



# A Guide to Ota City Industries

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**Industrial Promotion Section,  
Industrial Economic Department, Ota City  
Ota City Industrial Promotion Organization**



# Starting Off

Ota City is a city of small and medium-sized companies in which 82% of companies have nine or fewer employees. The engineering and metalworking industry accounts for over 80% of the factories within Ota City limits. Ota City is an accumulation of a wide variety of technology, and it facilitates a network between industries and brings into reality multiple precision processing techniques and speed for dealing with tightening deadlines. It is the backbone of Japanese industry and the foundation for cutting-edge technological development.

The global economic crisis that started in the United States with the Lehman Brothers' collapse in September 2008 has significantly affected every country's economy, and Japan faces a situation so serious that the government has declared a deflationary economy. The stagnation of exporting, the worsening of the employment situation, the decrease in capital investment and listless consumer spending caused by yen appreciation have all affected the business environment surrounding enterprises, and the future remains unclear. Ota City itself is facing many problems to overcome, including dealing with the improvement of fundamental technology across Asia and the loss of clients that accompanies it, the problem of developing a workforce to replace the current regime, and the deteriorating operating environment due to the dwindling number of factories and to the mixing of residences and industry.

Ota City is working out various specific formulas in order to provide support for businesses in the city to receive more orders and retain business overseas, to secure and educate personnel, to develop new products and technology, to protect intellectual property against infringement, to promote business and establishment of facilities that foster relationships between industry and academia and forge new relationships between businesses, to assist in maintaining factory sites and operating environments in the city, and to head off troubles from the mixed residential and industrial environment through development guidelines.

In addition to reviving the area network, Ota City is also building associations with other industrial areas in Japan and working relationships with foreign organizations. Businesses themselves are also trying to leap into a new era by drawing upon their unique and advanced technical and developmental powers to pursue the cutting edge of technology, creating original products and aggressively pushing into the international market.

We hope that this guidebook helps citizens of Ota City, Japanese people and people of the world better understand Ota City Industry in an interesting and informative way.

Industrial Promotion Section, Industrial Economic Department, Ota City  
Ota City Industrial Promotion Organization

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## Southernmost Tokyo Ward

Ota City is located at the southern extreme of the 23 wards of Tokyo.

It is the largest of the 23 wards with an area of 59.46 square kilometers (as of January 1, 2009).

Its geography is largely separated between the plateau to the northwest and the plains to the southeast.

The plateau area features relatively green residential neighborhoods such as Den-en Chofu, Yukigaya, Kugahara, Senzoku and Magome.

The flatlands are a commercial/industrial zone made up of Omori, Kamata, Ikegami and Haneda and packed with housing, shops and factories.

## Population

Ota City was once the most populous of the 23 wards with a population of over 750,000 people, but it has since been surpassed by Setagaya Ward and Nerima Ward and currently has a population of 674,527\*.

There are 344,808 households, and the population (excluding foreigners) consists of 20.6% seniors (age 65 and older), 68.1% working people (ages 15-64), and 11.3% children and infants (under age 15).

The daytime and nighttime populations of Ota City are nearly identical, indicating a balanced city that is a space both for manufacturing activities and for living.

There are 18,770 foreigners living in Ota City hailing mainly from East and Southeast Asian countries such as China, South Korea, North Korea and the Philippines.

\* all figures as of January 1, 2010

## Ota City: Transportation Hub

Ota City is the southern doorstep of Tokyo and operates as a critical junction of roads, rails and airways.

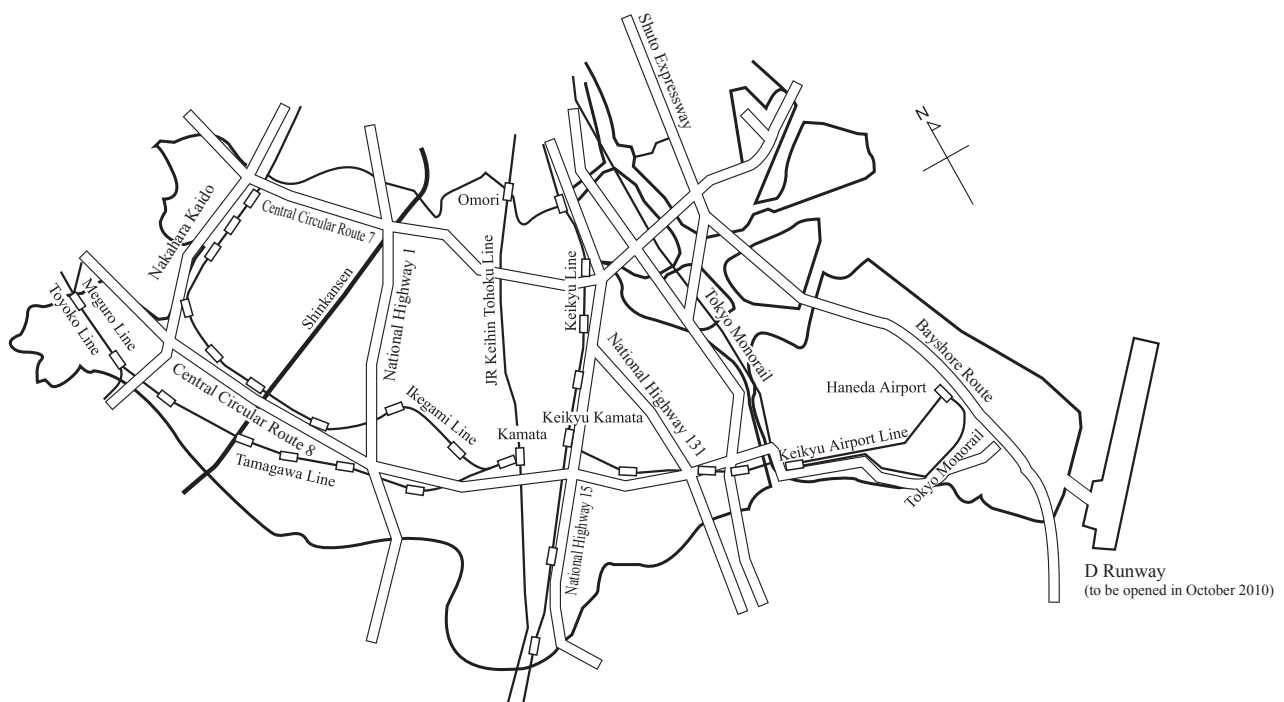
Running from north to south are National Highway 15 (Dai-ichi Keihin), National Highway 1 (Dai-ni Keihin) and National Highway 131, an industrial road that branches off from Highway 15 and connects Ota City to the waterfront industrial area of Kawasaki/Yokohama. Central Circular Routes 7 and 8 run east-west. National Highway 357 and the Shuto Expressway (Route 1 and the Bayside Route) run along the coast of Tokyo Bay and connect Tokyo to Kanagawa and Chiba Prefectures.

The JR Tokaido Line, Keihin-Tohoku Line and Shinkansen run north-south through Ota City, and the Keihin Electric Express Railway parallels the JR lines. The Tokyu Tamagawa Line runs east-west from JR Kamata Station and goes to Shibuya and Meguro Stations in the inner city through the Toyoko and Meguro Lines. The Tokyu Ikegami Line also runs from west to east until it reaches Gotanda Station.

Haneda Airport serves as the aerial entrance to Ota City. The airport has been expanded offshore, a

new terminal nicknamed "Big Bird" opened in 1993, and a terminal building was added in 2004. Expansion construction will end in October 2010 with plans to begin service on a fourth runway which would increase takeoff and landing capacity to 400,000 aircraft per year, up from the current 300,000. There are plans to ramp up domestic airline routes as well as to provide international service, including late-night and early-morning flights, for 90,000 aircraft per year. With these improvements, Haneda Airport will become a more active focal point of international exchange of people, goods, and information, and its role and capabilities as Tokyo's entranceway look to increase dramatically.

Ota City stands out on a national scale as a superior industrial area due to its location as a transportation hub. It is a place where anything and anybody can come from or go to any location within Japan within a matter of hours. In addition, Ota City's industrial headquarters, Plaza Industry Ota (PiO), is expected to play a role as the focal point of industrial exchange in Japan. Moreover, PiO is located in front of Keikyu Kamata Station, arguably the center of Japan's airways and roadways.



## Land Use and Industrial Locations

One characteristic of Ota City is its large industrial zone, which occupies 16.86 square kilometers, or 28.4%, of its total area\* (Haneda Airport's area of 12.78 km<sup>2</sup> is excluded from the semi-industrial zone). The residential zone is 19.88 km<sup>2</sup> (33.4%), the commercial zone is 5.77 km<sup>2</sup> (9.7%), and 4.17 km<sup>2</sup> (7.0%) is unspecified. A large number of the factories are located on the shores of Tokyo Bay and the Tamagawa River.

In particular, many factories are located in the industrial-only zones of Showajima, Keihinjima and Jonanshima, islands made of reclaimed land. Many facilities that handle quick molding materials and surfacing treatment such as casting, forging, iron works, painting and plating are located in these areas thanks to funding from the Japan Environment Corporation (formerly the Environmental Disruption Prevention Corporation) and movement of groups toward making use of the small and medium-sized company advancement program.

The inland area features many small-scale factories in the mixed industrial and residential areas, but some relatively large factories are located in the industrial-only zones in Omori-minami, Higashi-Kojiya, and Haneda Asahi-cho.

One will observe a cluster of businesses related

to the engineering and metalworking industry in Omori-nishi, Omori-minami, Higashi-Kojiya, and Haneda in the area on the Tokyo Bay side of Ota City.

There are relatively many factories related to precision industry in Yaguchi, Shimomaruko and the rest of the area along the Tamagawa River, but large-scale public housing and apartment buildings are being developed and land use continues to shift from industrial to residential in that area as well as in the space between the Tokaido and Keihin Kyuko Lines that includes Rokugo, Kamata, Haginaka and Honhaneda.

There is an industrial zone in the Naka-Ikegami area despite it being in the middle of Ota City. This area saw an accumulation of factories because there is flat land along the Nomikawa River and because it borders National Highway 1 and is a convenient location for transportation.

And so, Ota City's predominant characteristic is the accumulation of factories that is centered in the mixed residential and industrial areas and industrial-only zones on its reclaimed islands, but that stretches across a wide range within its borders.

\*all figures as of January 1, 2009.

## Characteristics of Ota City Industry

The most prominent feature of enterprise in Ota City is the concentration of the manufacturing industry. The number of factories, which was once higher than 9,000, has shrunk to about 5,000 because of the hollowing out of industry due to relocation to the countryside and the shift of manufacturing to foreign companies (Fig. 1). However, the factories are still highly specialized in the engineering and metalworking industry (Fig. 2). Engineering and metalworking manufacturing alone accounts for over 80% of those factories, and the number of all-purpose machinery, manufacturing machinery, professional-use machinery, electronic machinery, metal products, plastic products, transportation machinery, precision instruments and other products shipped by these factories totals 9% of all manufacturing in Tokyo. Ota City produces 18.5% of all-purpose machinery, manufacturing machinery, professional-use machinery in all of Tokyo, and figures like that represent an extremely large proportion of manufacturing for just one area.

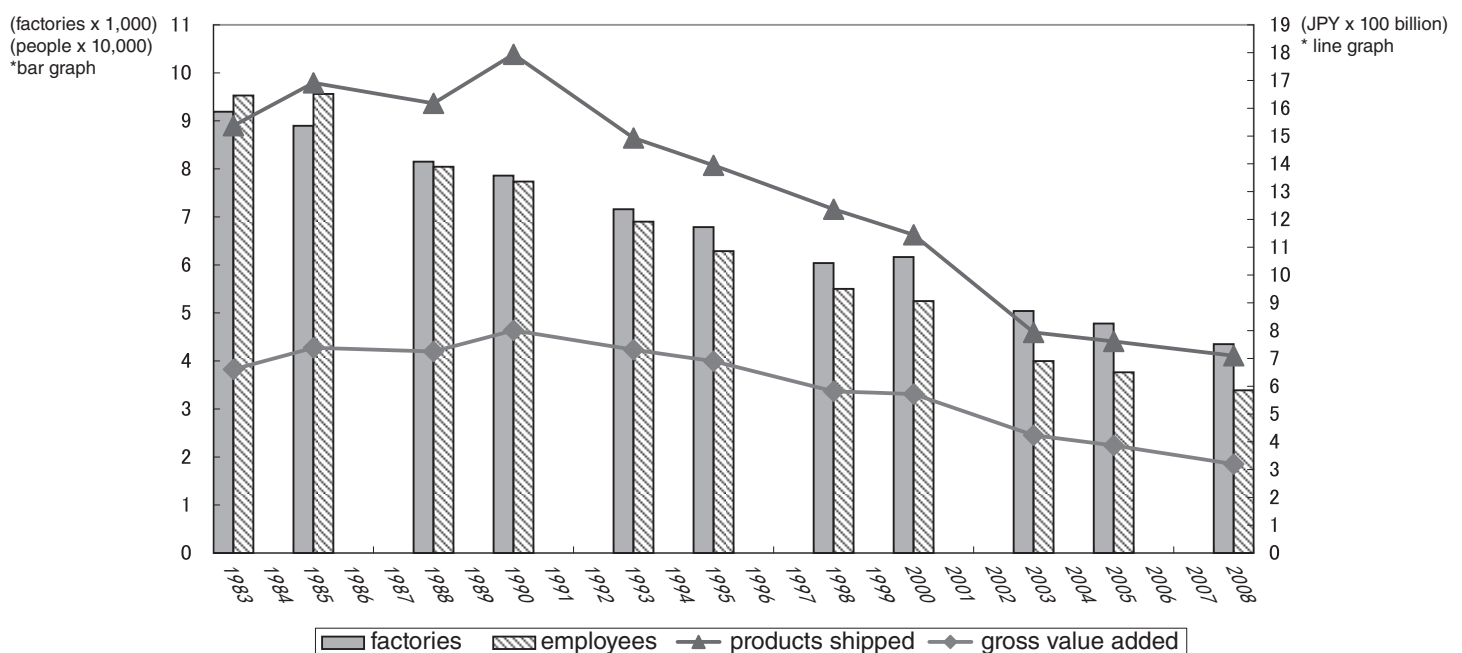
Small businesses make up a sweeping majority of the enterprises in Ota City, with the number of family businesses with three or fewer employees accounting for about 50%. Include businesses with nine

or fewer employees, and that number becomes about 82% (Fig. 3). A majority of the businesses handle subcontracted fabrication, but a rather small amount of them are affiliates of larger enterprises, and most of them have multiple clients. In other words, this is a collection of enterprises that not only possess production techniques for specific products but also specialize in the so-called fundamental technology (\*1) that concentrates on machine work, the foundation that brings forth a wide variety of products.

One reason that small businesses can continue to survive in this expensive, overcrowded metropolis is that its proprietors live and work in the same place or live very close to their workplaces and are able to work long hours and operate as highly-maneuverable entities that can respond to short deadlines. On top of that, they each have their own expertly specialized techniques and skills and have accumulated the experience and techniques necessary to pull off manufacturing that cannot be done with designing instructions alone. Of course, they handle highly difficult manufacturing well, and their best talent is producing test products for product development.

What's more, they can rely on their network of

Figure 1 – Trends for number of factories, number of employees, number of products shipped and gross value added (according to quick estimates of industrial statistics from 2008)



friends in the area when they receive requests that they cannot fulfill by themselves, and this kind of thing is an everyday occurrence in Ota City. Thus, even though each enterprise specializes in a specific production technique in a specific field, it can produce a product or part by organizing the techniques in the production process amongst its network of friends.

The accumulation of companies in Ota City is

an assembly of highly-skilled specialists that can respond to any order from any client.

\*1 fundamental technology – basic manufacturing techniques for creating industrial products. Examples include cutting, drilling, molding, grinding, casting, forging and steel manufacturing.

Figure 2 – Percentage distribution for number of factories, number of employees, and number of products shipped by product manufactured (according to 2005 industrial statistics survey)

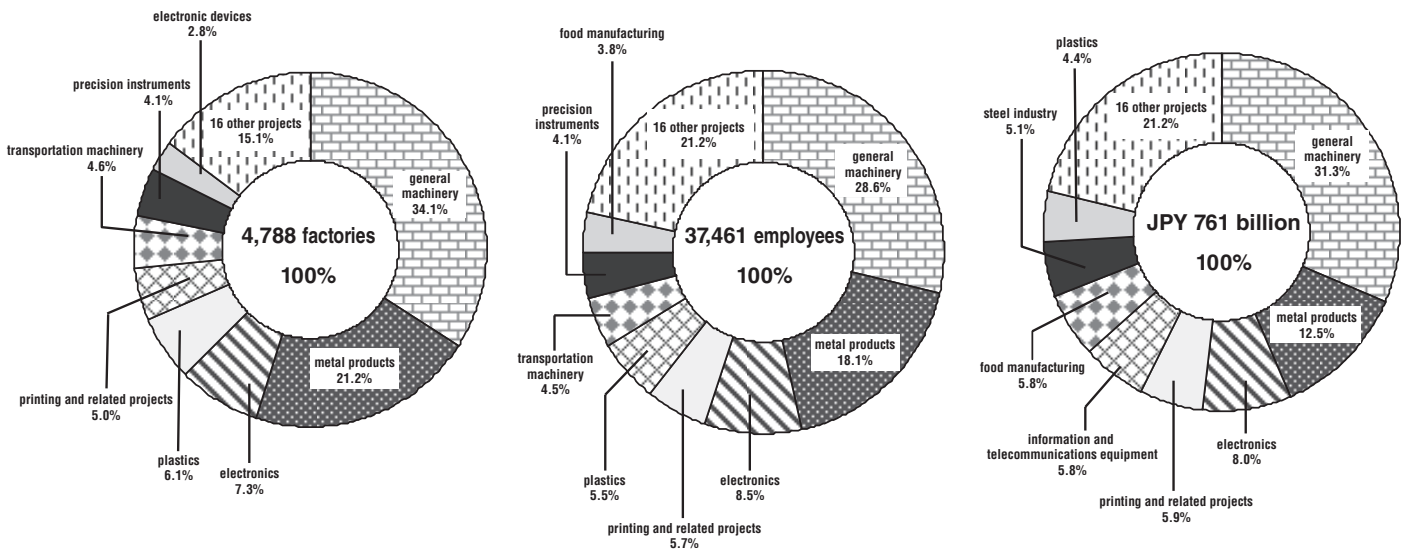
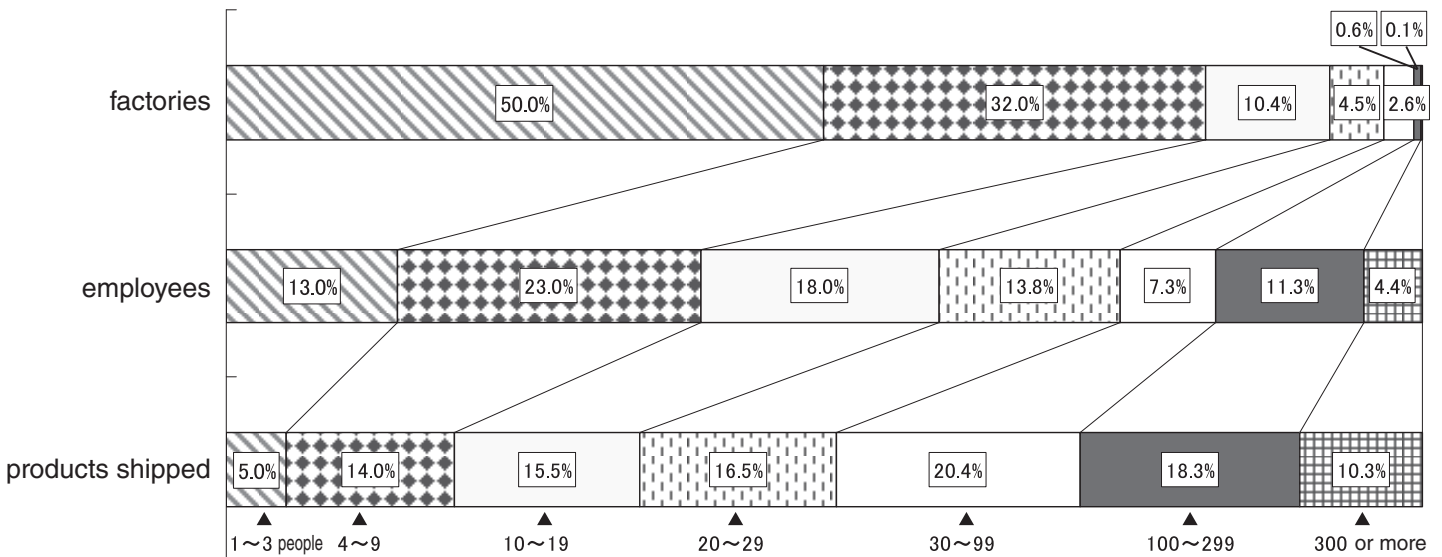


Figure 3 – Percentage distribution for number of factories, number of employees, and number of products shipped by number of employees (according to 2005 industrial statistics survey)



## 2 Ota City Industry and History

### Early Ota City Industry: Straw Handiwork

Long ago in the Edo Period, straw handiwork shops that specialized in making bakkan sanada thrived in Ota City. This straw handiwork performed

by women represents the initial stage of Ota City's rich industrial history.

\* Bakkan sanada are straw hats made out of sanada threads. Sanada threads are wheat stalks that have been soaked overnight in the water used to wash rice, torn into shreds after they have dried, and woven together into one-centimeter thick threads using 11 of the torn shreds. These straw summer hats were entered into a national industrial exhibition in 1877 from Omori, and now they are finally valued as artifacts though the craft of straw is for little more than toys. Bakkan sanada production became the shining star of industry in those days thanks to government measures to promote exporting.

### Late Industrialization

Surprisingly, Ota City's start as a factory town was late. Perhaps the people of Omori and Kamata, whose traditional work on the shores of Tokyo Bay was nori cultivation, did not show interest in industrializing.

Written history supports that the beginning of Ota City's modern industrialization is the point in time

when the construction of the Tokyo Gas Omori Plant was approved in October 1908 in Omori-cho-ji Higashihama (presently Omori-higashi 3-28). Full-scale industrialization is believed to have started in the beginning of the Taisho Era, sometime around World War I.

### The Great Kanto Earthquake and Expanding Industry

The Great Kanto Earthquake, which struck at 11:58 a.m. on September 1, 1923, brought forth unexpected repercussions for Ota City. Factories that

had been operating in the central part of Tokyo began sprouting up in Ota City after the earthquake.

### The Beginning of Modern Industry

Modern industry really appeared in Ota City from the Taisho Era, when redeployment of arable land and factory expansion continued. There were many very modern factories with gusto and style, from the Kurozawa Shokai that formed a unique village of factories that reflected Taisho Modernism, to the early

automobile factories of Tokyo Gas Electric Engineering Company, to the Okura Art China plant surrounded by the flowers through the seasons. The Matsutake Cinema movie theater that appeared in Kamata bestowed upon Ota City a modern atmosphere befitting an emerging industrial area.

### War and Ota City Industry

As the shadow of World War II spread over Ota City in the Showa Period, the city's factories became arms production plants. This is the time when sooty smoke and vibrations coming from factories became a problem.

A majority of the privately-owned factories fell under military supervision when Japan entered its war regime, and all of them were engulfed in flames at the hands of air raids. Ota City, the factory town, burnt to the ground and was an expanse of charred rubble.

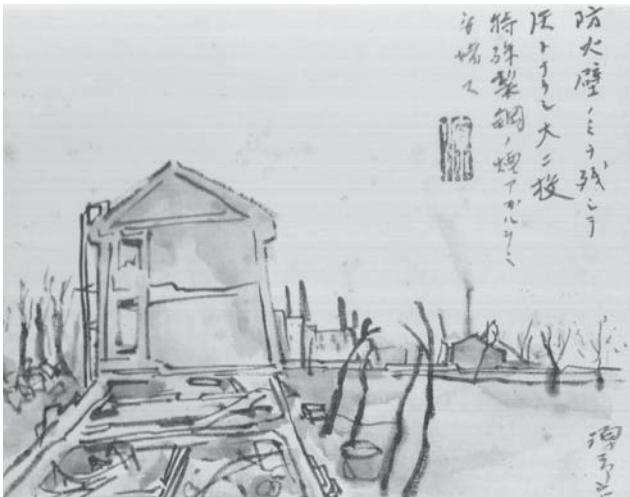
## Ota City: Resilient Industrial Town

World War II had tremendous effects on Ota City. Nearly all of the factories within city limits were destroyed by the 19 air attacks, and a postwar survey found that the former Kamata Ward, which had many factories and a population of 198,067 people at the beginning of 1945, was drastically reduced to 47,904 people on September 1 of the same year. Facts like these make the tragedy easy to imagine.

After losing the war, people made use of machines and materials that survived the war damage and literally marched on toward recovery without regard for the ugliness of the charred remains of their factories. They manufactured wash basins, pull carts and farming equipment in order to expedite the shift

away from the arms industry. In June 1950, in the midst of that struggle, turbulence occurred on the Korean peninsula and gave way to a special procurement demand for military resources. A new special procurement demand for military supplies from the United States followed in 1952. These special demands presented Japanese industry with strict training on the aspects of technique and quality control that subsequently spread worldwide, and is considered one of the starting points for world-renowned Ota City Industry.

The 1956 Economic Survey of Japan declared conclusively that Japan was no longer in a “postwar” state.



*-The smoke from the factory provided a ray of hope for the citizens of Ota City-*

*Second Elementary has become ashes*

*Only the firewalls remain*

*But smoke is rising from Tokushu Seiko and we are encouraged*

*(Second Elementary is Omori Second Elementary School)*

## Smoke Billows High: Escalated Economic Growth

Smoke billows high

Trailing along without stopping

Along the many rows of factories

The lyrics above are a part of the school song written to commemorate the 80th anniversary of Rokugo Elementary School in 1955, and it seems to be forecasting exactly the development of Ota City Industry that would accompany a period of rapid economic growth in Japan.

The Jinmu economic boom lasted from the second half of 1955 to the first half of 1957, and it was followed by the Iwato boom from late 1959 to late 1960 and then the Izanagi boom from late 1965 until late 1970.

According to Tokyo Metropolis Statistical Yearbooks, Ota City had the fourth-highest number of factories, shipped the third-highest number of products, and was only the top amongst the 23 wards in number of employees in the year that Rokugo Elementary’s school song was written. However, factories and products both climbed to the number two spot in 1957, and Ota City shipped more products than any other ward by 1960 and had the most factories by 1976.

The Ota City Industry Meeting Hall opened its doors in 1960, and the Ota Industrial Association worked toward securing a workforce and began recruiting junior high school graduates from other





prefectures in the following year. The new, young laborers, many of them fresh out of junior high school, were referred to as Ota City's "Golden Eggs" and were handled like precious cargo.

In 1962, the Omori Fishery Association gave up its fishing rights, and other fishery associations followed suit around the same time. The nori cultivation industry, which had a long history dating back to the Edo Period, was shutting down, and many spacious areas for drying nori were being converted into factory space. This contributed to Ota City becoming the industrial city it is today.



*Tokyo Gas Omori Plant and a nori fisherman's house in Omori-higashi 3-chome (1960)*

## Pollution and Relocation of Industry

When Ota City became the most industrial city of the special wards during the long, large-scale Izanagi economic boom following the Jinmu and Iwato booms, pollution problems arose and became huge social issues that involved all citizens in the city from 1965 on. Basic laws for environmental pollution control surfaced in 1967, followed by the Tokyo Antipollution Ordinance in 1969. Those laws combined with three national regulatory acts aiming to disperse factories made it difficult for Ota City to expand its factory sites and facilities. In addition, securing a young workforce became more challenging, and businesses began relocating outside of city limits. Other businesses did not relocate entirely, but moved their manufacturing divisions elsewhere and kept their research, development and testing divisions in Ota City and began expanding across wide areas.

A majority of the factories in Ota City were those of medium-sized, small and very small companies, and there was not much that any one of them could do about pollution on their own, so it became a serious problem. In 1964, Tokyo and Ota City recognized the need for a policy to separate residential and industrial areas and move the factories onto reclaimed land to combat this problem. This is how the industrial complexes of Heiwajima, Keihinjima and Jonanshima came into existence.

Towns where workers' homes and workplaces were close together could no longer be created due to the policy to separate residential and industrial areas. These towns allow small and medium-sized factories to thrive, and the Omori-minami Factory Apartments were constructed with this in mind in order to provide multi-level integrated residences and factories.


## Ota City: National Techno-polis

According to 1970 industrial statistics, seven industry sectors related to engineering and metalworking comprised as much as 80% of Ota City Industry. These seven sectors were iron and steel, nonferrous metal, metal products, general machinery, electronic machinery, transportation machinery and precision instruments. The significance of this number is plain to see when compared to the average of 50% for the entire Tokyo Metropolis.

When large-scale companies relocated to places outside of Ota City in the late 1960s and early 1970s,

small and medium-sized factories increased and remained in the city, focusing on high-volume engineering and metalworking production. These small and medium-sized factories were pressured to shift to other industry sectors by the emigration of parent companies and primary subcontractor companies, and they struggled through job shortages and demands from parent companies to cut costs due to the oil crisis of 1973.

During these troubles, small and medium-sized factories reflected on their business structure that



depended on one company, and they narrowed their business strategies to specific manufacturing fields and organized a system to receive jobs from several companies in order to reduce risks. More specifically, they ventured into specialized fields with little competition in addition to making use of the high concentration of factories in the area. They were able to produce quality products and completed parts with high added value through their associations with other specialized companies in their regional networks.

Ota City Industry survived two oil crises in the mid-1970s by adopting this single business strategy that supported streamlining and moving toward specialized technological fields. Ota City Industry blended mechanical and electronic control technology

into so-called mechatronics, and soon came to focus mainly on that field. Finally, in the mid-1980s, it continued on to numerical control technology and introduced numerical control machines to automobile production, and it put a high-mix low-volume, short-term, high-precision production system in place.

Ota City attracted attention the world over for being a place where a concentration of factories creates an odd yet complete set of high-level manufacturing techniques. A book about Ota City Industry described the scene thusly, saying that “one could fold up a design drawing into a paper airplane and throw it off the top of a building [in Ota City], and it would come back three days later as the final product.” Ota City had truly become a techno-polis.

## Bursting of the Bubble Economy

The number of factories reached its peak at 9,190 in 1983, and Ota City Industry shipped enough products in 1990 to exceed 1.7 trillion yen in revenue. Those numbers would later shrink. The bubble economy burst at that same time in the early 1990s, and Japanese GDP growth rate began to fall. In 1998 and 1999, the GDP rate of increase was negative for the first time since the period of high growth. The nominal rate of growth in the 1980s averaged 6.2%, but it decreased rapidly to 0.78% in the 1990s and 0.06% in the 2000s, falling well short of actual growth.

The manufacturing industry’s stronghold in Japan shifted toward other Asian countries as they experienced significant growth during that time. Through the 1980s, the relocation of production was mainly one of assembly processes that relied heavily on the workforce, but from the late 1990s, there was increased establishment of small and medium-sized companies that handled component production techniques on-site in China and other ASEAN countries with improved technological power. Japanese industry became hollowed out and plunged into a Lost Decade, a long-term economic depression with both deflationary tendencies and financial institution breakdown that accompanied the annihilation of the asset bubble.

Ota City’s small and medium-sized production industry continued to boost its technological ability in addition to seeking ties between academia and itself in the midst of that unprecedented economic stagnation.

Many companies attempted to establish themselves as Asian industrial hubs and are still seeking ways to break through.

Information technology improved dramatically in 2000, and the economy perked up for a time on the hope that it could ride IT into the 21st century. But, the economy cooled down again at the end of that year and orders for the electronics industry decreased greatly. However, the world looked to Japan’s innovative hybrid and automotive technology to lead the way since the economy did not affect the automobile industry. In contrast to the sluggish American automobile industry, Japan’s manufacturers were able to become the world’s most successful.

Ota City faced a risk of losing as many as 1,000 factories for the three years until 2003. Businesses needed to develop their own unique products or technology or acquire the know-how necessary for offering business solutions and services to customers by using superior manufacturing techniques in order to stay alive in Japan. They also cranked up their efforts to become Asian industrial hubs and explore new markets.

In the next section, we will discuss the kinds of situations that have occurred in factories during the age of globalization and IT.

## Rising Above the Hollowing of Industry

Ota City Industry rises above the limits of just one area to act as one of the pillars supporting the existence of all Japanese industry. However, the hollowing of domestic industry is becoming serious with continued deflation, changes in the global industrial structure and progression of IT as a backdrop. Its effects present two direct attacks on small and medium-sized businesses in Ota City.

The first is the loss of clients to foreign companies. Order volumes are shrinking due to the loss of clients to foreign companies and the switch to overseas procurement of materials and components.

In the midst of this spread of globalization, the number of companies that are aggressively attempting to develop internationally is gradually increasing. With a balance between technological development in Japan and production overseas, it is possible for small and medium-sized companies to operate efficiently.

However, it is difficult for an overwhelming majority of Ota City businesses to have manufacturing bases overseas because a highly dense concentration of partners and networks are necessary since small businesses lack management resources and clients demand multiple production processes and swift action. Thus, as the flow of manufacturing steadily moves overseas, these businesses must discover the direction of the future while spreading their roots locally as they have until now.

These businesses can receive orders from companies that have expanded overseas as one part of that policy, but the problem there is how to gather that information. It is necessary to continue to strengthen international relations consistently by forming partnerships with various Asian countries while working together with companies and public institutions.

The other direct attack on small and medium-sized companies in Ota City is the relocation of fundamental technology overseas that goes along with digitization. The progression of IT around such technology as CAD and CAM (\*2) has replaced processing techniques with information processing and operations since machine tools are capable of performing manufacturing in place of skilled workers. We can see the day when state-of-the-art numerical control machine tools will be operating in most factories in Asian countries and when machines equipped with three-dimensional data will process

metals according to directions on design drawings. There will be no artisans in these factories. Domestic orders will decrease dramatically due to the rapid shift of fundamental technology to foreign companies. The small and medium-sized companies that handled these jobs will not be able to continue operations, and many of them will be forced to close down or declare bankruptcy.

On the other hand, there are things that cannot be handled overseas and will have to return to Japan no matter how much product manufacturing flows out to other countries. It has already been more than 30 years since digital technology broke onto the scene in the manufacturing and machining industries, and there still exist techniques that cannot be controlled by computers and cannot be carried out without the touch and skill of artisans. Furthermore, the developmental aspects of industries that are shifting to overseas manufacturing bases are showing a tendency to remain in Japan; not all of the manufacturing is being moved overseas.

Going forth, we need to explore the concept of shop-floor production with division of labor between nations in order to respond to these types of situations. We must create an international labor division system where, for example, Japan would handle low-volume, special-order items and other countries would manufacture products for which techniques unique to Japan are not necessary.

The key to this system would be to educate new tradesmen who have built up a feel for shop-floor production. Even in this digital age, we can train the workforce in the special Japanese way that involves learning manufacturing techniques through personal experience. It is becoming more and more important that workers are equipped with both digital and analog skills and can fully use their physical and mental senses to solve problems whose solutions cannot be written in manuals.

While education of human resources within companies is a given for accomplishing these goals, we need to recognize the societal importance of educating on-site human resources and motivate future generations to staff the front lines of the manufacturing industry.

\*2 CAD . . . Using a computer to design machinery and electronic products

CAM . . . Using the data from designs done by CAD and using numerical control machine tools and the like to strive for automation of manufacturing

## Breaking Away from Dependence on Subcontracting

A majority of small and medium-sized companies that handle Ota City's industry mainly do work that is ordered of them by big companies directly or indirectly, as in subcontracting. Hiring subcontractors brings about low costs, short turnaround and quality products, but the system of subcontracting has reached its limit now that the volume of domestic industry is not expanding.

Ota City's small and medium-sized companies need to work toward breaking away from dependence on subcontracting in order to stay in business. There are three keys to achieving this goal.

- ① Product Innovation – Gearing operations toward specializing in new products and new technological development. In other words, creating new products that use the company's own technology.
- ② Process Innovation – Reforming production techniques that incorporate creativity and intellectual know-how not available in other Asian countries; revising production processes that use fundamental technology that are thought to have been perfected, and producing superior products

never seen before through those revisions; and reducing costs in an environmentally sensitive way in order to revive and sustain competitive power for existing industries.

- ③ End Users – Not only producing components and machines for use in manufacturing, but also using techniques cultivated up until this point to develop products that are intimately connected to lifestyles and that appeal to consumers.

In any case, it is important to fight above and beyond the expected level for high added value right from the start, and to be imagining ways to create attractive techniques, products and merchandise.

In addition, domestic business connections are currently spreading out, and companies that possess unique techniques in their respective fields exist in various regions throughout Japan. We will need to construct a new digital network that crosses over regions so that these special techniques may complement each other, so that the only limits that remain are analog business partnerships within small regions, and so that we can carry on everyday business relationships.

## Issues Following the Global Economic Crisis

Businesses that survived the bursting of the bubble in the 1990s and the beginning of the 21st century were faced with another huge test.

The global economic crisis brought about by the Lehman Brothers' collapse in September 2008 has plunged the entire world into a depression. Developing countries and all of the countries of the world had been depending on American importing to support growth of their GDPs by expanding exports, but exports decreased and growth fell into the negative range when American consumer demand fell by a large margin. Japan depended on exporting from 2002 on in order to continue growing economically, so the worsening of business conditions for highly-exported electronics, transportation products, and general machinery was particularly striking. The three basic industry sectors accounted for 48.3% of Japan's mining and manufacturing production, which is far and away above the United States' mark of 20.8%. Even though the economic crisis broke out in the United States, the difference the industrial structure of the two countries explains why Japan's actual economy deteriorated so badly\*.

Ota City's small and medium-sized companies were put in a position they had never been in before – all of the basic industries were sinking in this place where the capital goods industry was the core business. At the end of 2009, the Japanese Cabinet decided upon a plan for new growth that looked toward a "shining Japan." The plan calls for creation of new demand through "Green Innovation" and "Life Innovation." The plan looks to solve unavoidable environmental, energy, health care and welfare problems related to citizens' lives and could be a road that allows Ota City to make high-tech contributions toward reviving regional industry. At the same time, Japan will further deepen its coexistence with a developing Asia. Ota City has continued to have direct industrial exchange with ASEAN and China and has connections with foreign organizations, and it has built a system that can support the development of its businesses. What's more, Japan can use the opening of the international terminal at Haneda Airport in 2010 as a chance to strengthen relationships with the rest of Asia.

\*(cited from the 2009 Monozukuri Economic Report)

## .....1 Maintaining an Industrial Environment .....

— Maintaining the industrial zone while building a town where residents and industry exist together in harmony —

### Factory Concentration Program

Traditional urban planning dictates that industrial and residential environments are kept separate, but a look at small and medium-sized companies in Ota City reveals that living very close to the workplace is the norm. So, in 1985, a factory concentration program was implemented through the construction of the Omori Minami Factory Apartments (Omori Machine Works Center) in order to create a town where residents and industry exist together in harmony. This multi-level, integrated industrial-residential building features 10 separate ownership-type factories on the first floor and public housing on the second through eighth floors.

The building was constructed in various creative ways so as to prevent infiltration of noises and vibration from machining factories, and it is as though completely separate residential and industrial spaces have been built. At the same time, the site was used intensively in order to lighten the high land costs, and employees of factories were given preference for the housing to realize the idea of living near the workplace.

There have been almost no pollution problems between the factories and residences since factory operation began. This factory/apartment shared-use model aimed in particular at enterprises with 20 or fewer employees was one advancement program for small and medium-sized companies and provided them with substantial financial support.

Afterward, Ota City constructed two more factory/apartment complexes that qualified for the financial advancement program. One of them was called Cooperative Techno Jonan, and in both cases, the factories moved onto reclaimed land on Jonanshima.

### Construction of Factories for Lease

Land values in 1985 were about 350,000 yen per square meter in the urban district of Ota City, and owning a factory was in the realm of possibility for small-scale enterprises. However, appreciation of land values that followed made it more challenging for small-scale enterprises that lacked financial power to purchase factories, and maintaining operations with full ownership became increasingly difficult. Ota City then planned and implemented construction of factory/

apartments for lease in order to meet the need to improve of the manufacturing environment for small-scale enterprises.

The first one built was the Shimomaruko Temporary Factory, and it was constructed in response to the demand for reconstruction factories as temporary work sites for lease that could spur reconstruction over a set period of time.

The next to go up was the Honhaneda 2-chome Apartment Plant, which began housing tenants in February 1997. It was aimed at those attempting to start businesses other than reconstruction in addition to small and medium-sized companies whose worsening operation conditions required that they find new work sites. While the Shimomaruko facility was for factories only, the Honhaneda complex combined factories with public housing on the third through eighth floors.

Additionally, the Omori-minami 4-chome Factory Apartments (commonly called Techno FRONT Morigasaki) opened in May 2008. The purpose of this rental factory/apartment complex is to improve the operating environment for fundamental technology industries and for research and development for companies pushing out into new fields. The complex has a total of 9,600 square meters of floor space and features 49 units, and its tenants are expected to flourish in this base for Ota City Industry innovation.

### Program for Creating a Harmonious Residential/Industrial Environment

In May 2000, the Honhaneda 2-chome Second Apartment Plant (commonly called Techno WING) opened as part of a program for creating a town where industry and residents can coexist in harmony while maintaining industrial and residential environments. This complex is regarded as a model case for maintaining an urban industrial zone.

The lot area, including open spaces, is 6,500 square meters and the complex has 48 factory units and 28 residences so that people can live close to their workplaces. This is a large-scale facility the likes of which does not exist anywhere else in Japan. The conditions for use are the same as those for the Honhaneda 2-chome Apartment Plant, with the added condition that businesses that need new workspace in

order to expand operations are welcome.

Techno WING receives government funding based on a provisional act for revitalizing integration of specific industries. The purpose of this complex is to achieve harmony between residents and industry in addition to maintaining and nurturing fundamental technology industries and invigorating industrial integration. There are hopes that this complex functions as a symbol of a surge in Ota City Industry, and as a catalyst for interaction between different industries and for working together on projects by making connections between tenant companies and the cluster of industry in the area.

Furthermore, construction of condominium-style housing complexes on vacant lots left by factories that moved or went out of business is on the rise, and disputes between factory owners and landowners regarding factory operations have arisen and are becoming serious. Consequently, development guidelines for group housing construction projects in industrial and semi-industrial zones were created in October 2002 and aim to prevent troubles between the mixing of residences and industry before they happen and to preserve and maintain industrial environments for factories.



*Techno FRONT Morigasaki*

## Generating New Industries

Small and medium-sized companies need to do a number of things in order to deal with the shifting of the industrial structure and the harsh economic climate that surrounds them. They can break away from depending on orders from large companies, shift their operations toward research and development or development of products that are intimately connected to lifestyles and appeal directly to consumers, or further their efforts in new industries.

Toward that end, BIC Asahi, a facility for

supporting new industries, was established in May 2003 to promote the creation of new, unique enterprises and industrial locations for advanced technology and to generate new business. Renovations were done on the former Haneda Asahi Elementary School buildings, and the buildings now house 27 offices and nine booths that function as shared offices. Most of the staff in the offices are business incubation managers, and they offer management assistance and start-up support to entrepreneurs looking to found companies and to small and medium-sized companies trying to develop new business. Companies in their third term were making use of the facility in 2009 in order to develop new industries and create new business.

In addition, a research and development assistance facility that supports associations between Ota City businesses and university research institutions was established in an old civil engineering testing facility in February 2004 in order to promote high value-added manufacturing. Since the building has ample work space in the wide open areas that stretch up to the second floor, it is being used for large machinery development.

On top of this, a facility that supports creation of new industries aiming to create new markets by using nanotechnology to develop new products in the most advanced technological fields opened in April 2006. Based on associations with research organizations, this facility will assist Ota City companies in developing new products and establishing techniques necessary to perform well in the market. In August of 2006, the Industry-Academia Collaboration Facility opened. This facility offers a place for research and development through this collaboration in addition to functioning as a place that allows scholarly institutions to flourish as they advise Ota City Industry.



*BIC Asahi, a facility for supporting new industries*

## — Plaza Industry Ota “PiO” : Forming an Industrial Hub —

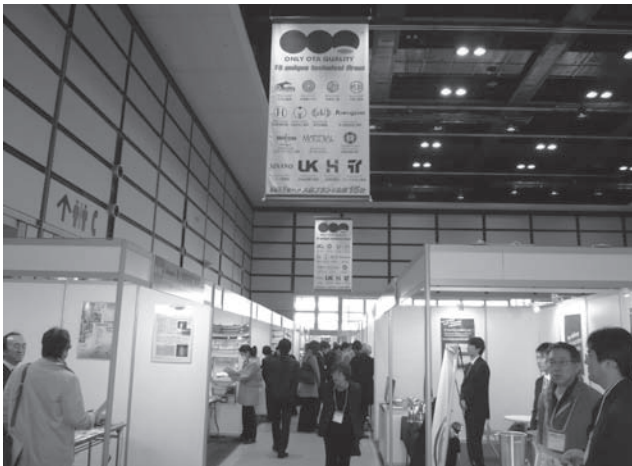
Plaza Industry Ota (PiO) was established in February 1996 as an industrial support facility for small and medium-sized companies together with the Tokyo Jonan Small and Medium-Sized Enterprise Promotion Center. All kinds of advice are available at Plaza Industry, from management and patents to loan facilitation, receiving and placing orders, and international business. In additions, the facility houses a technological development assistance center that supports companies’ research and development and a convention area that businesses can use for exhibitions,

symposiums, and all kinds of meetings.

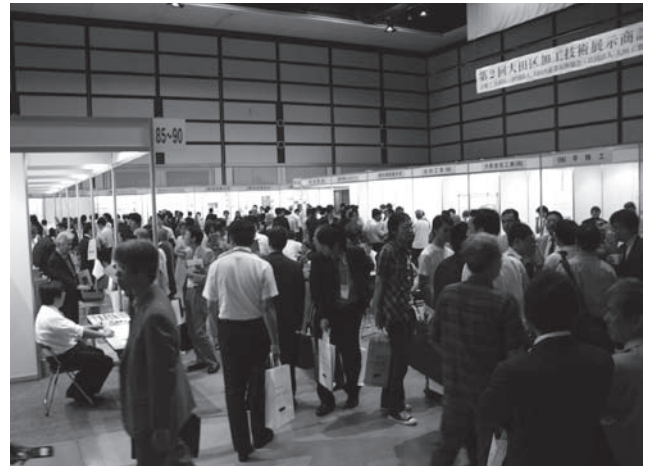
Ota City and the Ota City Industrial Promotion Organization put on exhibitions and business talks of their own and are contributing to the creation of business opportunities for Ota City Industry.



\*Plaza Industry Ota (PiO)  
<http://www.pio-ota.jp/plaza>



14th Annual Ota Industry Fair



Manufacturing Technology Exhibition and Business Talks

### ◎ Use of Plaza Industry

The large exhibition hall boasts 1,600 square meters of space and is operating at full capacity year round, playing host to planning exhibitions and events, in-house training, seminars and more put on by Ota City Industry and other entities.

### ◎ Transmission of Information/IT Support

The Ota City Industrial Promotion Organization uses its website and its public relations magazine Technoplaza in order to proactively offer information beneficial to Ota City Industry. It also provides services to assist in creating websites and catalogs and holds IT seminars in order to promote more efficient use of IT in small and medium-sized companies.

\* Ota City Industrial Promotion Organization website  
<http://www.pio-ota.jp/>

### ◎ Improvement of Worker Welfare

A benefits program that offers bus tours, supplementary health checkups, discounts negotiated for overnight accommodations and all kinds of tickets, and congratulations or condolence to employees of small and medium-sized companies is provided for members of the organization. This program exists in order to enhance worker welfare in ways such as maintaining worker health and encouraging meaningful use of leisure time.

## …… 2 Reviving Industry ……

### Ota Mirai Plan: Ota City's 10-year Basic Plan

— Ota City: Nurturing the Manufacturing Industry and Spreading it Worldwide —

In March 2009, Ota City instituted the Ota Mirai Plan, a ten-year basic plan. With this plan, Ota City aims to present itself as a city with a high concentration of companies in the manufacturing industry that provide high added value, as an area where proactive small and medium-sized companies pull industry along, and as a place where business interactions take place domestically and internationally.

The Ota City Industry Promotion Basic Strategy was also drawn up in March 2009 in conjunction with the drafting of the Ota Mirai Plan in order to maintain consistency with the Ota Mirai Plan and to work toward developing Ota City Industry even more. Ota City arrived at the Basic Strategy by debating various points on manufacturing, commerce, and services and by considering the opinions of its citizens.

Ota City is striving to strengthen promotion of factory expansion and new industrial lots that accompany program upgrades, education of human resources in manufacturing, development assistance for new products and techniques, promotion of industrial-academic collaboration, and start-up support in order to maintain and expand its accumulation of industry.

Ota City's challenge going forth is to spread its manufacturing both inside and outside of Japan by enhancing the aforementioned support even further. Ota City is taking advantage of its characteristics through projects such as the introduction of international flights to Haneda Airport and is making an effort to establish new market development assistance and growth into new industries.

#### **Support for Maintaining and Expanding the Accumulation of Industry**

Ota City has provided and is operating industrial support facilities such as rental factories and start-up support facilities in order to maintain and expand the accumulation of industry in the city. It is also carrying out various measures such as funding part of the expenses that go along with expanding factories or relocating to Ota City for upgraded programs in order to promote growth of businesses in the city.

##### ◎ Aid for Manufacturing Factory Sites

Ota City strives to maintain and strengthen the accumulation of manufacturing by funding part of the aforementioned expenses for firms that wish to do business in the city. It provides those funds whether the relocation is from within or outside of Ota City.

##### ◎ Industrial Assistance Facilities (reprinted)

Ota City has built and is managing factory/apartments in order to create a town where residents and industry exist together in harmony in addition to maintaining and expanding the accumulation of industry through improving factory operation environments. [Omori-minami 4-chome Factory Apartments (Techno FRONT Morigasaki), Honhaneda 2-chome Apartment Plant, Honhaneda 2-chome Second Apartment Plant (Techno WING), Shimomaruko Temporary Factory, BIC Asahi (a facility for supporting new industries), Industry-Academia Collaboration Facility, facilities for supporting creation of new industries]

##### ◎ Start-up Support Project

Ota City's small and medium-sized companies' economic situations are worsening, and the number of businesses folding up is on the rise in the midst of this harsh economic situation. In order to maintain Ota City's accumulation of industry and fertility of its soil, so to speak, a start-up support liaison was established and financial aid and business plan contests are being implemented in an effort to find new entrepreneurs and prompt secondary investing and start-ups.

#### **Support for Reforming Technology and Management**

We are offering assistance for development of new products and techniques and assistance for making use of academic-industrial alliances and intellectual property so that Ota City's small and medium-sized companies can improve their technological power and power to develop new products. We also promote management reform through seminars, business support programs and other management assistance so that technological power is linked to improvement of profits. In addition, we are striving to strengthen the business bases of these enterprises by supporting consistent fundraising through all types of lending institutions and supporting networks between businesses.

##### ◎ Supporting Development of New Products and Techniques

Assistance programs and contests for new product and technique development are happening in order to encourage Ota City's companies to shift over into product development business models. The new product and technique development assistance program will fund part of the expenses necessary for planning, designing, developing and testing new products and techniques when a company or group of companies



undertakes those activities in search of new markets.

#### ◎ Business Support Program

This is a consultation service for solving the management problems of Ota City's companies. It deploys specialists in various fields as support consultants to give advice about fundraising, advertising methods, marketability evaluations, technology, IT and more.

#### ◎ Intellectual Property Strategies for Corporate Technology

General consulting on intellectual property is offered with the aim to establish, protect and make use of intellectual property for businesses that possess it as a management resource. This consulting includes advice on all topics related to intellectual property, such as the patent application process and infringement of rights.

### Expanding Business and Venturing Into the Global Market

We offer individual business support such as consultation about receiving and placing orders, organize independent exhibitions such as the Ota Industry Fairs, and provide support for domestic and international trade shows in order to expand business for Ota City's small and medium-sized companies. We also provide support for companies striving to capitalize on international markets and other new markets such as aircraft and environmental markets. In addition, we join forces with commercial and industrial groups to implement various programs in order to enhance public relations about the technological power of Ota City's companies.

#### ◎ Organizing Business Talks and Joint Participation in Domestic and International Trade Shows

Beginning in 2008, we have been organizing exhibitions and business talks for manufacturing technology at Plaza Industry focusing on small-scale manufacturing technology companies, which are plentiful in Ota City. We provide support so that these events will connect companies to a wider range of new market exploration.

We also pair up companies that may find it difficult to attend exhibitions by themselves and send them to trade shows inside and outside of Japan. A big issue in particular for small and medium-sized companies is attending international exhibitions, and the benefits of attending these exhibitions with other small companies are gradually beginning to appear.

More and more small and medium-sized companies in Ota City are steadily solidifying their domestic bases and moving into foreign territory. These companies are producing their core products in their development divisions in Japan in order to meet the most advanced, special demands in Japan. They are

also meeting demands to cut costs by shifting production of standard goods and their divisions responsible for responding to demand in foreign countries to those countries.

#### ◎ Expanding Foreign Operations and Forming and Asian Network

OTA TECHNO PARK, a collection of factories for Ota City's small and medium-sized companies, opened in June 2006 in Amata Nakorn, Thailand's largest industrial area. We offer support for companies that wish to move into that facility so that they can set up smooth operating systems, and we are assisting Ota City's small and medium-sized companies in their efforts to expand their business abroad by developing themselves in the Asian sphere.



*OTA TECHNO PARK, a collection of factories for Ota City's small and medium-sized companies*

#### ◎ Spreading the "Ota Brand"

The Ota Brand Promotion Council, a promotion group made up of members from the Ota Industry Joint Association, the Ota Branch of the Tokyo Chamber of Commerce and the Ota City Industrial Promotion Organization, came into being in February 2006. The council defined the "Ota Brand" as "business activities that pass the strength of Ota City Industry and the earnest spirit of craftsmanship on to future artisans." The project of promoting the Ota Brand falls on businesses that accept these points of the Ota Brand and declare their intent to join the council and promote the brand through their own company's actions.

\*Ota Brand Promotion Council website

<http://www.ooq-net.jp/>

#### ◎ Encouraging Academic-Industrial and Industrial-Industrial Alliances

We hold seminars and exchange information with universities and research organizations through the academic-industrial alliance between those institutions and Ota City's companies. These alliances make it possible for universities to perform technological research and development. We also created the Ota City Manufacturing Research and

Development Matching System that supports promotion of business between universities and companies' research and development departments so that the companies can pick up new business opportunities. Through manufacturing, we can improve incentives for companies to engage in development by bringing together the needs of business and the technological ideas of universities. In conjunction with this, we will deploy consultants with specialties that assist in finding new business, strive to invigorate business demand, and strengthen the effort to find new customers so that Ota City's companies may secure additional orders.

In addition, we will identify development proposals from big companies and provide a place for those big companies to meet, interact, and match their needs up with Ota City's companies. By building several associations for all businesses to exchange technological ideas, we expect an increase in the number of businesses that forge ahead into new technological fields and expand their new product development.

\*Ota City Manufacturing Research and Development Matching System  
<http://www.mirai-ota.net/>

## **Securing and Educating a Manufacturing Workforce**

We need to educate and produce leaders in the manufacturing industry. Toward that end, we are making an effort to boost interest in manufacturing amongst elementary and junior high school students and to cooperate with local educational institutions to educate a manufacturing workforce. We also support matching of companies with elementary and junior high schools in order to increase the number of young people working in the manufacturing industry.

### **© Securing and Educating the Workforce**

We are running Oshigotomavi Ota, a recruiting website that provides employment and public relations information about Ota City's companies, and we are helping businesses secure workforces by holding job fairs that bring young people and small and medium-sized companies together.

We also put on seminars and courses and promote advanced education of small and medium-sized companies' manufacturing technicians in order to make use of technical and vocational schools.

\*Oshigotomavi Ota

<http://www.oshigotomavi-ota.net/>

### **© Cultivating a Local Workforce**

As if improving technological power and securing orders weren't challenging enough, there is a pressing need to cultivate a local workforce to respond to the lack of manpower due to a declining birthrate and an aging population. In 2004, the Tokyo Metropolitan Government

opened Tokyo Toritsu Rokugo High School (pictured above left), the first in Japan to operate on a new dual system that recognizes on-the-job training hours as classroom units.



*Tokyo Toritsu Rokugo Technical High School*

This school is expected to turn out many students that gain employment at the companies at which they trained and inherit the techniques and expertise of Ota City's companies.

In addition, the Ota Young Inventor's Club was established in March 2005. This club provides promising children with continuing opportunities to learn through experience about how enjoyable manufacturing is and aims to extend children's creativity and cultivate future workers in the industrial arena.

## **Environmentally-Friendly Manufacturing**

We support Ota City's companies as they continue to introduce energy conservation and new energy technology, and we encourage development of ecological technology that makes use of the technological power of Ota City's companies so that they may play a role in making changes toward a sustainable society. We also encourage them to acquire Eco Action 21 and Eco Stage Institute qualifications and support their efforts toward more environmentally considerate management models.

### **© Environmental Demands**

As consumers become more aware of what it takes to have a sustainable society, it becomes more and more necessary for Ota City's companies to participate in environmental efforts. In particular, a huge issue for manufacturers is the coexistence of industry and the environment. Ota City's Friendly Factory Accreditation Program recognizes factories that are safe for people and towns while having superior technology, skills and operations.

Ota City will continue to provide business solution assistance to its companies by strengthening the business network that maximizes local resources of this accumulation of industry, promoting creation of new associations that hold untold possibilities for the expansion of small and medium-sized businesses, and maintaining an environment that cultivates the human resources that will lead the next generation of industry with advanced techniques and an abundance of ideas.



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