 57 billion yen over 13 years beginning in FY 1982 (Hasegawa 2013, p. 666). Because Japanese computer technology had caught up with that of Europe and the United States, Japan changed its policy goal to spearheading the development of basic computer technology. The development of the fifth-generation computer was addressed in the new policy of 1979 and the concept was honed based on a three-year investigation of the plan. The aim of the plan for the preliminary phase, from April 1982 to March 1985, was the “the successful development of the world’s first successive inference machine (inference function in hardware form) and operating system written in logical programming language.” The results of this research were presented to the Second International Conference on Fifth-Generation Computers in November 1984. R&D in the preliminary phase was carried out in four fields and resulted in such achievements as the Personal Sequential Inference Machine (PSI), Parallel Relational Database/Machine (Delta), Sequential Inference Machine Programming and Operating System, SIMPOS), and successive-logic programming language (Kernel Language, KL 0, Extended Self-Contained Prolog, ESP).

Fiscal year	Early stage (subtotal 8.27 billion yen)			Middle stage (subtotal 21.63 billion yen)				Late stage (subtotal 24.25 billion yen)			
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Budget (yen)	430 million	2.72 billion	5.12 billion	4.78 billion	5.49 billion	5.63 billion	5.73 billion	6.48 billion	6.97 billion	7.21 billion	3.59 billion
Main content of R&D	<div style="border: 1px solid black; padding: 2px;">R&amp;D on basic technology</div> Sequential inference system based on logic-type language			<div style="border: 1px solid black; padding: 2px;">R&amp;D on basic technology sub-system</div> Parallel inference system based on logic languages				<div style="border: 1px solid black; padding: 2px;">Prototype systems R&amp;D</div> Integration, improvement, and assessment of prototype systems			
Software technology (language)	<div style="border: 1px solid black; padding: 2px;">Small-scale experimental system</div>			<div style="border: 1px solid black; padding: 2px;">Small-scale experimental system</div>				<div style="border: 1px solid black; padding: 2px;">Function demonstration software</div>			
(OS)	<div style="border: 1px solid black; padding: 2px;">ESP (Extended Self-Contained Prolog) and prototype of its processing system</div>			<div style="border: 1px solid black; padding: 2px;">KL1 (Kernel Language 1) and prototype of its processing system</div>				<div style="border: 1px solid black; padding: 2px;">Prototype basic software system</div> Knowledge programming system Advanced problem solving / inference methods			
	<div style="border: 1px solid black; padding: 2px;">Sequential inference control software (SIMPOS: Sequential Inference Machine Programming and Operating System) prototype</div> -->World's first full-scale logic language OS			<div style="border: 1px solid black; padding: 2px;">Prototype for PIMOS: Parallel Inference Machine Operating System</div>				<div style="border: 1px solid black; padding: 2px;">Dialogue interface module</div> <div style="border: 1px solid black; padding: 2px;">Problem-solving programming module</div> <div style="border: 1px solid black; padding: 2px;">Module for use in knowledge-base construction</div>			
Hardware technology	World's first personal sequential inference machine (PSI) incorporated in hardware			Hardware connected to 64-element processors				<div style="border: 1px solid black; padding: 2px;">Basic software (OS)</div> Inference generation module    Knowledge Base Module			
				The world's first parallel inference computer--- Multi PSI system				<div style="border: 1px solid black; padding: 2px;">Prototype hardware system</div> Fifth-generation computer prototype system			

**Fig. 7** R&D projects for fifth-generation computer prototype systems. *Source* Hasegawa (2013, p. 720). Based on information in the Institute for New Generation Computer Technology 1992. Outline of the fifth-generation computer project, pp. 10–11

In the medium-term plan of FY 1988, the emphasis shifted to the development of parallel-type inference technology, as yet an unexplored technical field. Beginning in FY 1988, MITI also carried out the Future Personalized Information Environment Development project (FRIEND 21), for R&D on the human interface, but its implementation was shifted to private organizations. The TRON (The Real-time Operating-system Nucleus) project was also launched in June 1984 (Fig. 7).

The Information-technology Promotion Agency (IPA) project was drastically expanded from 1985 on as the core agency responsible for using information technology to improve the efficiency and effectiveness of telecommunications. To increase the efficiency of software production, a budget was assigned to the “Construction of a system for industrializing software production” (“Σ system) and the “Σ project” was launched. This was aimed at automating and mechanizing the hitherto labor-intensive software development process and greatly improving its productivity. The Σ project was a five-year plan beginning in FY 1985 with a total budget of 25 billion yen, but in FY 1989 the project shifted to the commercialization stage and MITI withdrew its involvement. Sigma System Co., Ltd. was established in 1990 and proceeded with the effort using IPA-related assets.

#### 4.1.4 Turning to International Cooperation

The shift towards international cooperation was clarified in the interim report of August 1987 titled “About information industry mechanisms for International Cooperation.” This occurred against a background of Japan–US trade friction on machine tools and automobiles. The August 1984 interim report of the Industrial Machinery Policy Roundtable (private advisory body of the Machinery Information Bureau) had also shown concern for international cooperation and harmony by revising what had been a strong emphasis on export growth.

In response to the friction with the US on machine tools, MITI implemented an export approval system in February 1978 based on the Export and Import Transaction Law. This initially calmed the dissatisfaction of US industry, but not the more general US frustration. In response to a lawsuit filed by Houdaille Industries in the United States in 1982, tensions over machine tools entered a new phase.

Ultimately, President Reagan announced in May 1986 that the US was seeking voluntary export restrictions from Japan, and several talks were held between the two governments, resulting in a November 1986 agreement that Japan would voluntarily restrict its exports of six machine tools to the US for a period of five years beginning in January 1987. The restrictions were temporarily relaxed in 1988 and 1989, but voluntary restraints were agreed to again in December 1991 at the US request, and a two-year extension to 1993 was applied to four types of machine tools.

In addition to trade friction over machine tools, the Toshiba–Kongsberg Scandal involving Toshiba Machine Co.’s violations of COCOM and trade friction over the export of bearings forced policy on industrial machinery to reflect the need for international cooperation.

Concern over trade friction was also strong in the automobile industry. Industrial policy in this field was formulated from the point of view of the need for international cooperation, based on the Roundtable on the Future Perspective of the Machine Information Industry’s August 1987 report “Outlook and issues of the automobile industry.” The report pointed out the need to create a market environment dependent on domestic demand in order to resolve trade friction and called for reviews of various regulations involving road infrastructure improvement and automobile-related taxes. That the shift to a domestic demand-led economy needed to be regarded as a policy issue was evident in other statements as well, appearing in the reports of the industry-specific roundtables sponsored by the Machinery and Information Industries Bureau’s Director General during the process of setting policy for the 1990s.

The July 1989 report titled “Aiming for an advanced automobile society in the 21st century — Summary of the Roundtable on Automobile Issues” (by the Roundtable established in November 1988) cited development of a domestic demand-led industrial structure as a mid- and long-term challenge. Meanwhile, however, some machine-industry sectors were struggling due to a lack of international competitiveness. Projects addressing domestic demand challenge in the early 1980s included energy-related engineering projects such as investment in petroleum stockpiling and in alternative energy. It was anticipated that investment would increase not only in

national land development but also in fields such as environmental conservation systems, water-supply and sanitation systems, and medical welfare systems. Regarding the international challenge, the focus was on engineering sectors that were expected to invest in production plants and urban development in oil-producing countries. However, the forecasts for market expansion were revised downwards significantly, which, in combination with external considerations, meant that aggressive policy development was not undertaken in these areas.

#### **4.1.5 Promotion of Unmanned Factories and the Robot Industry**

One of MITI's policy emphases regarding industrial machinery in the 1980s was promotion of the robot industry (Hasegawa 2013, p. 208). MITI had long been interested in the "development of technology for unmanned machine plants" and regarded the following as interconnected areas where unmanned technology-based mechanical systems were related to the machine industry overall: conserving energy, upgrading safety, and diminishing the need for dirty and difficult work. Functionally integrated commercialization, the "systematization of industry" taking place in the industrial structure, and the human costs of overseeing the legal safety requirements were also considered. Of these, the most serious were the need to improve the work environment and respond to emerging labor shortages.

MITI therefore prioritized the robot industry as one of the up-and-coming advanced-technology industries alongside the aircraft, nuclear, and information-processing industries, and therefore advanced measures were implemented to promote it. It established a leasing system through the fiscal investment and loan program, utilized tax measures to institute a "special depreciation system for important multi-function machine equipment," and activated special loan systems for industrial safety and sanitation equipment, as well as a modernization fund loan system for SME plants and equipment, and so on. On the technical side, it launched a seven-to-eight-year plan beginning in FY 1983 for the development of a "robots for extreme environments" through the Large-Project System of the Agency of Industrial Science and Technology. Interest in the robot industry was due in part to an expectation that robot use would be applicable not only in manufacturing industries but also in other industries such as nuclear power and welfare.

#### **4.1.6 Quality Assurance for Nuclear Equipment**

Following the Three-Mile Island Nuclear Power Accident in 1979, the Presidential Special Investigation Committee in the US called for strengthening measures to improve quality assurance. In Japan, the Nuclear Power Station Quality Assurance Review Committee was established as a joint advisory body of the Director-General of the Agency of Natural Resources and Energy and the Director of the Machinery Information Bureau (Hasegawa 2013, p. 451). The committee analyzed the 154 domestic accidents and failures that were reported between 1966 and 1979 under the

Electric Utilities Industry Law and the Nuclear Reactor Regulation Law (Law on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors), and found the following. First, while quality assurance activities had definitely improved, the annual number of accidents or failures remained steady at about 20 with the increase in the number of nuclear reactors, and there was room for improvement in order to gain public confidence. Second, the time between periodic inspections had been lengthened. Third, many imported items in the equipment had failed.

A separate report presented by the Review Committee in September 1981 pointed out that for further improvement of Japan's quality assurance system, "it was necessary to refer to the excellent aspects of quality assurance in other countries, and also to examine the approaches to quality assurance that take advantage of the characteristics of our country." The specific suggestions for improvement included: (1) establishing a denser exchange of information within the industry, (2) strengthening the design check through verification tests and reliability analyses, (3) strengthening guidance and management all the way through to the subcontracting company's level, (4) strengthening oversight of general commercial products and items purchased from overseas, (5) strengthening education and training for maintenance workers, and (6) making comprehensive maintenance manuals and improving and strengthening the quality assurance diagnosis system. While quality assurance improvement "should be done by the industry as a whole," the Committee said that "the nation, too" should play an active role, and it proposed formulating unified standards and guidelines on quality assurance activities.

Further measures to prevent problems at power plants were promotion of the development of nuclear-power generation support systems that could quickly predict and respond to problems and also of advanced light-water reactor technology. In April 1987, the Committee for the Promotion of Reactor Advances was established and "Subsidies for Equipment Development Expenses for Improving Nuclear Power-Generation Reliability" were offered for technical development. However, despite the importance of improving the reliability of nuclear power generation, the development budget was greatly reduced after FY 1985 due to adverse fiscal circumstances and not all the funds were allocated.

#### **4.1.7 The YXX Plan and Joint Development in the Aircraft Industry**

YXX aircraft development had been under review since the late 1970s (Hasegawa 2013, p. 486). The August 1985 interim report issued by the Aircraft and Machinery Industry Council in consultation with MITI suggested that portions of the development expenses, especially those with high risks, should be subsidized, with the development entities being supplied with compensation for interest payments. A draft amendment to the Aircraft Industry Promotion Law was established in April 1986, changing the aim of the law from "the promotion of the aircraft industry through encouragement of domestic production of aircraft, etc." to "the promotion

of the aircraft industry through the encouragement of international joint development.” Concurrently, subsidies were made available through the International Aircraft Development Fund (IADF) established in May. The main distinguishing points in its financial support were first, that financing was made available on terms that required only limited security rather than the full security previously required of each company. Part of the risk, in other words, was borne by the fund, and the project was given the character of an initial large-scale venture. Second, the principal would be recovered in proportion to the volume of sales (the “Fokker system”), and model certification would be acquired in 1992. Development costs were high, however, even though fuel prices rose no higher than expected, leading to a review of the project. In March 1994, Boeing released a development plan for the 737-X development, forcing the suspension of the YXX. Despite the results, both tangible and intangible, achieved through joint development, the project made Japanese developers recognize the risks and difficulties involved in civil aircraft development.

Meanwhile, in July 1990, the Industrial Structure Council released its report on “Trade and Industry Policy in the 1990s,” which sought aggressive development of new aircraft industry projects. MITI surveyed the development of supersonic transport machines already under way and of small civilian transport aircraft and considered upcoming policy issues, along with exploring methods of joint development for the 1990s. But none of them got underway.

#### **4.1.8 Exploring Space Industry Policy**

The history of space development in Japan originated in 1955 with The University of Tokyo Institute of Industrial Science research on solid rockets and the development of space observation rockets. Thereafter, the government began promoting space development, and MITI launched the promotion of the space industry (Hasegawa 2013, p. 53).

However, policies promoting the full-scale and sustainable development of the space industry began only after the Space Industry Office was established in the Machine Information Bureau in September 1979. Space-industry policy at this time did not yet have a specific focus. The Roundtable on the Basic Issues for the Space Industry was established as a private advisory body of the Mechanical Information and Commission Director-General in order to develop a vision for space-industry promotion in line with the realities of the existing industry. The report issued by the Roundtable in April 1981 pointed out the following problems: (1) a fragile technology base, (2) a limited space-industry market, and (3) institutional issues. Regarding the first, the Roundtable was concerned that, although Japan had succeeded in launching a satellite within a short period of time, it was behind in acquiring fundamental technology, chiefly because it depended on technology from the United States.

The search for a space-industry policy based on these recommendations continued until FY 1984. However, given the ongoing fiscal reconstruction, the policy planning lacked precision. It was progress in the commercialization of space that enabled new possibilities to emerge despite the somewhat stalled policy development, and the fact

that private enterprises hoped to participate in the use of communication satellites following the establishment of the new Telecommunications Business Law. Plans for utilizing space were put on the path to reality with the January 1984 US announcement of plans for a space station. In the latter 1980s, a comprehensive space industry was promoted in the following areas: (1) “Promotion of resource remote sensing” (satellite observation of the ground surface from space), (2) development of a resource exploration observation system for mounting a polar orbit platform, (3) development of an unmanned space experiment system (space experiments/observation free flyer) that began in FY 1986, and so on.

## ***4.2 The Challenge of Next-Generation Technology Development***

### ***4.2.1 “The Road to Becoming a Technology Nation”—Vision for the 1980s”***

The March 1980 *Vision for the 1980s* summarized the results of an examination of technology policy explained in its Chapter 6, titled “The Road to Becoming a Technology Nation” (Sawai 2011, p. 31) and cited the following as required for the technology of the 1980s: (1) overcoming energy restrictions, (2) qualitatively improving living conditions and enriching regional communities, (3) promoting more creativity- and knowledge-intensive industries, and (4) taking on the challenge of next-generation technological innovation. These were regarded fundamentally as tasks for the private sector, but there remained areas in which the government was needed to carry out R&D or to play the role of project organizer. Thus, the goals or philosophy of industrial-technology policy looking toward the 1980s was “creative autonomous technological development” to support the country now become an economic power after overcoming the two oil crises.

Established in December 1983 as a private advisory body of the Director-General of the Agency of Industrial Science and Technology, the Study Group on Technical Development Perspectives compiled a report in September 1984 that stressed stronger collaboration among industry, academia, and government. It also pointed to the importance of independent technology development. In other words, the deeper the pursuit of basic research, the greater the uncertainty became, creating a unique role for the government itself in providing support through measures such as subsidies, loans, and taxation. In 1987, MITI also launched a Research Group to Study Trends in Technological Innovation and Prospects for New Markets, which compiled its own report in June. A MITI report the same year titled “Liven up, Japan!” said that fields such as microelectronics, new materials, and biotechnology were undergoing a technological revolution comparable to a “third industrial revolution.” Basic research would be essential in order for Japan to be at the center of that revolution, and the role for industrial technology policy was accordingly likely to expand.

The Industrial Science and Technology Agency published an “Industrial technology white paper” in 1988, the first since the Agency’s establishment in 1948. Its aims were as follows. First, as technology development began to expand to the extent that it no longer remained within the framework of original bureaus and divisions, industrial technology policy would henceforth be developed without regard for interministerial and interagency boundaries. The second aim was to transform Japan from a “processing center” to a “center of creative knowledge.” With these aims, the White Paper pointed out issues such as low government investment in R&D, a lack of research in basic technology fields, and the need to promote international exchange and international cooperation. The White Paper placed a heavy emphasis on the impact of basic technology research and on the fact that “the growing accessibility and resonance of science and technology” were making steady advances.

#### **4.2.2 The Establishment of a New Research and Development System for Next-Generation Industrial Basic Technology**

The importance of basic technology was pointed out in the final report of the Study Group on Long-Term Planning for Industrial Technology Development in October 1981, and an R&D Program on Basic Technologies for Future Industries was established that October to develop concrete measures for it (Sawai 2011, p. 165). This system, which aimed to promote R&D with broad cross-sectoral impact, was based on different principles from those of the Large-Scale, Sunshine, and Moonlight Projects that had targeted sector-specific technological development. The new system was intended to cultivate the “buds” of technology until the development was a “young sapling” that the private sector could research and develop on its own strength. Using terms like “bud” and “sapling” as slogans, it aimed to promote R&D based on linkages among industry, academia, and the government. A biotechnology roundtable, High-Performance Polymer Materials Council, and Fine Ceramics Roundtable were established by private corporations. Through repeated discussions between these roundtables and the related MITI divisions, and with the participation from the national laboratories and universities, the outlines for next-generation-themed projects were decided. The roundtables became the parent organizations of the groups established to implement the technology development (Table 9).

The projects selected in 1981 spanned 12 subjects in three fields: new materials, biotechnology, and new functional elements. The field of new materials saw R&D of fine ceramics and other materials; biotech focused on the promotion of bioreactors. The budget increased steadily from 2.7 billion yen in FY 1981 to 6.4 billion yen in FY 1985, and funds were thereafter maintained in a special account at the 60–70 billion yen range. Many of the first-round projects initiated in FY 1981 were reaching their end dates in FY 1988, and were examined by the Planning Subcommittee of the Industrial Structure Council’s Next-Generation Technology Development Committee established in April 1988. The report issued by the Subcommittee in June found the following problems: (1) adverse effects on “take-home research” by private enterprise, (2) insufficient links with university researchers, (3) delays

**Table 9** Next-generation industrial infrastructure projects

Sector	Theme	Period	Total project costs (100 million yen)	Number of patents	
				Applications	Registered
New materials, ceramics	Fine ceramics	1981–1992	113	110	
New materials, polymer materials	High-efficiency polymer separation membrane material	1981–1990	42	29	13
	Conductive polymer material	1981–1990	29	18	14
	High crystalline polymeric material	1981–1990	24	54	11
	Silicon polymer material	1991–2000	37	473	
New materials, metal composite materials	High-performance crystal controlled alloy	1981–1988	39		
	Composite material	1981–1988	46	5	3
	Ultra-resistant environmental advanced materials	1989–1996	112	47	12
New materials, optoelectronic material	Photoreactive material	1985–1992	20	72	44
	Nonlinear opto-electronic materials	1989–1998	47	170	37
Biotechnology	Bioreactor	1981–1988	30	161	
	Cell mass culturing technology	1981–1989	34	71	
	Recombitant DNA utilization technology	1981–1990	31	17	7
	Functional protein aggregation application technology	1989–1998	46	39	4

(continued)

**Table 9** (continued)

Sector	Theme	Period	Total project costs (100 million yen)	Number of patents	
				Applications	Registered
	Composite carbohydrate production utilization technology	1991–2000	40	33	
New functional elements	Environmental resistance enhancing element	1981–1985			
	Superlattice element	1981–1990	37	36	14
	3D circuit element	1981–1990	65	78	23
	Bio-element	1986–1995	24	108	43
	Quantization functional element	1991–2000	53	169	47
Superconductivity	Superconducting material; superconducting element	1988–1997	269	687	
Software	New software structure model	1990–1997	24		

Source Sawai (2011, p. 166)

in developing internationally, including participation of overseas companies, and (4) quantitative evaluations without qualitative or secondary-outcome evaluations. It also proposed themes for the next round of next-generation technology development, including diversification of research methods, and ways to involve universities. It suggested enlarging the scope of “bud”(technical seeds) to “sapling” (R&D before the application stage) to include the “fostering of seeds and seedlings (examining the possibility of practical applications).” Superconductivity and software were added to the covered fields, and more basic research and interdisciplinary and business-related themes were selected in FY 1988. These included, for example, the development of superconducting materials and superconducting elements.

### 4.2.3 Fostering Bioindustry

Biotechnology includes technologies that advance medical care, improve breeding, produce useful substances, and clarify biological processes by manipulating the functions of living organisms, including their substance, information, and energy. Biotechnology had already been applied to fermentation and brewing, but the discovery of the role of microorganisms expanded its applications to other fields such as antibiotic production and sewage treatment (Table 10).

Expectations for this field increased in Japan relative to that of the United States, which was at the forefront of biotechnology development and applications. According to a survey conducted by MITI in FY 1982, several tens of new companies had launched biotechnology R&D every year since 1980, as compared with three to five companies each year in the 1970s. In 1988, the MITI Bioindustry Office report summarized the prevailing situation and the issues in each field. According to that report, Japan's chemical industry led the world in amino acid production technology. Amino acids and their derivatives have various properties (ampholytic, chelating action, surface activity, bactericidal/antimicrobial, antioxidant, and so on), and their polymers have properties not found in other substances, such as biocompatibility and biodegradability. The report anticipated that these characteristics would lead to the development of new product areas and industrial fields (Yamazaki 2011, p. 344).

With the rising expectations for biotechnology, the Japanese government, too, began to focus on its development. In July 1982, the Bioindustry Promotion Committee was established within the Basic Industries Bureau and in July 1983 put together the following reports: "How to secure biological resources such as microorganisms" and "Safety concepts when using the results of recombinant DNA technology for industrial production." The former detailed the requirements for securing the necessary biological resources for technology development and industrialization of biotechnology. Since Japan was seeking systematically to secure a large number of microorganisms, animals, and plants, laboratories needed to be improved to that end. Concrete support of technical development included the 1981 establishment of the Next-Generation Basic Industrial Technology R&D System, which covered biotechnology among other areas. Three projects were initiated in its first year. One of them, research on glycoconjugates, was established jointly by the Science and Technology Agency, the Ministry of Health and Welfare, the Ministry of Agriculture, Forestry and Fisheries, and MITI, and the research was advanced by the private sector Research Association for Biotechnology with the cooperation of the Research Institute for Polymers and Textiles, the National Chemistry Laboratory for Industry, the Fermentation Research Institute, the Electrotechnical Laboratory, and the National Research Laboratory of Meteorology, as well as joint research from universities recommissioned by the research associations. R&D projects in MITI's National Research and Development Program ("Large-Scale Project") were also launched, as was research based on the 1983 Law for Accelerating Regional Development Based on High-Technology Industrial Complexes ("Technopolis Law"). A number of regions received support by using biotechnology as the pillar of their

**Table 10** Economic impact of biotechnology in 2000 (*Unit* billion yen, %)

Biotechnology areas	Production (value)	Gross value-added production	Industrialization rate
Rice, wheat	519	381	9.51
Vegetables	297	164	8.70
Non-edible cultivated crops	497	400	77.70
Dairy	327	111	25.00
Beef/cattle products	146	37	22.80
Fisheries	118	71	2.97
Dairy products	590	150	20.70
Bakery, confectionery	1,370	507	32.00
Sugar	108	13	10.00
Seasonings	251	73	15.00
Starch and sugars	177	30	26.02
Mixed feed	637	58	30.00
Alcoholic beverages	1,113	662	19.84
Ethyl alcohol	164	49	80.00
Petrochemical basic products	317	44	8.32
Other petrochemical products	753	116	14.50
Pesticides	142	33	30.00
Medicine	3,151	1,564	40.00
Surfactant, Cosmetics	466	155	20.00
Other chemicals	479	149	12.37
Petroleum products	463	79	1.65
Nonferrous metal ingots	300	50	5.62
Computers	188	80	3.00
Electronic appliances	287	103	5.00
Water supply systems	479	303	24.00
Sewer systems	420	238	50.00
Waste systems	471	349	15.63
Total	15,003	6,312	11.80

Industrialization rate = Replacement rate × Realization rate (Replacement rate = ratio of conventional technology replaced by biotechnology; Realization rate = possibility of developing alternatives to conventional technology).

Source Yamazaki (2011, p. 369)

town planning, meaning they used legal frameworks for community development by integrating industry, academia, and residents around the nucleus of a cutting-edge technology. From FY 1988, MITI strengthened its emphasis on revitalizing regional economies through biotechnology: it produced a manual about introducing this technology, established a Biotechnology Instruction Staff System, and with the aim of developing the potential of traditional brewing industries, it mediated in obtaining financing from the Japan Development Bank and others.

With the expansion of the above policy supports, Japan's R&D expenditures in the 1980s increased, mainly in advanced technologies. From 6.0 trillion yen in 1981 to 8.9 trillion yen in 1985, the average annual growth rate was 10.4%. Although the scale itself was small, growth in the field of recombination, in particular, was remarkable. The number of recombinant DNA experiments increased from 284 in 1980 to 4,813 in 1986. The number of related patents also reached 800 in 1986, 13 times that in 1981.

#### **4.2.4 Development of New Materials**

The targets of MITI policy in the new materials category were fine chemicals, new metallic materials, highly functional polymer materials, composite materials, and others. By function, these included electrical functional materials, lightweight structural materials, thermal functional materials such as heat-resistant materials, and optical functional materials such as optical fibers. In March 1984, the Industrial Structure Study Group, a private advisory body of the Director-General of the Industrial Policy Bureau, explored the policy issues, including estimating the expansion of new materials-related markets looking ahead to the year 2000. Regarding fine ceramics in particular, the Fine Ceramics Basic Problem Council, a private advisory body of the Director-General of the Consumer Goods and Services Industries Bureau, announced in May 1984 its anticipation of an expansion in the market from 630 billion yen in 1983 to somewhere between 2.8 and 5.0 trillion yen in the year 2000 (Yamazaki 2011, p. 411).

The makers pursued the development of new materials in the 1970s through the establishment of laboratories and production and processing facilities, and by 1984 the excitement was such that it was dubbed "Year One of the New Materials Age." Beginning in 1985, the Basic New Materials Policy Office tried every year to capture the current state of the industry, issuing questionnaires to firms with the possibility of entering the market. As of 1985, 92 enterprises had entered the market, producing a total of 556 products; by 1988, the number had risen to 302 companies and 1,882 items. Entry from the chemical industry was the most frequent, followed by glass and stone, nonferrous metals, and steel. Materials manufacturers accounted for

about one-third, but in the late 1980s, user industries—general machinery, electrical machinery, transportation machinery, and precision machinery—were becoming the core of new materials development. Reflecting these trends and classified by function, new materials with mechanical functions accounted for 40% or more of the total. Practical applications found in the 1988 surveys included artificial kidneys, IC packages, and others, and all were underway for ten to twenty years and were technically mature fields. There were also delays in practical applications of new materials such as fiber reinforced metal (FRM), which were less mature technologically and entering markets where the existing materials were competitive in price and performance. The issues highlighted by these materials were the need for differentiation or market-creative product development.

Meanwhile, the Basic New Materials Study Group, a private advisory body of the Director-General of the Basic Industries Bureau, in 1988 again summarized the possibilities for technological innovation in new materials. For example, in aircraft development, the development of new materials was expected to address the problems of large size, high efficiency, high speed, improved safety, and noise reduction. In space development, new materials were being considered for spacecraft, space stations, and artificial satellites. Possibilities were also being considered for utilizing new materials in regular consumer goods such as residential, medical, clothing, and food items.

In October 1989, the Basic Materials Study Group summarized the market size outlook for 2000 and the promotion challenges of the new materials industry in a report titled “About the future direction of the new materials industry.” Market size in each new-materials field was expected to expand greatly and to contribute to high economic growth for related businesses. The group cited as challenges the further promotion of technological development in basic research fields, and pointed to the need to assure the reliability of new materials in practical uses, promote joint research and evaluation by the public and private sectors, and promote research into practical applications.

Apart from this, in April 1988, MITI launched the Minerva Plan Promotion Roundtable, which gathered experts to develop common basic technologies across industries, centered on the Nonferrous Metals Division of the Basic Industries Bureau (Yamazaki 2011, p. 322). The Roundtable held that nonferrous metals was a particularly noteworthy sector that could supply important materials supporting ultra-advanced innovations for the advanced technology and information society of the 21st century, and the development departments of major companies were brought together into working groups established for each material. In April 1989, a report titled “Minerva 21” was compiled as a vision for the development of nonferrous metals-related technologies in the twenty-first century. Dramatic improvements in new technologies were anticipated in fields such as optical communication-related technology, high-speed transportation methods such as high-performance aircraft, space development, nuclear energy development, advanced medical equipment, and chemicals, and the report called for advances in the materials to be used in these areas. Thereafter, in the 1990s, environmental and resource energy problems were explored, and with regard to the development of nonferrous metal materials, the

“New Minerva Metal Materials Future Perspective” compiled in 1991 sought to elucidate those areas for which high social expectations could be predicted and to induce research and development in those fields (Table 11).

#### **4.2.5 Grant Aid for Private-Sector Technology Development**

Meanwhile, various technical subsidies were created in the 1980s even as the number of government-led projects shrank. These were the Subsidies for the Practical Development of Technology for Energy Alternatives to Petroleum in FY 1980, Subsidies for Practical Development of New Power Generation Technology in FY 1981, and Subsidies for Industry Revitalizing Technology Research and Development in FY 1983, with the addition in FY 1993 of the Subsidy Program for Practical Applications of Technology Related to the Rationalization of Energy Use. Overall, however, from the mid-1980s on, subsidy policies tended to be abolished or reviewed due to criticism from abroad.

The Tax Program for Promoting R&D of Basic Technologies (“High-tech Tax System”) was established in 1985. This allowed tax deductions for research and investment depreciation of assets that companies needed for research if they met certain requirements.

The Japan Development Bank meanwhile renamed the loans for “turning new technologies into businesses” as “new technology development” loans, and adopted improvement measures. These included adding to the JDB’s list of financing targets facilities construction and acquisitions, the purpose of which was the preliminary stages of corporate planning for the “commercialization” of new technologies. Also, in FY 1985, it began to include funding for non-equipment-related loans in its general financing of corporate technology development (“new technology development”). However, the loans made by the Bank to advance industrial technology declined sharply after peaking at 92.8 billion yen in FY 1992.

### ***4.3 New Regional Development Policy***

#### **4.3.1 Development of a New Location (Siting) Policy**

Location policy in the 1980s developed under new ideas and marked a change from earlier policy. The new concepts included the Technopolis Plan, the Research Core Plan, the Key Facilities Siting Plan, the Office Arcadia Plan, and others (Takeda 2011, p. 53).

These new attempts were made because of the limitations that emerged in existing location policies, which had tried to disperse industry into non-urban regions based on the Inducement for Industrial Relocation plan. According to a mid-1980s survey, even though the dispersal plan had led to some relocation out of urban areas into the

**Table 11** Minerva 21 technologies

	Characteristics, Uses	Issues
High specific-strength alloy (Al–Li alloy)	Aluminum alloy characterized by high specific strength. Aerospace development, super high-speed transportation network, high-performance machine tool development, urban restructuring	Highly active lithium alloy technology, melting/casting process, recovery technology
Intermetallic compound	Nb, Mo, Ti–Al intermetallic compounds having high strength, acid resistance, corrosion resistance, and abrasion resistance in a high-temperature environment. Aerospace development	Crystal control technology, diaphragm technology etc. Atomic level innovation
Rapid solidification technology	Technology to eliminate casting defects such as segregation and tissue abnormality accompanying solidification. Electronics, aeronautical and aerospace fields that require high-performance and high strength	Development of special melting technology, steel tightening technology, special cooling equipment
Titanium new smelting/dissolving method	Light-weight, high-strength, high-corrosion-resistance material. Stainless steel etc.	Reduction of the production cost of titanium ingot, development of continuous smelting method · new dissolving method
Application technologies for high-temperature superconducting material	Development of materials with superconducting properties. High-speed railways /ship, power generation systems, etc.	Development of superconducting material, development of application technology
Rare metal purification technology	An important advanced electronic material and superconducting material, for use in ultra-advanced technology sectors	Development of new refining method, laser separation method, etc.
Advanced recycling technology for useful metals	Precision alloys, dissimilar metals, impurities removal technology required for microfabrication processing	Development of automatic sorting, separation, and recovery technology, and dissolving, smelting technology

(continued)

**Table 11** (continued)

	Characteristics, Uses	Issues
Nonferrous metal alloy design technology	Efficient alloy technology to meet advanced processing needs	Atomic-level alloy technology
Technology for evaluating new nonferrous metal materials technology	Reliability of new materials suitable for environment such as ultra-high speed, extreme resistance temperature, high temperature etc. Evaluation technology of safety	Establishment of materials evaluation technology incorporated in the material itself and in society

Source Yamazaki (2011, p. 337)

“induction areas,” the industrial sites themselves were in a downturn and beginning to approach the limit of their viability (Table 12).

The Technopolis Plan (“Technopolis Plan”), which was the first under the new policy, was based on the March 1980 Industrial Structure Council report titled “About the nature of trade and industrial policy in the 1980s.” The report called for promoting the introduction of cutting-edge technology industries and raising the technological level of existing regional companies. The aim in doing so was to foster the autonomy and revitalization of regional economies as technological cores. This was the “Technopolis 90 Construction Initiative.” It aimed at “town”-building based on organic combinations of industry (advanced technology industries such as electronics and machinery), academia (research institutes such as engineering universities and private central research institutes), and living space (“warm” communities). Based on this concept, and on consultations with the Ministry of Construction, Ministry of Agriculture, Forestry and Fisheries, the National Land Agency, and others, the Law for Accelerating Regional Development Based Upon High-Technology Industrial Complexes (the “Technopolis Law”) was established in April 1983. The purpose of this law was to promote industrial development based on advanced technology, mainly by local governments and enterprises in regions that did not have a high degree of industrial concentration, and to contribute to the revitalization of regional economies and the balanced development of the national economy. It was distinctive in that it delegated to the prefectures the selection of the areas themselves, and limited the involvement of the central government.

In August 1983, MITI announced policies on “How to Proceed with the Technopolis Development Initiative” and on this basis sequentially approved the development plans formulated by the prefectures. Of the 26 selected regions, 20 were approved to start by FY 1986. A survey conducted in 1990, which was the target year of the 20 regions, found that while research projects had been undertaken actively, the results were not reflected in technological improvements among the SMEs in those regions. Research institutes such as universities were advancing technological developments that did not meet the needs of the companies in their regions. In light of these problems, MITI in March 1991 changed its target year to 1995 and made

**Table 12** Industrial location vision for the 21st Century: plans and actual status

Item	Plan			Actual status	
Annual growth rate	5.7–6.3%			4.5% (1976–82 real growth rate)	
Factory relocation target	In 1985, reduce the factory site area in the relocation promotion area by about 30% from 1974 level			25.4% decrease in the 23 wards of Tokyo and the cities of Osaka and Nagoya	
New expansion targeted to the relocation districts	On a cumulative basis from 1976 to 1985, site about 70% of new facilities (by area) in the target relocation districts			65.6% on a cumulative basis from 1976–82	
Factory shipment value by region in cases where target was met		1974	1985	1982	
	Relocation promotion areas	23%	11%	18.1%	Conversion from Tokyo 23 wards and the cities of Osaka and Nagoya
	Previously undeveloped areas	53%	59%	57.9%	Conversion to 27 prefectures
	Relocation target areas (for induction)	24%	30%	24.0%	
	Pacific Belt region	69%	60%	67.3%	
Industrial base	Factory site area	150,000 hectares	220,000 hectares	157,000 hectares	Converted to factories of over 30 employees
	Factory water recovery rate	64.90%	70%	73.80%	

Source Takeda (2011, p. 48)

Source data from MITI Local Environmental Pollution Bureau Industrial Relocation Section 1985, p. 12

additions to its guidelines on technology advancement in regional firms that made up local industries, the establishment of new firms based on advanced technology, the individuation of regions, and the spread of advanced technology to areas outside the Technopolis. It also added new functions such as “play” to the categories of industry, academia, and residential community. The 1999 survey revealed the limits of these plans, finding that the outcomes of the high-tech industries were not particularly prominent in the designated areas. Although certain regions had seen their efforts

bear fruit and were ready to turn those results into businesses, overall the policy outcomes in the 1990s were not as intended. The Technopolis Act developed into the Law for Facilitating the Creation of New Business in December 1998 (Fig. 8).

The second Research Core Plan sought to address the economy's shift to service industries and the hyper-concentration of economic activities in Tokyo by aiming at the regional dispersal of service and administrative sectors, and based on the 1986



Fig. 8 Target zones in the technopolis development conceptual study. Source [II-5, p. 59]

Private Participation Promotion Law, it developed Research Cores, meaning specified facilities utilizing the capabilities of private-business operators. Although the project was intended to support the gathering of research and development functions in regional cities that already had a high degree of urban functions, the development was limited by the strict conditions that were imposed. In order to shift to a domestic demand-led economic structure, this concept focused on building regional economic structures by dispersing service industries and higher-order functions such as manufacturers' R&D projects, and to build regional economic structures responsive to the economy's shift to services and software.

The Third Key Facilities Location Plan targeted a wider area than the relatively large-city focus of the Research Core. The aim was to build regional economic structures that, by dispersing higher-order functions such as service industry and manufacturing R&D, would help lead to a demand-led economic structure.

Based on the Key Facilities Location Law, MITI in September 1988 presented "Guidelines for the promotion of specific project concentrations" on the basis of which local governments could formulate concentration promotion plans. Many of the designated areas were close to, or overlapped, areas that had been the targets of the Technopolis policy. The two location policies were clearly complementary. According to a survey conducted in March 1994, the three projects involved in R&D had the largest number of joint R&D promotion projects; human resources projects were also taken up by many districts. Although there were variations among the different projects, and although four of the ten types of industry in the specified projects had already reached their original targets in 1993, the achievement rate of the natural science labs was only about half the target rate. The "brain location" act was terminated in 1998 and the projects were passed on to the new Business Creation Promotion Law.

The fourth plan, called the Office Arcadia Plan, was based on the Multi-Polar Patterns National Land Formation Promotion Law for implementing the Fourth Comprehensive National Development Plan and was one of the industrial workplace relocation policies promoted by MITI. This also targeted the over-concentration in Tokyo and aimed to develop a society in which the people of Tokyo could feel as relaxed and affluent as those in rural areas. The policy was implemented under the Law for Comprehensive Development of Regional Core Cities with Relocation of Office-Work Function ("Local Hubs Act," February 1992). Based on this law, MITI decided to construct Office Arcadias to serve as hubs for the regional dispersal of industry. In principle, these were limited to one business hub district per local hub city. By 1994, six areas had been targeted under the concept of promoting regional cores, and six as business core cities, and 16 areas had been developed as business complexes by February 2002.

In addition, services such as location information were provided to foreign companies that were considering investment or advances into Japan. This was intended to contribute to the development of a domestic demand-led economy to ease international economic tensions. In addition, the Rural Area Industry Promotion Law of June 1971 had resulted from the fact that the “introduction of industry” had not produced the results of other industry relocation policies, and with the conviction that it was necessary to respond to changes in the industrial structure, the 1971 Law was renamed in June 1988 as the Law on the Promotion of Introduction of Industry into Agricultural Regions and the range of industries to be thus introduced was expanded.

### **4.3.2 Review of the Pollution Health Damage Compensation System**

Under the Law Concerning Pollution-Related Health Damage Compensation and Other Measures (“Public Health Law”) enacted in October 1973, the compensation system for damage to health from pollution targeted the results of air and water pollution. People whose health was damaged by pollution were eligible for compensation if their claims were approved by prefectural governors or the mayors of major cities (Takeda 2011, p. 303). The compensation system came into effect due to a broad national consensus that included industry, against the background of the court ruling in the Yokkaichi Pollution Trial. It was not originally easy to clarify the causal relationships between pollution and disease for individual patients, so in order to avoid confusion, such as multiple lawsuits, the policy was adopted of providing relief if certain requirements were met. It was a system that enabled fairly practical decision making.

Under this system, compensation was paid to the “victim” with charges levied on polluters by group according to the degree to which they contributed to the pollution. However, the problem inherent in the design of the system itself became increasingly obvious in the course of its operation.

One of the problems was that even in cases in which the air quality improved markedly due to pollution regulations, the area designated under the Pollution Law was not removed from the coverage, but rather was expanded. As mentioned above, environmental regulation had had a considerable impact on air pollution, excluding nitrogen oxides. Nevertheless, the designated areas were expanded and the number of certified patients continued to increase. The industries bearing the cost of the compensation were therefore dissatisfied. There was further dissatisfaction because mobile units such as automobiles, although believed to be important sources of pollution, were excused from the funding burden. Needless to say, these views were opposed by those seeking relief for damages, and opinions were especially strong on the unresolved issue of nitrogen oxide.

MITI therefore reviewed the system with a view to improving it. The focus of its reconsideration was improvement of the certification requirements, clarification of the requirements for removal of the regional designation, and rationalization of the cost burden.

The Environmental Health Committee of the Central Council for Environmental Pollution Control (Central Pollution Council), meeting in November and December 1982, declared the need to reexamine the system from a neutral position, and momentum for improving it gradually gained strength, until finally in October 1986, the Environmental Health Committee compiled a report calling for the following: (1) Complete release of the designated regions, (2) continued compensation to those already certified, (3) projects related to prevention of health damage based on contributions from the sources of pollution, especially in the old designated areas. The amended law was enacted accordingly in September 1987. As a result, in March 1988, all Class 1 regional designations were canceled, and the emphasis of the pollution health damage compensation system shifted from offering after-the-fact relief to seeking means of preventing damage in the first place.

### **4.3.3 Rationalization of Administrative Regulations on Safety**

In the latter 1980s, the High-Pressure Gas Safety Institute, a private corporation, was established as the core institution for the voluntary adoption of safety practices. It undertook various projects and made progress in eliminating the duplication of regulations. The business world, meanwhile, was critical of what it regarded as the slow pace of reform (Takeda 2011, p. 588).

In September 1989, the Roundtable on High-Pressure Gas Safety Policy, a private advisory body of the Director-General of the Industrial Location and Environmental Protection Bureau, undertook a review of the deregulation of safety policy on high-pressure gas and in July 1991, it advised the High-Pressure Gas and Explosives Safety Council on “How to formulate safety measures for high-pressure gas in the future.” The November report issued a strong call for a shift to voluntary safety controls, and the High-Pressure Gas Control Law was revised on this basis. The revisions strengthened the regulations concerning consumption of high-pressure gas, enabled prefectural governors to make recommendations and issue orders to strengthen business safety measures, and advanced the simplification of procedures.

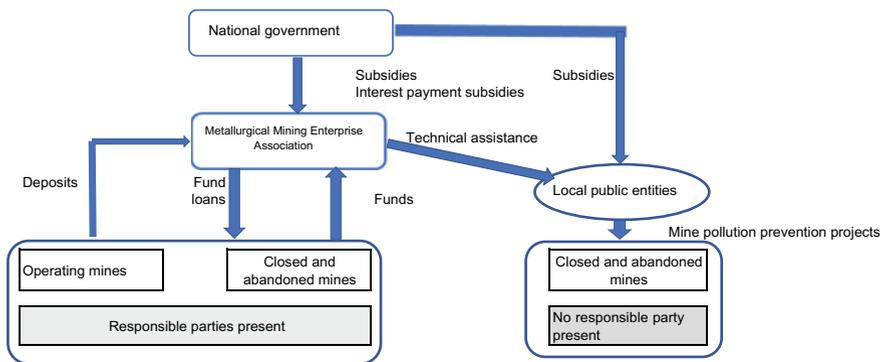
Deregulation was promoted thereafter as well. In April 1997, the Partial Revision of the High-Pressure Gas Control Law and the Law Concerning the Securing of Safety and the Optimization of Transaction of Liquefied Petroleum Gas came into effect, and the High-Pressure Gas Control Law was renamed the High-Pressure Gas Safety Law. This renaming was in accordance with the rationalization and simplification of various regulations such as permitting self-inspection or inspection by private companies and shifting portions of the sales business to a notification system. Regarding liquefied petroleum gas, plans were also made to rationalize regulations for businesses that established high-level safety systems. Measures included shifting

from a licensing to a registration system for sales businesses and establishing a centralized monitoring system. The change, which advanced voluntary safety activities, represented a major shift in the approach to safety regulation.

### 4.3.4 Measures to Address Mine Drainage at Metal Mines

The costs of treating mine pollution were in principle to be borne by the mine companies that were the polluters. However, the August 1980 Mining Industry Council’s proposal titled “Measures for mine drainage in the future” pointed out that these costs could not be met by raising prices and that the burden would only place greater pressure on the businesses and reduce the will to develop new mines. Because of this, the Council suggested that some of the burden be assumed by local governments (Takeda 2011, p. 647). MITI accordingly revised the system in FY 1981 to make the cost of treating environmental contamination eligible for subsidies. MITI also strengthened its measures against pollutant accumulation at mines, based on the Mining Council’s proposal of September 1982 regarding problems such as increasing construction volumes and the unexpectedly high cost of clean-up at the former Matsuo Mine. The second Basic Policy Plan on Mine Pollution Prevention Projects Related to Specified Spent Facilities went into effect in April 1983.

As mentioned above, problems with the new system became evident in the course of addressing mining pollution. This was especially true because no technologies emerged that could assure a complete clean-up, and the obligation to bear the burden of others’ clean-up costs in addition to their own acted as a restraint on mining businesses and caused problems for the financing system as well. It was in the 1990s that solutions to these problems began to emerge (Fig. 9).



**Fig. 9** Pollution-prevention policies and the role of the mining industry association. *Source* JOGMEC (2006, p. 98)

## **5 Making Progress on Extrication from Dependence on Oil**

### ***5.1 Policies Prioritizing the Stable Supply of Energy***

#### **5.1.1 On the Long-Term Outlook for the Supply and Demand of Energy and an Overall Evaluation of Energy Policy**

The energy supply in the 1980s proved different from what had been predicted immediately after the oil crisis. Oil supply decreased from the 1970s to the first half of the 1980s, but from the late 1980s into the early 1990s it increased again with the fall in crude oil prices. The dependence on the Middle East, which had supplied 90% of Japan's post-crisis crude oil imports, fell to 67.4% of the total in 1987. The proportion of natural gas in the primary energy supply rose. Domestic coal output meanwhile declined from 50.0 million tons in 1961 to 1.29 million tons in 2008. The quantity of imported coal began exceeding that of domestic coal in 1970 and in 1988 passed the 100-million ton mark. From the 1980s on, consumption of coal increased because of strong demand from the electric utilities.

Stable supply was already on its way to becoming the top priority for natural resources and energy policy but was pushed even more in that direction by the second oil crisis in 1979. As the impact of the crisis faded, however, new directions began to be explored. In April 1983, MITI held an Advisory Committee for Energy Roundtable on Basic Issues to undertake a comprehensive examination of energy policy, including the issue of energy costs. The Roundtable summarized its findings in an August 1983 report titled "On the long-term outlook for the supply and demand of energy and an overall evaluation of energy policy," in which it declared that "Although it is more essential than previously to assure a secure supply, we also need to actively address the demands of the times for cost reduction" (Kikkawa 2011, p. 77). Between 1980 and 2000, the long-term outlook for the supply and demand of energy were revised in 1982, 1983, 1987, 1990, 1994, and 1997. Some of them are shown in Table 13.

#### **5.1.2 Oil Policy and the Provisional Measures Law on the Importation of Specific Petroleum Refined Products**

The Provisional Measures Law on the Importation of Specific Petroleum Refined Products ("Special Treatment Law") was enacted in December 1985 to promote the importation of gasoline, kerosene, and light oil. The Special Treatment Law limited the import agents to oil refiners (Kikkawa 2011, p. 166). While the policy framework strengthened regulations on business operators in this way, the pressure for deregulation also mounted in the latter 1980s. The first deregulation that was carried out from 1987 to 1993 was triggered by a report of the Committee to Consider Basic Issues in the Petroleum Industry established in November 1986 under the Petroleum Council. The Committee's report was issued in June 1987 under the title "On the Petroleum Industry and Oil Policy Looking Towards the 1990s." This led

Table 13 The Long-term outlook for the supply and demand of energy

	1973 Actual performance			Outlook August 1979		Outlook November 1983		Outlook June 1994	
	FY 1973	Converted value (unit:10 <sup>13</sup> kcal)	Composition ratio (%)	FY 1990	Composition ratio (%)	FY 1995	Composition ratio (%)	FY 2000	Composition ratio (%)
Domestic energy	General hydropower (10 K kw)	18	4.6	2,600	4.6	2,400	5	2,220	3.3
	Pump-storage power (10 K kw)	140		2,700		1,950			
	Geothermal (10 K kl)	3 (K kw)	0.06	730	1	350	1	100	0.2
	Domestic oil, Natural gas (10 K kl)	370	3.5	950	1.4	190	not available		
Domestic coal (10 K tons)	2,168	14.4	2,000	2	1,800-2000	not available			
	subtotal	37	9.5		9		not available		not available
Quasi-domestic energy	Nuclear power (10 K kw)	230	2.4	5,300	10.9	4,800	14	4,560	12.1
Domestic, Quasi-domestic subtotal		39	10.1		19.9		not available		not available
Imported energy	LNG (10 K tons)	237	3.2	4,500	15.6	4,000 (including domestic natural gas)	12	5,400	12.8
	Coal (10 K tons)	5,800	45	14,350	9	12,800 (including domestic coal)	18	13,400	16.6

(continued)

Table 13 (continued)

	1973 Actual performance		Outlook August 1979		Outlook November 1983		Outlook June 1994	
	FY 1973	Converted value (unit:10 <sup>13</sup> kcal)	FY 1990	Composition ratio (%)	FY 1995	Composition ratio (%)	FY 2000	Composition ratio (%)
New fuel oil, new energy etc. (10 K kl)			3,850	5.5	1,900	4	940	1.6
Oil (10 K kl)	31,800	296	36,600	50	25,000	48	31,600	53.4
Subtotal		344		80.1		not available		not available
Total energy supply (oil conversion (100 million kl))	4.1	383	7.16	100	5.3	100	5.91	100

Source op. cit. [Kikkawa 2011, pp. 72–73, 78–79, 82–83, 94–95]

to revision of the restrictions on refining and selling that applied even in normal times on the basis of the Petroleum Industry Law and the Gasoline Retail Business Law. Thereafter, the process of deregulation remained ongoing. The mid-1990s saw demands for the further pursuit of a stable supply of petroleum products and for improvements in efficiency, and attempts were made to introduce the principle of competition even in import sectors.

In the refining and sales fields, the United States demanded the liberalization of imports of petroleum products into Japan in the 1980s, and Japanese petroleum distributors were in fact beginning to try importing petroleum products. In March 1985, the Petroleum Council conducted its first policy review since the end of World War II of refining methods in oil-consuming areas. The Special Treatment Law aimed to promote the importation of volatile oils, kerosene, and diesel, and obliged importers to set up various facilities. For this reason, it restricted import activities to refineries, and so although it also promoted and liberalized imports, it acted as a restraint on competition by limiting those who could be engaged in importing. This area, too, however, saw deregulation after 1987.

Where stockpiling policy was concerned, relaxing the private burden of maintaining oil reserves in the late 1980s proved a challenge. A November 1987 report by the Comprehensive Energy Survey Group and the Petroleum Issues Subcommittee of the Petroleum Council called for (1) a 50-million kiloliter stockpile of oil based on the International Energy Agency's requirement that all member countries hold oil stocks equivalent to at least 90 days of net oil use, (2) reduction, in stages, of private oil reserves by a total of 70 days, and (3) gradual abolition of the stockpiling of the petroleum raw material naphtha. The second of these recommendations was implemented in FY 1993, and the national stockpile also reached its target amount in 1997.

### **5.1.3 Structural Adjustment of the Domestic Coal Industry**

As the supply of overseas coal began to increase, the Seventh Coal Policy (1982–1986) maintained its earlier target of 20 million tons, but the end of the road for structural adjustment measures was already beginning to be apparent. Following the yen appreciation triggered by the September 1985 Plaza Accord, the steel industry in June 1986 forced a reduction of domestic coal prices to those of imported Australian coal. The power industry, which was the last to collaborate with the efforts, also announced in November 1985 that it would cut its purchases to two-thirds as of November 1985. The structural adjustment measures for domestic coal that had relied on collective cooperation thus began to approach their end point (Kikkawa 2011, p. 214).

The Eighth Coal Plan (1987–1991) concluded that a gradual reduction of domestic coal production was inevitable, and that an annual production of about 10 million tons was appropriate. The Post-Eighth Coal Policy (1992–2001) had in its purview a phased-out end to the policy.

### **5.1.4 Maintaining a Stockpiling System for Rare Metals**

“Rare metals” is the generic name for metal elements that either have low crustal abundance or that are difficult to extract. Because production of rare metals was limited to a handful of countries such as Russia and South Africa, a rare-metal stockpiling system was established on the instruction of Prime Minister Zenkō Suzuki in December 1980, under the supervision of the Economic Security Council-related Cabinet Meetings established under the Chief Cabinet Secretary. MITI also took the opportunity to set up a special subcommittee on economic security issues within the Coordination Committee (Kikkawa 2011, p. 247). The Subcommittee’s April 1982 report, “Aiming at the establishment of Economic security,” called for the immediate creation of a rare-metal stockpiling system on a national level. In 1983, a stockpiling system was started for seven of these metals: nickel, chromium, tungsten, cobalt, molybdenum, manganese, and vanadium.

Policy developed after that from the stockpiling system to a strategy of security of rare metals. In December 1984, the Special Subcommittee on Comprehensive Measures for Rare Metals, in the Mining Subcommittee of the Mining Council, compiled a report titled “The Aims of the Comprehensive Measures on Rare Metals: Technological Innovation, Industrial Revitalization, and Economic Security.” In addition to expanding stockpiling plans and promoting countermeasures to address supply disorders, the report also suggested promotion of exploration and technology development.

## ***5.2 Pursuing Non-petroleum Power Supplies***

### **5.2.1 Shifting Away from Petroleum**

Declining business performance and serious power supply and environmental issues weakened the independence of the electric utility industry. As mentioned in Chap. 2, the initial target values set by the Electric Power Development Coordination Council in the 1970s and early 1980s did not exceed the actual numbers achieved. Decisions on utility locations were delayed but the policy itself was expanded and required further adjustment. This weakened the autonomy of the industry, but despite coordination at the policy level, decisions on location, as described above, did not always proceed as planned (Table 14).

While delays arose in developing power-generation sites, progress was made in shifting the composition of the power supply away from oil. The shift came about first through a strong emphasis on developing nuclear energy, and second through curbs on the development of oil-fired power generation and through an aggressive development of LNG (liquefied natural gas) and coal-fired generation.

It was nuclear power that became the favorite policy approach of the effort to move away from oil (Kikkawa 2011, p. 314). Two conditions boosted its development: first,

**Table 14** Rate of growth in output and electric energy generation by nine major power companies, %

		Nuclear power	Thermal power	Hydropower	Geothermal power	Total
Power generation equipment output	1974–1985	23.8	4.0	4.5	25.5	5.6
	1986–1994	5.7	2.3	2.5	7.8	3.0
	1995–2000	2.0	2.7	1.9	6.6	2.4
Amount of power generated	1974–1985	30.2	0.7	1.8	–	3.7
	1986–1994	5.9	4.2	–1.8	–	4.1
	1995–2000	3.4	0.0	4.2	10.2	1.6

Source Kikkawa (2011, p. 315)

Japan's nuclear-power generation had entered the stage of full-scale commercialization in the late 1960s. Second, although uranium imports were necessary at the outset, expectations for the possibility of gradually lowering that dependency increased with the establishment of the nuclear fuel cycle. The development of nuclear power had been hindered, however, by people's unease and doubts about safety. The government and the electric power industry made efforts to dispel these concerns. In October 1978, the Nuclear Safety Commission was established as an entity separate from the Japan Atomic Energy Commission and became responsible for safety regulations for nuclear power generation. Meanwhile, in January 1979, MITI became responsible for the administration of safety regulations on nuclear reactors. It adopted an approach to the establishment of reactors consisting of a first safety review to be conducted when the Ministry was issuing its approval, and a second "double check" by the Nuclear Safety Commission. The government and the industry also started working on establishing a nuclear fuel cycle and practical applications for fast-breeder reactors, which furthered the feasibility of nuclear development.

Attention was also focused on the use of LNG, because no supply issues had arisen in LNG during the successive oil crises. Support for the introduction and use of natural gas as an alternative to oil came in the form of the May 1980 Law Concerning Promotion of Development and Introduction of Alternative Energy (hereafter the "Alternative Energy Law"). The issues in introducing LNG were considered to be the following: (1) securing a stable supply, (2) developing distribution facilities such as liquefaction terminals, LNG tankers, and receiving terminals and supply facilities, and (3) creating and organizing demand. The emphasis was placed on reducing these barriers to upfront investment. With support in these forms, five companies (Tokyo Electric, Tohoku Electric, Kyushu Electric, Kansai Electric, and Chubu Electric) converted a significant portion of their fuel for power generation from petroleum to LNG between 1974 and 1985.

However, because of the enormous capital investment required by the construction of receiving terminals for LNG, the use of imported coal was also taken into consideration. The customs CIF (Cost, Insurance, and Freight) price of standard overseas coal first fell below the standard price of domestic coal for electric power-generation use

in FY 1977, and from 1983 on, remained consistently cheaper. From the late 1970s to the early 1980s, five electric power companies (Hokkaido Electric, Chugoku Electric, Shikoku Electric, Kyushu Electric, and Tohoku Electric) increased coal's ratio of the total fuel used for power generation.

### **5.2.2 Advances in the Development of Nuclear Power**

Nuclear power is superior from the point of view of energy security because it is not much affected by changes in the international situation, and because carbon dioxide is not emitted in the power generation process, meaning that it helps prevent climate change. It was also expected to prove less costly than other methods if it operated steadily at a high rate of capacity utilization. In other words, nuclear power seemed able to meet the needs of energy, economy, and environment—the “3-Es” of energy policy. It was, however, highly risky if adequate safety measures were not in place, and spent nuclear fuel was both difficult and costly to dispose of.

In the early 1980s, nuclear-power generation in Japan advanced rapidly. However, the March 1978 Three-Mile Island accident in the US and the April 1986 Chernobyl accident in the Soviet Union made it hard to find sites for nuclear power plants in the 1980s. Furthermore, between 1986 and 1994, the establishment of the nuclear fuel cycle did not proceed as planned. Nevertheless, in May 1986, a portion of the Law on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (Nuclear Reactor Regulation Law) was amended, and in November 1984, a new Japan–US Atomic Agreement was concluded to establish the foundations for starting the nuclear fuel cycle. In March 1992, Japan Nuclear Fuel Industry Inc. began the operation of a uranium enrichment plant.

While these efforts were made to expand the use of nuclear power, safety assurance measures were also added every time a serious accident occurred. Following the accident at Three-Mile Island, steps were taken to improve safety measures in 52 areas, including safety standards, reviews, and design, as well as operations management and research on disaster prevention and safety. Following the accident at Chernobyl, the Nuclear Safety Commission established a special committee in May 1986. It issued a report in May of the following year, which judged prompt revisions of existing safety regulations unnecessary because Chernobyl's design and structure differed from that of Japan's power plants. The report nevertheless pointed to the lessons learned and asserted the need to improve nuclear disaster prevention measures, foster safety awareness, and promote international cooperation to address the accidents.

### **5.2.3 Energy Conservation Measures in Every Sector**

As part of the effort to realize policy objectives, the 1979 Law Concerning the Rational Use of Energy (“Energy Conservation Act”) required certain factories and business sites in the industrial sector to submit periodic reports on energy use, and to

make and submit mid- and long-term plans and to appoint energy managers (Kikkawa 2011, p. 403).

The Alternative Energy Law was enacted in May 1980, ushering in the age of oil-substitution policy. At the time, the policy was aimed at resolving the instability of Japan's fragile energy supply base and at addressing the instability of the international oil situation. The political instability in OPEC countries encouraged these legislative measures, as dependence on oil imports reached nearly 100% in 1977, with dependence on the Middle East for 80% of that supply. MITI's thinking on concrete measures also played a role in the establishment of the Alternative Energy Law. That is, the Law was predicated on expectations of the promotion of the following concrete steps: (1) alternative energy development including overseas coal, hydropower, and geothermal, (2) alternative energies in the industrial sector through fuel conversion and the promotion of coal-fired power plant construction, (3) solar energy in public facilities, (4) nuclear power development, including the establishment of the nuclear fuel cycle, and (5) technological development in alternative energies, including coal liquefaction, solar energy, geothermal energy, and so on.

It was estimated that three trillion yen would be needed to fund these measures on alternative energy, over a period of 10 years beginning in 1980. The fruits of the endeavor would ultimately go to the consumer, so it was decided that the funding should be requested of the consumer. This was accomplished through an expansion of the uses of the Promotion of the Power Resources Development Tax and the Petroleum Tax. Ten-year goals were set for alternative energy, and the use of coal, nuclear power, natural gas, hydropower, and geothermal energy was promoted. These measures were not accompanied by penalties but took the form of guidelines.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits any noncommercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if you modified the licensed material. You do not have permission under this license to share adapted material derived from this chapter or parts of it.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

