The China Business Review

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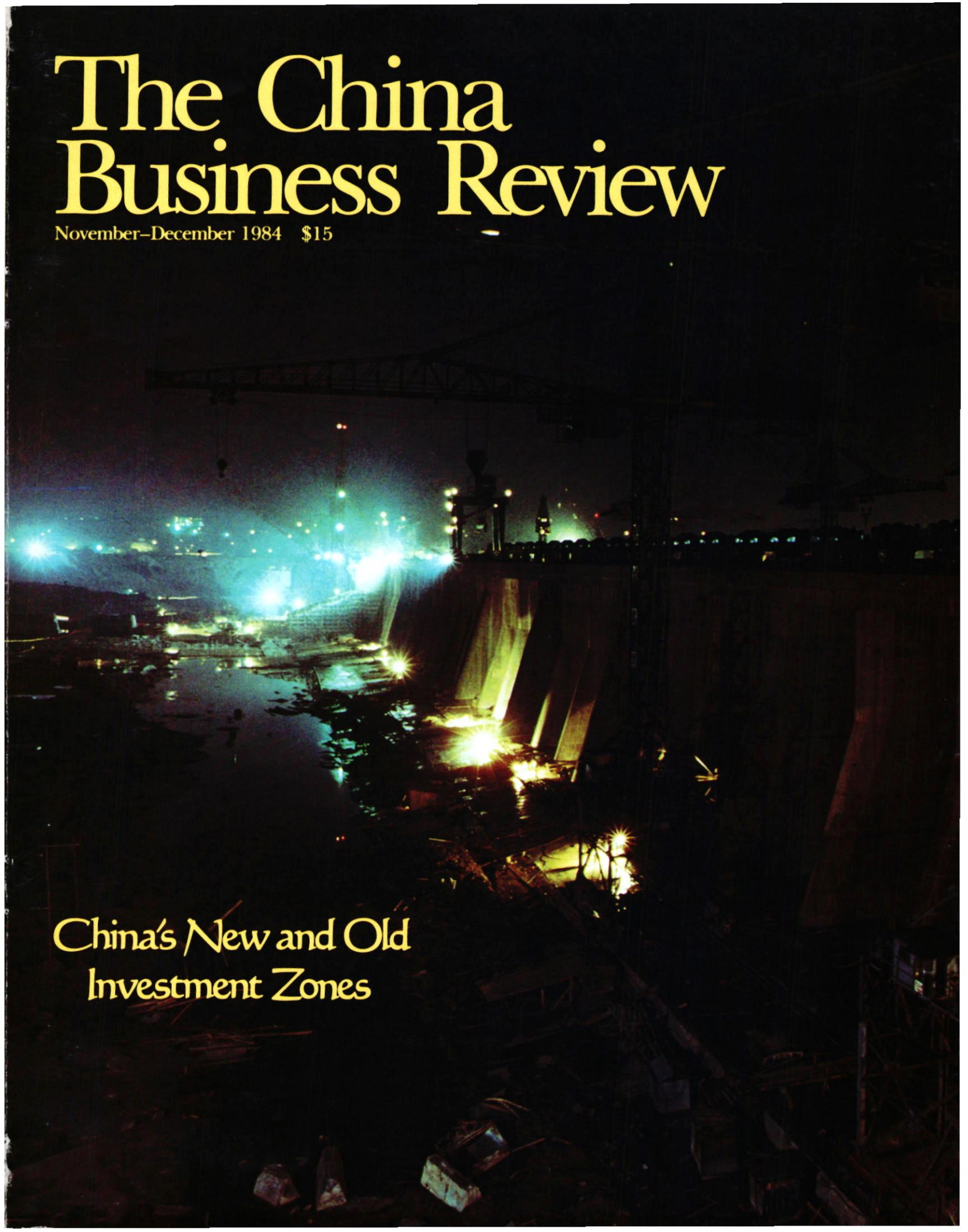

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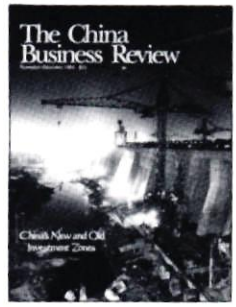
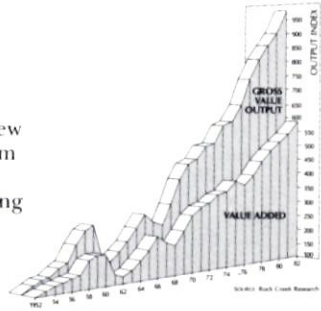


Cover: The Gezhouba dam in Hubei Province will provide critically needed electric power to foreign investment projects as far away as Shanghai. This dam is part of the Three Gorges, one of the largest hydropower projects in the world. *Photograph by Bruce Dale © National Geographic Society.*



China's macroeconomy: New numbers from China have many revealing stories to tell about the economy. **Page 8.**

SEZs: Infrastructure projects, such as the expansion of Zhuhai's Juizhou harbor, are an important focus of SEZ investment. **Page 37.**

摘要

REALITIES OF REFORM

The recent plenum of the 12th Communist Party Central Committee placed the country's highest seal of approval on the urban economic reform movement that has been gathering steam all year. However, despite the industrial reform rhetoric that has followed the October 20 communique, real changes will take place only gradually, and may encounter some resistance.

The net effect of the latest reforms is to increase importance of market forces in industry. Reforms will focus on several major areas.

Rationalizing Commodity Prices. Prices provide perhaps the clearest example of the gradualistic nature of these new reforms. Enterprises now have some power to alter prices—but by no more that 20 percent above or below the government list prices, and often less. The central government and the industrial ministries are currently revising often irrational list prices, but only on an ad hoc basis for selected commodities. Prices will be allowed to fluctuate freely for only a small number of nonstrategic commodities, which account for a very small proportion of GNP. Although the government has announced that the number of commodities covered by the mandatory state plan will be reduced from 125 to 62, the remaining 62 will probably still account for well over 50 percent of GNP. Given that loopholes have existed in the state plan for many years, the removal of commodities from the list may sometimes do little more than legitimize the existing situation. The term "guidance planning," which refers to cases where the center will set general targets without concrete administrative enforcement mechanisms, may simply describe the de facto situation at present, in which local authorities often use discretion in applying central directives.

Separating administrative and economic functions. Much publicity has been given to the Ministry of Machine Building's decision to turn its major enterprises over to municipal control. No date has been given for the transfer, however, and certain major enterprises already signal to foreigners that there will be exceptions to the rule. Meanwhile, in the coal industry, the reverse has actually been occurring—the central government is quietly taking over full control of some key mining bureaus from the provinces. In the transportation sector, some decentralization appears imminent, particularly in air transport. But the Railroad Ministry appears to be using decentralization simply as a convenient vehicle to drop responsibility for construction of unprofitable low-capacity lines.

Substituting economic levers for administrative commands. It is still unclear to what extent the substitution of tax payments for the submission of enterprise profits to the government will achieve its intended goal of reducing both red tape and the decline in government revenues associated with the old system. Some of the new taxes announced by Premier Zhao last summer—such as the resources tax on coal and oilfields with favorable natural conditions—are unlikely to be implemented before 1986.

The decision to change from interest-free grants to interest-bearing loans for funding capital construction projects could carry greater short-term significance, but its impact is somewhat dulled by low interest rates in the 3 to 7 percent range. It may also be forestalled by some ministries, such as the Coal Ministry, which argues that it should not have to pay interest until the price of coal has been adjusted upward.

Deng Xiaoping greeting Council President Christopher H. Phillips in October

Increasing enterprise authority. The much touted freedom of enterprises to market their own output appears for now to apply mainly to above-quota production. In the steel industry, for example, only 2 percent of under-quota production can be marketed by the enterprises themselves.

Thus the current wave of pro-reform verbiage may be viewed as primarily an attempt to influence the political climate, and only secondarily a concrete guide to actual policy measures. China's leaders are well aware that they will encounter stiff resistance from bureaucracies whose power will be curtailed under the new reforms, and that the urban population is particularly sensitive to economic decontrol that may lead to a temporary erosion of living standards. Unlike the rural reforms, which had an immediate beneficial effect on living standards for practically everybody, the urban industrial reforms may entail some sacrifices.

Therefore, in time-honored tradition, the leaders are allowing significant lead time in which to articulate the rationale for reform, while actual measures are implemented slowly. The boldness behind the widely reported communique of the recent Central Committee plenum is meant to create a groundswell of public support. Only after this is accomplished can the reforms be fully implemented—and even then with great care that negative side-effects do not derail the program. —MW

TRADE REFORMS REVISITED

Changes in the foreign trade system announced this fall still await the drafting of detailed regulations. Their most visible short-term effect

may well be confusion, as organizations vie for position in the absence of concrete guidelines.

The trade reforms are an extension of the national attempt to separate government functions from enterprise management. Theoretically enterprises will be able to choose their own import–export agents from among the various foreign trade corporations (FTCs), which will compete directly with each other. In fact this will only be true for selected commodities, since the central government will maintain control over the import and export of key items such as grain, steel, and timber. At this stage it is difficult to predict which commodities will be deregulated. Companies are therefore justifiably hesitant to sign contracts that may later be ruled invalid, as happened on occasion during the first foreign trade decentralization in 1979–1980.

Where there is true competition among foreign trade agents, companies are likely to find existing trade patterns abruptly changed as enterprises dump one agent in hopes of a better deal from another. This is already happening, as provincial agents begin doing business outside their provinces. Situations where an enterprise commits one shipment to two different agents are not at all inconceivable given the inexperience of some of the entities involved.

Another effect of these reforms will be to give enterprises contract signing power, although there is still debate over exactly what proportion of their trade enterprises can handle directly. While this will eventually speed the cumbersome system by which an enterprise in China must purchase equipment, in the short term it may actually slow some negotiations already in progress.

Despite initial confusion, if these reforms are successful they will provide a welcome opportunity for foreign firms to deal directly with production enterprises, and for enterprises to exercise more control over their purchasing decisions. China's attempts to reform both its domestic industry and its foreign trade structure are inextricably related. They are likely to stand, fall, or—most probably—hobble together. —MW

A GLIMPSE OF WHAT'S AHEAD

In early October, National Council President Christopher H. Phillips was among the first foreign group to be briefed by Deng Xiaoping and Zhao Ziyang on the new urban reforms. Deng, Chairman of the Central Advisory Commission, underscored China's long-term commitment to reform, and the open door policy in particular. This policy will not change for at least 50 years, he assured the group. Characteristically pragmatic, Deng noted the complex nature of the new reforms, and indicated that it might be five years before they show results.

Premier Zhao Ziyang spoke about reform implementation, and stressed that a correct pricing policy is at the heart of the reforms. Zhao noted that a major reform of the central planning system will be underway by next year, but only a more rational pricing policy will lead to effective allocation of resources. Deng and Zhao addressed their remarks to senior executives attending a CITIC symposium in Beijing on China's Economic Cooperation with Foreign Countries, several weeks before the official communique on reforms was made public October 20. —MCR

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Tom Engle
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Priscilla Totten
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Shanghai Looks in New Directions

Once known as China's "imperial city of trade," Shanghai now hopes for a resurgence of its traditional role, as China accelerates its reentry into the world economy. Shanghai's position as a center of international commerce gradually diminished during the 1950s. Although its port is still the busiest in China, it handles mainly domestic cargo and is just beginning to play an important role in containerized merchandise shipping. In 1981 Shanghai ranked only 138th in merchandise cargo handling, compared to Hong Kong in fourth place.

Shanghai's decline in international trade and commerce has been, in part, the result of imbalanced stress on industrial development since 1949. By 1982, manufactured goods accounted for 85 percent of the municipality's value of production, while commerce's share declined from 15 percent in the 1950s to 5.4 percent. This emphasis on industry has brought mixed blessings: on the one hand Shanghai has become China's largest industrial base, contributing one-sixth of the country's financial income. But industrialization has also severely strained the city's energy and raw materials supply, and contributed to pollution, congestion, and traffic bottlenecks.

In recent months top economic planners from both the municipal and central government have concluded that Shanghai should take conscious steps to diversify its economy. The proposed formula would once again make the facilitation of trade and commerce a mandate, and attempt to raise the proportional contribution of such service sectors as finance, accounting, insurance, information, consulting, legal services, tourism, engineering, research, and education in Shanghai's overall output.

Shanghai Mayor Wang Daohan views development of the information industry as especially promising. At a September meeting of the Shanghai Science and Technology Association, he pointed out that the city's lack of information exchange had slowed down the pace of technological advance and new product development. Mayor Wang urged Shanghai to allow its "information market" to flourish. Vice-Mayor Liu Zhengyuan also went on record to support rapid development of the city's consulting industry.

These calls have not gone unheeded. In recent months more than 100 service companies and consulting organizations have been established in the city, employing some 4,000 people. Shanghai's first private and self-supported research unit, the Greater Shanghai Electroplating and Decorative Coating Research Institute, opened on September 6. Its founder is a former government technician specializing in electroplating technology. In the information market, two Shanghai newspapers, *Wen Hui Bao* and the *Liberation Daily*, have each set up an affiliated company to publish economic bulletins and promote commercial and technical information dissemination.

Trade and commerce will increasingly look to this information market to rationalize and speed the flow of commodities between Shanghai and inland cities as well as between Shanghai and the rest of the world. Soon, good market information may replace "having the right connections" as the most important factor in concluding a business deal. According to the local press, at least 10 domestic trading centers have recently been formed to handle agricultural and business deals. One of these, the Shanghai Consumer Goods Trading Center, which opened October 3, will exhibit products from Shanghai and neighboring provinces. It will also act as agent for the buying, selling, storing, shipping and processing of goods, and dissemination of commercial information. In another recent innovation, a special trade fair took place in early September to help Shanghai's "neighborhood industries" (collectively owned cottage industries largely operated by homemakers) to reach new markets. Over 5,000 buyers from 26 provinces came to the five-day fair, which recorded $150 million in sales. Shortly before that, a cooperative trading company, the first of its kind in the city, began the free buying and selling of grains, fruits, fish, and general provisions.

Shanghai's legal profession comes of age

The need for legal advice and services will expand in step with trade and commerce. The Legal Counsel Office of the Shanghai branch of the China Council for the Promotion of International Trade (CCPIT) is among the city's newest legal offices. Established in July 1984 as CCPIT's first legal office outside Beijing, the Shanghai group specializes in economic and trade issues. A wide variety of consulting and legal services will be provided to both Chinese and foreign firms on either a project commission basis or yearly retainer. If successful, many of CCPIT's other local branches may follow suit and set up their own legal offices.

CCPIT's legal counsel office in Shanghai already has several compet-

Tao Zuji, founder and managing director of Shanghai Industrial Consultants (SIC), exemplifies Shanghai's new trends. His nongovernmental company advises Chinese and foreign firms on trade and technical matters. Mr. Tao worked in banking and foreign trade for more than 35 years before establishing SIC in February 1982.

itors. In the spring of 1984 the Shanghai Bar Association established the Third Legal Advisory Office, with the task of advising Shanghai enterprises on international transactions. (The bar association's first and second legal advisory offices handle a variety of domestic legal issues). In addition, firms investing in the Minhang and Hongqiao development zones will soon have access to legal services from an office under the Minhang and Hongqiao Development Corporation, and more legal offices are likely to appear to meet expected demand.

Seven new industries targeted

Although the industrial manufacturing sector may lose some relative importance to service industries under current plans, serious efforts are also being directed at revitalizing the existing industrial base and targeting seven new technologies for priority development: microelectronics, optical fiber communications, lasers, new materials, bioengineering, robotics, and marine engineering. These technology-intensive industries will be less of a drain on the city's energy supply and raw materials. More important, they will contribute to the upgrading of the city's older industries. These seven technologies have applications well-suited for absorption into the existing industrial base. This fact becomes all the more important when considering that almost 80 percent of Shanghai's present production, in 49 key industries, must depend on technological advances in order to upgrade quality and maximize output. The impact of microelectronics may be the most immediate, but each of the chosen technologies has the potential to enhance the city's manufacturing sectors.

These new technologies also capitalize on Shanghai's existing research and technical expertise, housed in the city's major universities and research institutes. In keeping with the trend toward better integration between research and production, Shanghai's research centers will become conduits for the broad-based absorption of new technology both in Shanghai and throughout the country. Shanghai's Jiaotong University, one of China's most advanced technical and vocational schools, has taken the greatest initiative to date. A number of Jiaotong faculty have been sent to the Xinjiang Autonomous Region for one to two years to provide a variety of technical consultation services. On a broader level, the city of Shanghai has contracted to assist in similar projects throughout Shaanxi, Gansu, Qinghai, and Xinjiang.

As Shanghai reemphasizes traditional strong suits, the municipality's importance as a national center for trade, commerce, and the dissemination of information and technical expertise is likely to grow apace. After listening to the conclusions of economic planners on Shanghai's development this October, Premier Zhao Ziyang concurred that "Only growth of the service trades will make Shanghai more prosperous as an economic center in the true sense."

—Tao Zuji

1984 READERSHIP SURVEY

In June 1984 *The China Business Review* undertook a survey to determine our reader's opinions about editorial policies, format, content, and advertising, and to give readers an opportunity to comment generally about the magazine. A questionnaire was developed with consultant Mark McElreath, president of Systematic Communication in Washington, DC, and mailed to 1,600 randomly selected readers. The response rate exceeded 30 percent—an unusually good response for a direct mail survey.

The cross-section of responses revealed that our readers include China specialists in more than 30 countries—85 percent of whom save their *CBR* issues for future reference. Executives at top US companies comprise two-thirds of the magazine's readership.

When asked why they read *The China Business Review*, most people responded that the magazine provides quality and depth of information not found in other publications in the field. Most readers expressed satisfaction with the magazine, and a number of excellent suggestions were received. In an effort to meet the expanding needs of our readers, we will begin our twelfth year of publication in 1985 with the following new features:

The Business Traveler: This new column will offer tips to the business traveler, ranging from airline and hotel information to suggestions for recreation and entertainment. It will be authored by Carol S. Goldsmith, former managing editor of *The CBR*, and now director of China Business Travel for First Family of Travel.

Offshore Oil Update: China's offshore oil industry, one of the most important areas for future foreign investment, will be covered regularly, beginning in our January–February 1985 issue. Richard S. Ondrik, Director of Energy Projects (S.E. Asia) Ltd. will analyze current activities in China's offshore exploration and development programs from his Hong Kong base.

Annual Index: Beginning in 1985, the first issue of *The China Business Review* will contain a basic subject, title, and author index of the previous year's issues.

Business-to-Business and **Classified Advertising**: In future, display advertising in the editorial section will be limited to corporate, service, and publications ads. A new "business-to-business" section will provide a forum for domestic and foreign firms wishing to advertise specific products to the trade.

By popular request, *The CBR* will also begin accepting classified advertising. We hope these new policies will allow greater exposure for all sectors of the China trade community. For information on advertising rates, specifications, and restrictions, please contact (Washington): Sue Partyke, Advertising Representative, *The China Business Review*, 1050 17th Street NW, Suite 350, Washington DC, 20036. Tel: 202/429-0340; Telex: 64517 NCUSCTUW. (China and the Far East): China Consultants International, Suite 500, Dominion Centre, 43-59 Queens Road East, Hong Kong; Tel: 5-270639; Telex: 75368 AMRHK.

The editors and staff of *The China Business Review* welcome readers' comments and suggestions.

Analyzing China's Data

A flood of numbers from China means new insights and challenges for macroeconomists

Albert Keidel

China's macroeconomic performance over the past five years has been extraordinary: rapid growth of industrial output, by any measure; explosive trade expansion; sustained productivity increases in agriculture rarely seen in developing countries; a balance of payments turnaround and accumulated reserves in clear juxtaposition with most of the Third World's debt; and finally, regional investments and growth surges in provincial economies with the potential to dwarf Taiwan or South Korea. China is becoming an economic growth machine that could easily drive the economies of East and Southeast Asia well into the twenty-first century.

Has China's macroeconomic dragon awakened? If it flicks its tail, will textile plants around the world close? If it breathes its fire, will Korea, Taiwan, and Japan be scorched out of the TV, toy, and machine tool trades? If it gulps a meal, will North American granaries empty? Who can say? Dragons in general have been rather poorly researched. The same can be said for China's macroeconomy.

A macroeconomic approach to China

With the sudden rush of new and reliable data, however, serious China macroeconomic analysis is now possible. This analysis uses academic research skills, business forecasting, and new microcomputer technology to reveal a wide range of statistically consistent trends and make projections. Reforms and policy shifts can be translated into numerical time series for gross domestic product (GDP) sectors, balance of payments, national debt, price trends, and investment. With the new data and these techniques, macroeconomic analysis is suddenly able to compare what Chinese officials are predicting with what is really happening on the ground.

In familiar terms, macroeconomy refers to the "big picture," the whole economy. Time series (i.e., data for several years in a row) are the basic building blocks for looking at variables such as total industrial output, total exports, total investment, overall inflation, and others. For a country as big as China, these totals are big numbers, indeed. And yet, there are required relationships between them that hold no matter how big or small the economy. In short, the macroeconomic numbers must "add up," and obey rough technical limits relative to each other.

The macroeconomic tradition of emphasizing time series data leads to the collection and refinement of time series data banks, usually computerized, on which the economist's judgment and analysis ultimately depend. But new official data are rarely released as part of a time series. Instead they are usually presented as a collection of numbers for different categories in the same year, sometimes with a growth rate over the previous year. This is the case for Chinese announcements of monthly and quarterly industrial output figures, quarterly and annual trade figures, per capita consumption, and numerous other major macroeconomic variables.

The first job of macroeconomics, then, is to take these numbers and make a time series by adding similar data from different years. This often requires correcting for price changes, or definitional coverage. But when the job is done, the long-term trends revealed are like an X-ray of the economy's progress. Conversely, the macroeconomist rarely makes quick judgments about a single year's data or growth rates over the previous year. Was the year before a good year or a bad year? The same economic growth rate could represent only normal recovery from a very poor performance, or it could show yet another year of sustained high growth. In each case the same growth rate could imply very different assessments of the economy's health, depending on the long-term context.

For example, China's 1982 agriculture growth rate of 11.2 percent was impressive, but less so because it followed two rather poor years. The 1983 agriculture growth record of 7.9 percent, although much lower, is much more significant. This is because it shows not a catch-up spurt, but rather a sustained increase in farm productivity hardly matched anywhere in the developing world.

On the other hand, the first six months of 1984 have revealed a 50 percent increase in crude oil exports over the same period in 1983. Looking at the quarterly trade time series over many years reveals that this is not merely a seasonal variation in China's trade patterns. This year China is boosting oil exports significantly, perhaps to keep up foreign exchange earnings in the face of weakening world petroleum prices.

Predicting international payments with simple addition

Once data have been assembled into a time series, they can then be fit

Albert Keidel, former senior economist for China at Wharton Econometrics, travels to China frequently for international economic agencies and is research director of Rock Creek Research in Washington, D.C.

into various formulas. The requirement that data "add up" is the macroeconomist's simplest, yet handiest tool. The balance of payments provides a basic example of this principle in action. Watching Chinese imports drop in early 1982, and making some simple projections over the coming year, it was obvious that China was going to have a lot of cash, accumulate assets, and reduce its debts. Subsequent 1983 foreign exchange reserve announcements and debt repayment accelerations confirmed what this simplest of adding-up exercises predicted.

The same adding-up exercise pointed to inconsistencies in China's balance of payments picture. By 1983, given the trade balance (FOB), debt repayments, any reasonable invisible flows, and the announced reserve (i.e., cash) holdings, China's total foreign exchange reserve figure was too high. Either exports were higher than reported, or China was doing more borrowing than the usual sources revealed. Possible explanations are large arms sales to Iran through North Korea, significant buyers' credits, and/or profits from outside ventures, most significantly in Hong Kong.

The domestic economy revisited

This adding-up component, also called a model's "accounting framework," finds its greatest power, and considerable complexity, in analysis of the domestic economy. For example, as China seeks to produce higher quality steel domestically, and hence save on a major import bill, the intermediate inputs of steel production must be met, particularly the energy requirements. Increased domestic energy supplies have to add up to steel's new needs, or some other industry will go without. The macroeconomist's jargon for this kind of accounting framework is "input–output analysis." The Chinese are actively engaged in input–output analysis themselves. An economy's useful consumption of final products is only part of the picture; the need for intermediate inputs must also be accounted for.

With the major industrial and urban reforms announced in October, input–output analysis has become even more useful. These reforms imply major price changes. Some enterprises will have to change their input pattern, or go bankrupt. This is especially true with regard to energy. But how major will the adjustments be? By converting the usual input–output analysis to current prices, simple tests can show the energy cuts needed if a sector is to stay profitable.

"Real balances" take the basic input–output analysis one step further. They add up domestic production and consumption, both indirect and final, with the difference taken up by net imports or exports. For instance, how would large offshore oil discoveries in the South China Sea affect China's place in the world petroleum market 10 years from now, assuming a concurrent rise in domestic demand for petroleum? What if the oil is not there? Will China be a net importer? Real balances cut across all an economy's major activities: production, intermediate use, investment use, inventory change, personal and government consumption, exports, and imports. These sources and uses must balance to allow meaningful analysis of overall supply and demand trends. Real balances, hence, provide a powerful tool based on a fundamental economic accounting framework.

Most of the excitement following the sharp shift away from heavy industry in 1981 was due to the belief that this meant a sudden reversal of the principles of Soviet industrialization. But heavy industry outpaced light in 1982 and 1983 and continues to do so in 1984.

Technical relationships add an extra dimension to the accounting framework. The relationship between planting patterns for major crops and their value yields in constant prices provides a good example of this. Yields have a predictable relationship with per-hectare fertilizer applications, as well as improved irrigation and the steady advance of variety improvements. Models now exist for combining these in a simple framework that answers most important questions about China's real food balances. In particular, if the quality of China's diet is to improve and include more meats, vegetables, and fruits, more land will be planted to nongrain crops while demand for grain—for both human and livestock consumption—will also continue to rise. This points to increased long-run reliance on grain imports, despite very recent surges in grain production.

Behind the heavy vs. light industry debate

Have there been any interesting macroeconomic stories to tell in the past few years? Has anything happened that the economic press has been slow to report? Very definitely, yes. For instance, the much celebrated policy shift from heavy to light industry in 1981–82 was actually nothing of the sort, and now seems to have mysteriously disappeared. Most of the excitement following 1981's sharp shift away from heavy industry was due to the belief that this meant a sudden reversal of the principles of Soviet industrialization. But heavy industry outpaced light in 1982 and 1983 and continues to do so in 1984.

Examining the more complete macroeconomic framework, we find a much different explanation for the short-lived light industrial surge. The State budget for 1979–80 experienced a serious deficit compared to the time series of deficits before and after. This was due to increased food subsidies and fighting in Vietnam, which greatly expanded budget expenditures. Therefore, China drastically cut back state investment, which goes largely to heavy industrial sectors and construction, in response to the crisis. With the budget back in better balance by 1982, the government started buying again. The industrial shifts of the early 1980s were thus not a dramatic policy reversal as many mistakenly believed, but merely a short-term government measure to reduce the deficit.

There are numerous other such stories. Balance of payments time series reveal the sudden difficulties of 1979–80 and explain the current motivation for China's reserve build-up, indicating it might continue for some time. As for population, given

reasonable natural increase rates, trends in rural and urban growth imply a very sudden surge of city-bound migration in 1983, at least 27 million persons, with major potential implications for China's social and economic policies.

"Residual" factors shed light on agriculture and energy

These various macroeconomic trends are easy to analyze because they can be directly measured. But the very important increases in areas such as farm productivity and energy savings cannot. For macroeconomists, values such as these are "residuals," leftover after all other factors have been accounted for. This residual effect, which is not embodied in equipment or other inputs, is referred to as "disembodied technical change." In many successfully developing economies disembodied technical change has proven to be the single most important factor in economic growth. In contrast, the Soviet development strategy tends to ignore this factor and treat the productivity of capital as a fairly constant parameter. But China's experience in the past few years shows that the reserve of potential disembodied technical change is finally being tapped.

The recent sustained increases in farm yields, during years when weather was only average at best, and when the distribution of chemical fertilizers through state channels was concentrated only in certain regions and on certain crops, are best attributed to millions of decisions and individual efforts, large and small, taken by producers and policy makers under the influence of new agricultural incentive programs. Observation in rural China confirms what the macroeconomic statistical calculations indicate: there is a general outpouring of individual effort and care that did not exist under collective management.

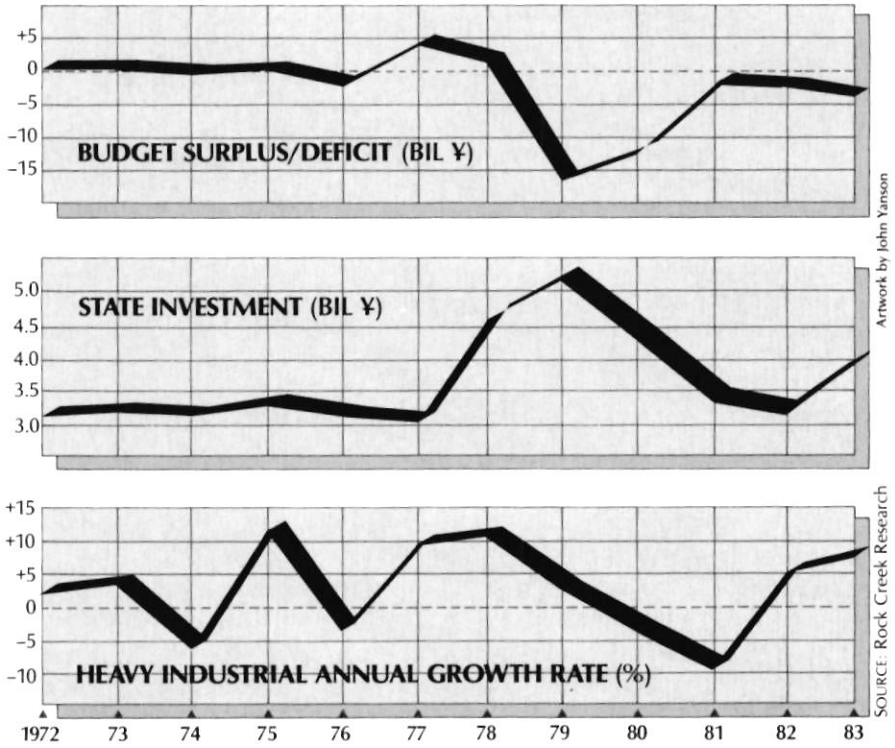
Measuring disembodied technical change, as a residual factor, is extremely important for understanding and estimating China's growth in the future. China's real grain balances will be very different as a result of continued output increases seemingly unconstrained by inputs of land, water, and chemicals. There must be a limit to this pool of disembodied change, but China doesn't seem to have reached it yet.

The potential impact of disembodied technical change is perhaps even greater in industry, where, until the announcements in October, reforms have been slower and where the backlog of inefficiencies is so much greater. Energy efficiency is one of the easiest residual factors to estimate. China's industrial output has increased more rapidly than the industrial use of oil, coal, gas, and electricity. Because an energy shortage exists in China, with blackouts and brownouts common, any disembodied technical change in energy efficiency, related to new techniques or designs not reflected in the higher value of plant and equipment, will have an immediate effect on output and growth.

Energy is currently notoriously underpriced, leading to wastage in most industries. The pace of disembodied technical change is expected to be much more rapid after the introduction of price reforms and a more competitive industrial environment. Just how rapid the change will be is a controversial topic. Equally controversial is the question of how much disembodied technical change will enter China through her increasing contracts with Japan and the West. These factors, although not directly measurable, can be estimated with macroeconomic techniques and used to round out the analysis of China's current growth path and future prospects. Without the macroeconomic perspective of time series data in an analytical modeling framework, these issues do not come to light.

STATE DEFICITS AND HEAVY INDUSTRY

How reduced state investment slowed the heavy industrial growth rate



Quantifying the effect of political events

Finally, in reviewing some of the macroeconomic lessons of recent years, we have to answer the question, "Who cares about these subtleties of technical change or valuation, when political decisions and movements like the Great Leap Forward of the 1950s and the Cultural Revolution of the 1960s and 1970s can plunge the economy into such major turmoils with no macroeconomic explanation at all?" Although the macroeconomist cannot predict such political movements, models can quantify their impact on the economy.

The most important political movements today in China are re-

forms in government bureaucracy, economic management, state planning policy, and international orientation. These reforms are the result of political decisions at the highest level of Chinese leadership. Will these reforms slow down, or be reversed by an event like a military coup? The macroeconomist, of course, cannot say. Models can, however, estimate what such changes would mean to output, consumption, investment, trade, and other variables. Data banks of past Chinese performance confirm the catastrophic impact and after-affects of the 1958 Great Leap Forward movement. Census data point to tens of millions of deaths from hunger in the 1960–62 period, not simply because of poor weather, as is often supposed, but rather because of the failure of policy and incentive systems.

A reversal of the current reform movement would not necessarily mean a return to those catastrophic years, but it would indicate a return to a period of very slow technical advance, such as occurred in the early 1970s. From cropping patterns to industrial structure to the growth of services, the shift in macroeconomic variables would be largely predictable.

From a long-term historical perspective, the macroeconomist can address worries about the strength and longevity of the current reforms. China has shown a tendency to repeat a powerful commercial cycle, which may be operating again today. This commercial cycle follows the dynastic pattern and is traceable at least to the second century B.C. After protracted chaos, warlordism, and enemy incursions, China's history has repeatedly produced brilliant but ruthless leadership that unifies the economy, reforms asset ownership and communications, including language, and then dies. With the passing of this leadership, control traditionally shifts to bureaucrats and merchants. In each of the great dynasties, this pattern led to a protracted and vigorous expansion of commercial activity.

There is every reason to believe that China is once again following this age-old macroeconomic cycle. The nineteenth and early twentieth centuries were periods of chaos, warlordism, and foreign intervention. Brilliant but totalitarian leadership unified the country in 1949 and instituted a full range of fundamental reforms, both social and economic. This era, with all its excesses, lasted longer than is usual for the cycle, but control began to pass to bureaucrats and merchants after 1976. The 1980s are still an early stage of this transition, in which merchant and market power are only beginning to emerge. All indications are, however, that the cycle is difficult if not impossible to stop.

Challenges of modeling with Chinese data

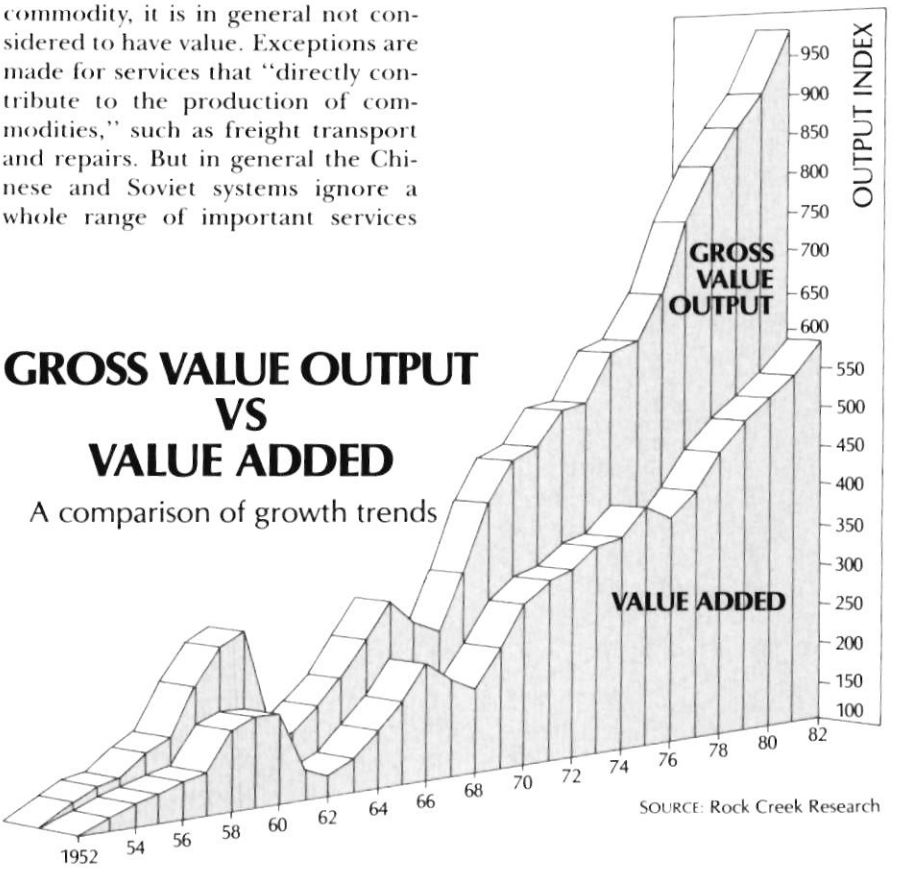
In spite of the importance of monitoring the Chinese economy as it rapidly takes on additional global responsibilities, the peculiarities of China's data and the special needs of modeling a centrally planned economy present challenges to the China macroeconomist.

One of the most fundamental problems for estimating GDP is the fact that the Chinese national accounts ignore important service sectors, considered by Marxists to be "nonproductive." These include such sectors as health, housing, education, entertainment, passenger transportation, and government services.

According to the analysis in Marx's *Das Kapital*, if something is not a commodity, it is in general not considered to have value. Exceptions are made for services that "directly contribute to the production of commodities," such as freight transport and repairs. But in general the Chinese and Soviet systems ignore a whole range of important services that in highly industrialized societies may exceed both agriculture and industry in terms of value contribution to GNP. Under these conditions, the macroeconomist must rely on employment data and statistics on related phenomena, such as passenger miles, attendees at cultural events, and numbers of doctors and hospital beds to reach conclusions about some service sectors. Although such reconstructions of "nonproductive services" are far from perfect, they do give a good idea of the general order of magnitude of these sectors. With them, meaningful estimates of China's GDP and GNP are possible.

The double counting problem and economic growth

Another problem results from the fact that Chinese measures of total economic output overstate the long-run growth China has enjoyed since the 1950s. This is not to belittle the economy's growth achievements—which have been considerable—but to note that they are not quite as considerable as official statistics indicate. There are two principal reasons



for this overstatement: increased double counting and inaccurate valuation.

Double counting in Chinese growth statistics is a natural consequence of the major purposes of the statistical system inherited from the Soviet Union. Data have been collected primarily to keep track of plan target fulfillments. Hence, the emphasis is on the total, or gross, output of each factory, farm, and shop. Gross output, of course, is closely related to Western concepts of gross revenues; costs are combined with value added. This would have no significance for growth rates if the share of value-added in gross output remained constant over time, but it does not. As China has evolved from a relatively primitive economy in the 1950s to an increasingly complex one in the 1980s, more and more raw material and semifinished inputs are purchased, relative to the value of total output. Under these natural circumstances, the growth of gross output will be more rapid than the growth of value added, which measures an economy's actual production.

In addition, valuation conventions in China have overemphasized the growth record. Because of the computational difficulty of recalculating past output with more modern prices, the Chinese use a shortcut method and simply link together pieces of time series calculated with older prices. For China, this means that some rapidly growing and at one time very high-priced sectors (i.e., machine tools) are given a much greater importance in the earlier overall growth record than they would if priced at more modern rates. Conversely, slow growers like agriculture have been more highly valued in recent years, but because of their low prices in the 1950s and 1960s, they are not as much of a drag on the total growth record as they would be if accurately valued.

This does not mean China's promises and projections are unrealistic. In fact, those projections make use of the double counting phenomenon. For example, the most widely circulated prediction is that China will quadruple the gross value output of industry and agriculture by the year 2000. As the foregoing analysis indicates, however, it gets easier and easier to make gross output grow; more and more of it is double counting as time goes on. Quadrupling gross value output can be accomplished with significantly less than a quadrupling of Western value-added output measures, such as GDP or GNP.

A macroeconomic analyst would not make the mistake of assuming that value-added measures would grow as fast as gross output. Furthermore, there are even more subtle valuation reasons to discount China's past growth record: prices of goods used mainly as inputs have risen while prices of outputs have fallen. The difference—value added—is squeezed if properly valued. Chinese statistical shortcuts dilute this relationship.

Other difficulties arise because Chinese statisticians use a method for calculating real sectoral output, called "single deflation," which gives the wrong total. In international trade, the Chinese do not use their exchange rate to make a simple conversion from domestic prices to the price of what they sell abroad; there are separate export prices bearing no relation to their domestic market siblings.

Chinese data present numerous other challenges for the macroeconomic modeler. Chinese depreciation accounting methods are unusual. CIF rather than FOB reporting for imports complicates the balance of payments estimates. Finally, with the shift to individual farm and factory management responsibility and the elimination of plan targets for a large share of industrial commodities, the reliability of administrative data may eventually diminish, requiring China to shift to more dependence on random sample surveys, with which they have very little experience.

The rapid and quantum shift in China's recent economic direction, away from a Soviet model toward one resembling that of other land-poor and labor-rich East Asian developing countries, provides modeling with perhaps its greatest challenge. Patterns and institutions of the past 30 years in China are no longer reliable guides to China's future trends. As a consequence, the most useful models evolving for China are those that permit greater input from sectoral and regional specialists. Relationships that many traditional macroeconomic models might consider stable cannot be relied on for China in this period of rapid transition.

The reliability of China's data

Despite the foregoing qualifications, official statistics are generally very reliable and accurate, once it is understood what they actually represent. Within their official definitions and China's institutional framework, the statistics generally give an accurate measure of what they say they do. The difficulty is in knowing the Chinese statistical system, and in translating these data into comparable Western accounting terms.

The basic reliability of the data has been confirmed by numerous statistical missions from the United Nations, the World Bank, and US government agencies such as the Department of Agriculture, which have provided a fairly detailed understanding of the statistical reporting methodologies in China. But understanding the data requires knowledge, for example, of the Chinese division of its population and institutions into state and nonstate categories, misleadingly called "nonagricultural" and "agricultural." It is clear that a great deal of nonagricultural activity is carried out by the agricultural population, and that there is even some farming in the nonagricultural sectors. The distinction is important, however, because many of the most detailed statistics are given only for the state or nonagricultural enterprises. Generalizations drawn from these data alone misrepresent conditions in the economy as a whole, because the state sector represents less than 25 percent of the total population.

In general, however, the data and methodologies give ample opportunity for producing sound and reliable macroeconomic statistics. In fact, the Chinese data have improved so rapidly that they now surpass not only those available for most developing economies, but also data from much of the Soviet Union and Eastern European bloc.

Commercial macroeconomic services

Commercial sources for China macroeconomic research depend mostly on private research and consulting groups to bring together the historical perspective of academic studies and the short-term information demands of in-house research teams. Work done by private China macroeconomic research groups

generally falls into five categories: periodic analytical reports, access to data banks, projection reports, specialized research projects, and personal consulting.

Periodic analytical reports, usually in the form of weekly or semiweekly bulletins, are a major vehicle for transforming the most recently released official country statistics into time series within a consistent accounting and technical framework. Private researchers have developed excellent contacts with and access to original sources of data in Beijing, Hong Kong, Tokyo, and Washington. By placing these data into an overall historical and technical pattern, they often reach significant and sometimes surprising conclusions.

Data banks of macroeconomic time series for China, in addition to forming the basis for private commercial research, are often sold to firms and government agencies for their in-house use. The data bank series have usually been converted to the most recent price bases and corrected for definitional and accounting inconsistencies.

Projection reports, usually semi-annual, review the recent trends and present revised projections of the Chinese economy's likely course for the coming five or six years. For many variables the projections extend into the twenty-first century. The projections are usually well documented, with some discussion of the assumptions behind the predictions.

Individual consultations provide a chance for the macroeconomic analyst to discuss the results of time series and modeling research in the context of a firm or agency's specific needs. They are often a natural part of specialized research projects.

Specialized research projects are generally of two types: customized projections and sectoral elaborations. Customized projections convert a firm or agency's assumptions into consistent projections of the future. Sectoral elaborations focus on one or more specific macroeconomic sectors and analyze their quantitative significance for China or for related world markets.

Specialized research projects are the most flexible service available. One good example of a customized projection is the calculation of real energy balances for an oil firm, given the firm's own in-house estimate of China's oil production potential to the year 2000 and beyond. Provided with these data, and any preferred assumptions about industrial growth trends and gains in energy efficiency, energy balance modeling can generate a consistent set of statistical projections, showing how much is consumed by various domestic users and how much will have to be imported or exported. It turns out that with success in both offshore oil discoveries and modest domestic energy conservation, China can easily become a major exporter of crude and refined petroleum products by the end of the century.

Another common example of specialized reports is the projection of China's balance of payments, and in particular its borrowings and debt levels. This analysis could serve a large international bank or other prospective lender to China. Banks and other creditors often have their own assumptions about levels of global trade and interest rates. Applying these to a consistent model of China's economy and balance of payments results in a full set of projections consistent with the customized assumptions. For China in the 1980s, even a much awaited buying spree would have difficulty turning around China's strong balance of payments surplus, given the pattern of export growth likely to continue late into the decade. However, by the very early 1990s, after implementation of the just-announced urban reforms, when China is more able to absorb the capital equipment and know-how available in the West and Japan, imports could easily surpass exports. This would result in considerable borrowing from international commercial sources.

Understanding China's data requires knowledge of the Chinese division of its population and institutions into state and nonstate categories, misleadingly called "nonagricultural" and "agricultural." A great deal of nonagricultural activity is carried out by the agricultural population and there is even some farming in the nonagricultural sectors.

Specialized research can also focus on a specific sector, such as chemical fertilizer balances. A firm might wish to know how an extremely large investment proposal to construct fertilizer plants in China would affect China's economy and the world fertilizer market. Such a study uses many of the macroeconomists' tools. Fertilizer output itself could be sold for direct foreign exchange earnings. At the same time reductions in fertilizer imports would yield a further indirect foreign exchange savings. The increased use of fertilizer domestically would increase value yields and output for various crop categories, allowing a reduction in wheat imports, some increase in rice exports, an improved diet for Chinese citizens, and greater rural demand for urban industrial consumer products. Placing all of these factors into a consistent accounting and technical framework, with projections for several decades, would help immeasurably in determining the overall worth of the investment plan.

Finally, regional and urban macroeconomic studies represent an important and growing area for specialized research. China is too large to be treated as a black box. Recent data allow macroeconomists to build provincial and urban time series that reveal very different development patterns within China's major regions. In particular, China's southeast coast and far northeast show signs of much more rapid industrial growth and international economic opportunity than many of the interior provinces or even other major urban areas. But the sectoral emphases of regions vary as well; the northeast stresses heavy industries such as metals, vehicles, and oil, while the southeast specializes to some degree in consumer goods. Given the increasing independence of provincial economic authorities and even individual enterprises, research in China's regional specializations can be invaluable for investors by-passing Beijing to deal directly with local contacts. 完

Cities throughout the country begin to replicate SEZ incentives, although their investment focus will be different

China's New and Old Investment Zones

Madelyn C. Ross

China's policy toward foreign investment has opened dramatically wider since Deng Xiaoping visited the four special economic zones (SEZs) early this year and provided a crucial signal of support for a previously controversial policy.

In April, not long after the SEZs received Deng's blessing, the State Council announced the "opening" of 14 coastal cities and Hainan Island to foreign investment—a surprise move that gave these 15 areas the right to use many of the same incentives operating in the SEZs. This was no mere expansion of SEZ policy—in one move it spread the concept of favored investment zones from four relatively small and undeveloped towns in southern China to 15 new areas with a combined industrial output equal to one-quarter of the nation's total. If the SEZs were subject to criticism in that they created privileged enclaves for foreign investors, how much more so the addition of 14 previous treaty ports to this category?

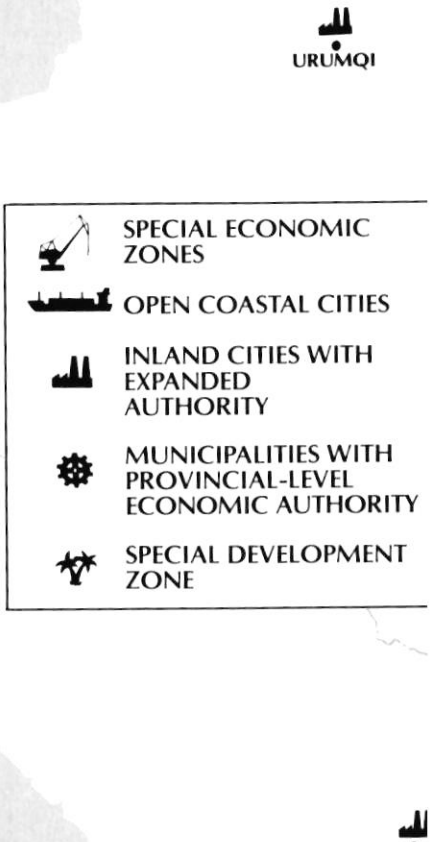
Not surprisingly, the move proved particularly controversial among China's inland cities, who lost no time in making their opposition known. In May the governors of inland Shanxi and Shaanxi provinces requested the same rights for their cities, pointing out in particular the importance of their provincial capitals. By August, pressure from inland provinces resulted in a move to defuse the situation: the Bank of China announced special foreign exchange privileges to encourage foreign investment in 30 cities, 24 of them inland. Of these 24 cities, 22 are the capital of their respective province or autonomous region, one is Beijing, and the 24th, Chongqing, is the largest industrial center in southwest China. The four provinces whose provincial capitals were left out—Liaoning, Shandong, Fujian, and Guangdong—each contain one of the 14 open coastal cities, while Fujian and Guangdong also contain China's four SEZs. Every province has thus been allowed to gain something under the new policy.

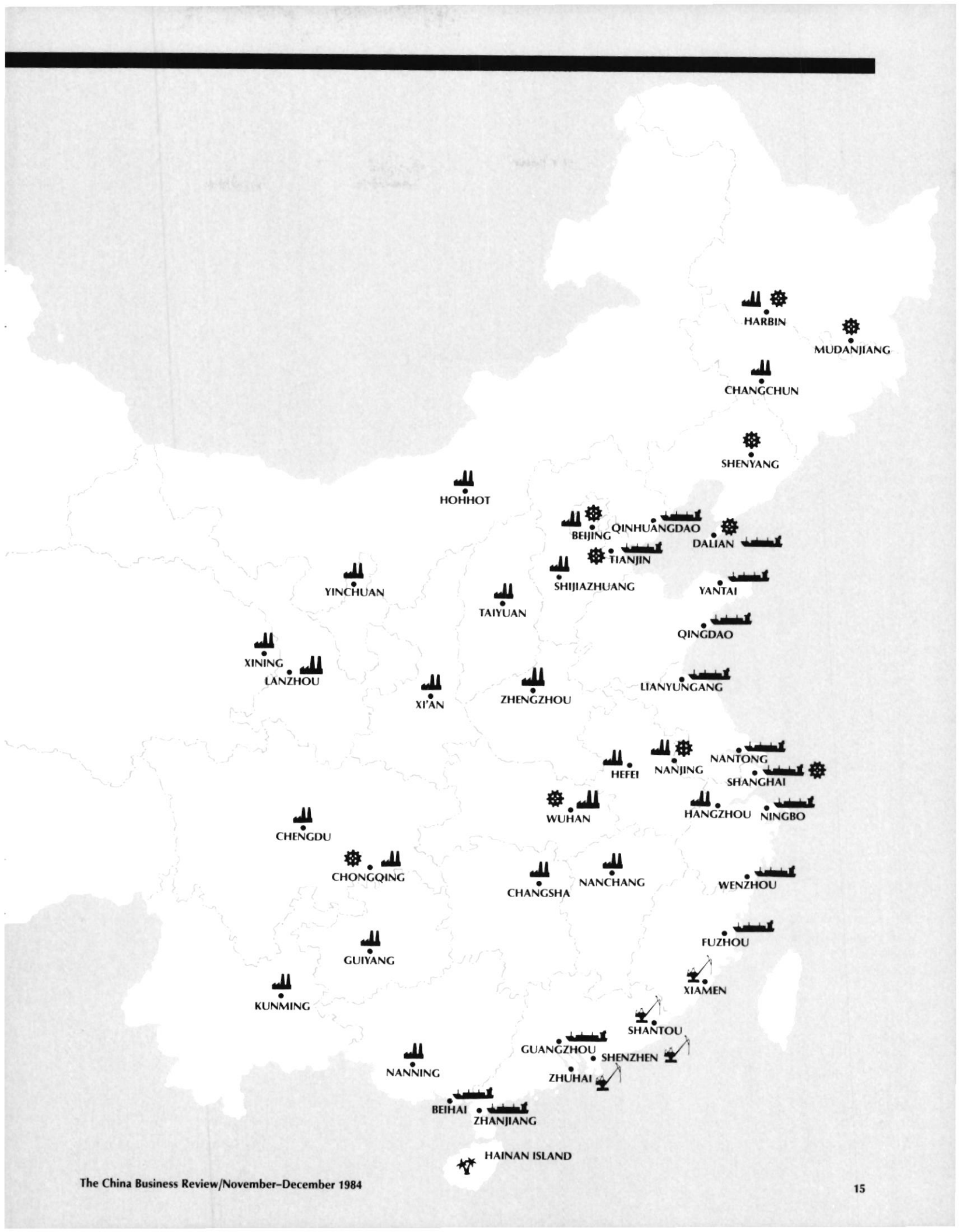
Investment strategy will complement the new Five-Year Plan

Although the regulations that will distinguish the new investment zones from the original SEZs are not yet clear, many factors point to a fundamental difference in their orientation. The most important planned use of foreign investment in the new zones will be to upgrade the existing industrial base. This implies a basic departure from the experience of the original four SEZs, which are building their zones virtually from scratch, focusing on an infrastructure base and earning foreign exchange through export-oriented industries and tourism.

The strategy behind the opening of 14 coastal cities, Hainan Island, and 24 inland cities appears closely tied to plans for the domestic economy under the Seventh Five-Year Plan (1986–1990). A basic premise of the upcoming plan is that the country's industrial enterprises are operating well below capacity, and have a large potential to be tapped. The plan therefore stresses the upgrading of existing enterprises rather than the building of new ones. According to one Chinese report, for every yuan invested in renovating old enterprises, an average increase in output of ¥3.25 can be gained, while the return on investment in new projects is only 1:1.

Another factor in the creation of new investment zones appears to be the fact that China's cities are increasingly viewed as the most rational units for promoting economic development, and therefore logical centers for foreign investment decisions. Open cities will gain valuable foreign industrial and technical knowledge, and become the training ground for a

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CHONGQING
CHANGSHA
NANCHANG
WENZHOU
FUZHOU
GUIYANG
XIAMEN
KUNMING
SHANTOU
GUANGZHOU
SHENZHEN
NANNING
ZHUHAI
BEIHAI
ZHANJIANG
HAINAN ISLAND

core of technicians and skilled managers in finance, trade, and law. The cities will become development models, and will be expected to spread their experience to their suburbs and hinterland regions. Thus, while foreign attention has focused on investment possibilities in the 14 cities, the central government has concurrently stressed their responsibility for regional economic and technical development.

In order to make these cities effective catalysts for change in their surrounding regions, their physical connections with the rest of the country must be improved. Most of the major transportation projects outlined for the rest of the decade radiate inland from the coast, improving waterways and roads to better interconnect the coastal cities with each other and their hinterlands. The Ministry of Communications, responsible for carrying out these projects, is headed by Qian Yongchang, previously the director of China Ocean Shipping Company, who understands the coastal cities well. Ten of the 14 open coastal cities are among the 15 ports directly under the Ministry of Communication's jurisdiction.

All of the 14 cities plan to improve telecommunications and air transport by the end of 1985, which will further improve their integration with the rest of the country.

Just as the SEZs were chosen in part because they had important ties with Chinese communities abroad—thus increasing their chances of attracting attention, visitors, and capital from overseas compatriots—so have the new open cities been chosen with good reason. These cities are among the key industrial centers expected to upgrade their industrial base through technical transformation, and become focal points for regional economic development.

The role of other industrial centers

The widespread move toward cities as the primary catalysts for regional economic development is likely to affect foreign investment in a number of other areas as well. Chief among these is the growing number of cities raised to provincial-level rank in terms of economic decision-making.

Beijing, Shanghai, and Tianjin have long had provincial status in both political and economic spheres. But in the past year at least seven other cities have gained the same economic powers, while remaining under the political jurisdiction of their respective provincial governments. Some of these "provincial" cities are now among the open coastal cities (Dalian, Tianjin, and Shanghai), and others are among those inland cities granted special foreign exchange rights by the Bank of China last August (Harbin, Nanjing, Wuhan, and Chongqing). But there are several, such as Mudanjiang and Shenyang, that have simply been granted provincial economic powers without special foreign investment status. Such authority in itself, however, has important implications for investors: Like Shanghai, Beijing, and Tianjin before them, these cities can enter directly into negotiations with foreign enterprises, and report directly to Beijing on important matters of foreign trade and investment, bypassing the provincial government. Therefore the growing number of cities with expanded domestic economic authority may in fact hold many of the same attractions for foreign investors that the open cities offer.

The new open cities are among China's key industrial centers, expected to upgrade their industrial base through technical transformation and become focal points for regional economic development

Lack of rules mean flexibility, uncertainty

Specific regulations for all of the newly opened investment areas have not been released, although a number of economic laws now being drafted should help to clarify the situation. The coastal cities have announced general incentives very similar to the SEZs, including tax rates of 15 percent or less for target investment projects, broad exemptions from customs duties, negotiable land-use fees, some access to domestic markets, and simplified bureaucratic procedures. Nevertheless, officials caution that the coastal cities are not to be confused with the SEZs.

Further complicating the picture, each coastal city has been granted the right to establish an economic and technical development zone outside the city center, which will offer a uniform tax rate of 15 percent for all projects, and waive the 10 percent profit remittance tax.

In October, major speeches by top officials in the State Council and CITIC underscored the fluidity of the regulatory situation and implied that further revisions to the investment guidelines are being considered. These officials implied that investment in the energy and transport sector of the coastal cities, in particular, could receive even more preferential terms than those already outlined.

Just how far *inland* cities can go with their own incentives must also be clarified, but many of them have already begun to announce similar investment strategies. Shanxi and Shaanxi have hinted that their provincial capitals will welcome both joint ventures and 100 percent foreign ventures, a phenomenon still controversial and extremely rare outside the SEZs. Other provincial capitals have begun to publicize special land-use fees and tax breaks that they will offer foreign investors.

Bank of China will be watchdog

Despite the lack of regulations, central authorities appear to have safeguards in place to monitor the level of city spending and avoid an uncontrolled contract-signing spree such as took place in 1979–80. The Bank of China, the State Planning Commission, and the State Economic Commission are directly involved in setting policy for the new investment zones. In order to ensure full local compliance and understanding, top leaders from each of the 14 cities and Hainan, generally of the vice-mayoral rank or above, are taking an active role in the planning of their respective zones.

The Bank of China (BOC) has been given an all-important role in overseeing foreign involvement, using foreign exchange expenditure as the key policy variable. In mid-July, BOC branch managers from each of the 14 cities met to set policy for the new

investment areas, and raised the main BOC branch in each of the 14 cities to provincial-level status. This will result in larger quotas for both renminbi and foreign exchange loans. It also gives BOC the right to set up trust and consultancy corporations to provide innovative financial services and form investment consortia with other foreign banks. Together, the Bank of China and the Industrial and Commercial Bank will offer $1.01 billion in low interest foreign exchange loans to the 14 cities and Hainan by the end of 1985, mainly for infrastructure improvements. In addition, MOFERT has approved more than 200 projects in the four SEZs, 14 coastal cities, and Hainan, requiring an estimated total investment of $1.5 billion. The Bank of China will provide $800 million of this, and foreign investment will be sought for the remainder. Significantly, most of these projects involve technical renovation of existing enterprises.

Another method of control is the fact that all open cities are not created equal. Shanghai and Tianjin have been given the right to independently approve projects involving investment of up to $30 million. The other coastal cities can approve investment projects involving only $10 million or $15 million of total investment, depending on the economic conditions in each city.

The Bank of China adopted a similar three-tiered approach when it announced special foreign exchange authority for its branches in 24 inland and six open coastal cities last August. BOC branches in these cities can approve foreign exchange loans to Chinese and Chinese–foreign joint ventures ranging from $10 million in Shanghai and Tianjin to $5 million or even $3 million in relatively underdeveloped inland capitals.

Many organizations both within the PRC and overseas hope to act as agents for the open cities. New investment entities in China and special conferences to promote investment are springing up like "mushrooms after the spring rain," as the Chinese

New Consulting Corporation to Mobilize Experts in Open Cities

The China Coastal Cities Economic and Technical Development Corporation (CCETDC), formed in July, will offer consulting services in each of the 14 coastal cities, four SEZs and Hainan Island. CCETDC's goal is to involve local scientists and technicians from government and research societies in technical consulting for investment projects. In some cases, CCETDC may even import products, or train personnel for joint ventures.

Under the auspices of the Chinese Association for Science and Technology, CCETDC is organized and staffed by the China Science and Technology Consulting Service Center in Beijing, which has provided similar consulting services to Chinese enterprises since 1980. Local CCETDC representatives work out of the science and technology associations or the consultant service center branch in each city.

The corporation's advisory council includes representatives from the Chinese Academy of Science, the Machinery Engineering Society, Energy Research Society, Agricultural Science Institute, and many others. CCETDC exemplifies the goal of integrating foreign investment with the domestic economy: just as Chinese enterprises can learn from joint ventures, so may these joint ventures benefit from local expertise. CCETDC has not yet completed any projects for joint ventures, but if it proves successful, the idea may be worth spreading inland.

BEIJING CENTRAL OFFICE:
China Coastal Cities Economic and Technical Development Corporation
Capital Gymnasium
Baishi Qiao
Western Suburbs
Beijing
Tel: 890281 ext. 209/272
General Mgr: Zhen Jianmin
Contact: Li Gongde

BRANCH OFFICES OF CCETDC:
COASTAL CITIES

Dalian Science & Technology Association and Service Center
Xigang Bai Yunshan, Dalian, Liaoning
Contacts: Xu Jiaji, Yang Mingquan

Qinhuangdao Science & Technology Consultant Service Corp.
63 Wenhua Bei Rd.
Qinhuangdao, Hebei
Tel: 5737 Contact: Li Ming

Tianjin Science & Technology Consultant Service Corp.
No. 80 Heping District, Tianjin
Tel: 37371 Contact: Bi Rougang

Qingdao Science & Technology Consultant Service Center
1 Zhongshan Rd., Qingdao, Shandong
Tel: 83480 Contact: Sun Huailu

Yantai Science & Technology Consultant Service Corp.
Yuhuanding, Yantai, Shandong
Tel: 4451 ext. 267
Contact: Zhang Deju

Lianyungang Science & Technology Assoc.
Xingpu Lianhai Rd.
Lianyungang, Jiangsu
Tel: 3554 Contact: Lu Caifan

Nantong Science & Technology Assoc.
Nantong, Jiangsu
Contact: Zhu Zhenghuang

Shanghai Science & Technology Consultant Service Center
49 Nanchang Rd., Shanghai
Tel: 282040 ext. 113
Contact: Xu Guoquan

Ningbo Development Corp.
104 Jiefang Rd.
Ningbo, Zhejiang
Tel: 62626 Contact: Yu Mingqing

Wenzhou Science & Technology Assoc.
No. 40 Xiechugang
Wenzhou, Zhejiang
Tel: 4317 Contact: Li Guangfang

Fuzhou Science & Technology Assoc. Consultant Corp.
Wu Shan Rd., Fuzhou, Fujian
Tel: 33139 Contact: Wu Zhiyi

Guangzhou Science & Technology Assoc.
Tie Haiyuan
Guangzhou, Guangdong
Tel: 84064
Contact: Yang Xinzhang

Zhanjiang Science & Technology Corp.
Yushan People's Building
Zhanjiang, Guangdong
Contact: Wu Qiming

Beihai Science & Technology Consultant Service Center
Science & Technology Assoc. Building, Beihai, Guangxi
Tel: 2151 Contact: Chen Renwen

SPECIAL ECONOMIC ZONES

Shenzhen Science & Technology Assoc.
Shanbu Technical Building
Shenzhen, Guangzhou
Tel: 38368 Contact: Wu Guoquan

Zhonghuan Int'l Science & Technology Consultant Corp.
International Building Room 1607
Shenzhen, Guangdong
Contact: Li Honglin

Zhuhai Science & Technology Assoc.
Zhuhai, Guangdong

Shantou Science & Technology Consultant Service Center
107 Waima Rd., Shantou, Guangdong
Tel: 5991 Contact: Zhang Xionglian

Xiamen Science & Technology Consultant Service Corp.
2 Huyuan Rd., Xiamen, Fujian
Tel: 22437 Contact: Hong Minjie

Hainan Island Science & Technology Assoc.
5 Xing Huang Rd.
Haikou, Hainan Contact: Chen Chaoxian

say. But municipal government authorities and the Bank of China seem to be the key decision makers on policy in all of the open cities, at least for now.

The question of economic and technical development zones

Given the role of the newly opened cities in fulfilling the nation's long-term development plan, where do their economic and technical development zones, more similar in concept to the original SEZs, fit in? These zones are usually located outside the city on relatively underutilized land that will require brand new facilities. On August 1, the People's Daily carried a stern warning to the 14 cities to proceed cautiously with this aspect of their development, noting that "some comrades have a one-sided understanding of opening up, holding that this means organizing economic and technical development zones on which they focus all attention." The editorial added that building such zones from scratch is not easy, and should rank second in importance to the goal of utilizing foreign capital for renovation of existing urban enterprises within the cities themselves.

In practice, most of these economic and technical development zones still exist only on paper. Their plans focus on infrastructure projects, particularly harbor development, needed to complement existing facilities in the city, and on attracting new high technology industries that will enhance the city's existing industrial base. However, most of the cities have not yet defined their zone's industrial goals, simply stating that they will encourage "technology-intensive" industries, broadly defined. Cities with tourism potential are also emphasizing resort and hotel development in their economic and technical development zones.

In these zones, the SEZ's experience will be particularly relevant, and many of the newly opened cities have sent working delegations to the SEZs to learn more. Perhaps because the building of new zones seems more glamorous than the technical transformation of industry, many of the coastal cities have generated more publicity on this aspect of their plans than any other to date.

Official support from top leaders carries great weight in China. Chairman Mao set off the formation of communes throughout the country when he commented in 1958 that "the people's communes are good" during a visit to one of China's earliest communes in Henan. In early 1984 several prominent national leaders made separate journeys to southern China to see for themselves China's four SEZs, and most indicated generally favorable impressions. After visiting all the zones in January, Deng Xiaoping noted approvingly that the experience of Shenzhen, the most advanced of the four zones, "justifies our policy regarding the establishment of special economic zones."

The subsequent creation of many new "open" cities thus implicitly carries high level approval from the central government. Even with this support, implementing the special investment zone policy on such a large scale will be difficult. City goals will not always mesh with the central government's. Like the SEZs, some open cities may be more successful than others, providing opportunity for opponents to criticize. However, despite inevitable growing pains, the increasingly close relationship between national economic priorities and foreign investment goals makes it likely that this latest and most ambitious of China's foreign investment initiatives will play a key role in the overall open door strategy. 完

Factors to consider as China's door opens wider

A Checklist for Investors

Jeanne Chiang

In the initial excitement over China's new "open" cities, ports, and zones, the tendency of foreign companies has been to scrutinize specific tax rates, customs policies, and other incentives. Although these incentives can make a difference in structuring an investment project, they are no guarantee of its success. To ensure success, the practical requirements for implementation must be foreseen and addressed early in the project planning stage. The ability of a city to meet these requirements should be a major factor in choosing an investment site.

An existing industrial base

One advantage lacking in the four SEZs but offered by many of the new open cities, both coastal and inland, is the support of a strong industrial base. Such an environment can provide management and technical talent, as well as skilled labor from the local area. In contrast, Shenzhen, for example, has had to import nearly all of its skilled personnel from other parts of China. Given the propensity of most Chinese to stay close to home, relocation of workers from the industrially stronger north to the culturally foreign south has often met with disinterest or even resistance.

A sound industrial foundation can also mean that more Chinese raw materials will be available in usable form. This will be important to joint ventures planning to reduce foreign exchange costs by sourcing locally. By comparison, the four SEZs rely heavily on imported raw materials, which, although sometimes less expensive than Chinese alternatives, cannot be bought with renminbi earnings.

At the same time, the presence of numerous local industries can provide ready markets for industrial products manufactured by joint ventures. SEZ enterprises have been known to reject project proposals for the manufacture of components on the grounds that there is no industry to absorb them. Their preference

seems to be for a complete line of production that results in a product ready for the consumer market. Such limitations are less likely to hold in the industrially developed 14 port cities, and the many interior cities with increased authority to seek foreign investment.

Finally, established industrial areas also tend to have universities and research institutes nearby that not only provide technical talent, but additional R&D capacity that may be drawn upon by joint ventures. Since such institutes are frequently called upon to make recommendations to local endusers, they may also be developed into additional distributional channels.

Infrastructure considerations

Another test of an appropriate site is the amount of infrastructure already in place. Here, the 14 coastal cities compare favorably to any inland site and even to the four SEZs.

Most of the coastal cities have well developed transportation networks. China's four largest ports—Shanghai, Dalian, Qinhuangdao, and Qingdao—are among these cities. For ventures aiming at a quick start-up, location in a port city will speed the arrival of imported parts and components to be assembled. And many of the recently opened ports excel in the handling of certain types of goods. Tianjin, for example, is north China's major container port, a factor of significance to ventures planning to bring in delicate component parts. Lianyungang receives much of China's timber imports, while Ningbo offers the largest mineral delivery facilities in China.

The port cities have other infrastructure advantages. Since most of these cities have been used for some time as outlets for Chinese exports, roads and rail lines are already in place to carry joint venture products in the other direction—to inland markets. Finally, all 14 cities have announced plans to further expand their transportation, communication, and power generation capacities.

The State Planning Commission has reportedly set aside $1.01 billion for the 14 coastal cities, much of it very likely for infrastructure improvements. This amount, however, will not cover the full extent of the expansion plans announced by all the cities. Any company considering a project whose feasibility depends heavily on projected infrastructure development should ascertain beyond reasonable doubt that these plans have been approved and that funds, either central or local, are specifically earmarked for them. Indications are that the Chinese hope to finance at least some infrastructure improvements with direct foreign investment, which means that many of the plans may not be implemented for quite some time.

Relationships with other areas

The foreign trade and investment organizations in some open cities have already established cooperative relationships with other Chinese provinces. These relationships sometimes spring from agreements to broker finished export products from inland areas, or to develop and source scarce raw materials from those areas. The Daqing Petroleum Administration, for example, has invested in Dalian to obtain glass. Similarly, Xinjiang, Gansu, Qinghai, Ningxia, and Shaanxi have opened their own dock at Lianyungang, while Beijing and Shanghai have developed zinc and tin mines in Yunnan.

Depending upon the particular industry, joint ventures can make use of these pre-existing relationships to facilitate sourcing raw materials and as potential distributional channels to faraway inland provinces.

Flexibility of the bureaucracy

The local bureaucracy will play an important part in whether a project can be satisfactorily negotiated and carried out. Within the Chinese context, this means the presence of "a critical mass" of influential local officials who are familiar with international business practice and/or are risk-takers.

Especially during this time of greater liberalization without well-defined guidelines, the tone a city sets early on may become an important precedent for future negotiations. Some local leaders will be bolder in allowing access to the domestic market, favorable technology transfer terms, even currency conversion schemes, while others will equivocate until the dust settles.

Experience has shown that progressive officials are invaluable in making a project work. They can put anxious factory-level negotiators at ease, create a better cooperative atmosphere, make resources more available, ease communications and travel blockages that often hold up negotiations, and set aside a host of other common, but unnecessary, obstacles to carrying out an agreement smoothly. Therefore, the presence of strong support from an entrepreneurial local bureaucracy may argue in favor of keeping the investment project small enough for local approval. One American high-technology company, satisfied with the commitment shown by the provincial governor, recently negotiated a joint venture within the record time of one week by keeping total capitalization below the provincial approval ceiling. The Chinese partner met all the US company's conditions and at the end of negotiations the local BOC branch even approved an additional $1.4 million in foreign exchange for the project.

Planning for long term success

Choosing the location for a project will depend on a variety of factors, including availability of a technically competent Chinese partner, regulatory incentives, and existing working relationships with Chinese organizations. The opening of 14 port cities and the increased autonomy of a number of inland cities have both improved and complicated the picture for investors. New tax and customs incentives, and the substantial existing infrastructure and industry in these cities offer advantages in a hitherto unavailable combination.

In weighing their relative merits, it is important to think beyond the negotiation phase to the basic long-term requirements of a project. Are labor, raw materials, transportation, and energy available in the quality and quantity necessary? Will the local officials take the action required to make the venture viable? And finally, do the available distribution channels allow for expansion into markets not historically assigned to your Chinese partner? As the practice of distribution along administrative lines recedes, these are the factors that will determine market share and success over the life of the venture. 完

Jeanne Chiang is assistant director of Business Advisory Services and manager of the Investment Program at the National Council. She joined the Council staff in 1980, and headed the Beijing office in 1982.

Dalian and Shenyang gain new authority

Windows on Liaoning Province

Preston M. Torbert

Liaoning Province boasts two of the 10 Chinese cities nationwide recently granted the same authority as provinces in economic affairs: Dalian and Shenyang. Dalian is also one of the 14 coastal cities recently opened to foreign trade investment. China's most important northern port, Dalian represents a combination of features likely to make it stand out among these former treaty ports. It offers potential traders and investors a natural, year-round ice-free harbor located on the southern tip of the Liaodong Peninsula. The major commercial city in Liaoning and China's second largest port in terms of cargo tonnage, Dalian is well known both for its heavy industry (locomotives and shipbuilding) and its scenery and resorts. Surprisingly, the city's five nonurban counties also make it a major producer of agricultural goods. To date, American businesses have lagged behind Japanese companies in taking advantage of the opportunities Liaoning presents. But the business liberalization policies announced by the Chinese government last spring are causing US firms to look more closely at the area.

The centerpiece of Dalian's new status is an economic and technical development zone located 33 kilometers northeast of Dalian at Maqiaozi. The zone faces the sea, surrounded by hills on three sides, and is located close to the Xingang harbor in Nianyu Bay, the largest deep-water petroleum harbor in China. The Maqiaozi zone will eventually have its own port at Dayao Bay, adjacent to Nianyu. Construction of the new harbor is expected to take about 15 years; when completed, it will have an annual cargo handling capacity of 40–50 million tons. Five berths are to be built in the first phase of construction.

Long-term plans call for the economic and technical zone to cover 20 square kilometers. As a first step, 3 sq km will be developed into what Dalian's Mayor Wei Fuhai calls "a comprehensive industrial zone, complete with an administrative center, public utilities, and other facilities." Initial work on infrastructure, including construction of roads, sewers, communications systems, and other public utilities began in August 1984 and plans call for completion by the end of 1985.

Dalian is also improving the infrastructure around the zone in several companion projects. These include the establishment of a 5 million ton coal terminal two km from Maqiaozi at Heshangdao, construction of a coal-fired thermal power station also at Heshangdao, improvement of the Shenyang–Dalian highway, and improved post and telecommunications facilities. Top priority telecommunications projects are a Shenyang–Dalian 960-channel microwave communications system and a 300-channel coaxial telephone cable project. The expansion of the airport begun last April will enable Boeing 747s to take off and land when completed by the end of this year.

Preston M. Torbert is a partner in the Chicago office of the international law firm Baker & McKenzie. He is a member of the Illinois–Liaoning Economic Council and visited Liaoning last summer at the invitation of the provincial government.

Training top managers for high-technology and service industries

One important problem facing Dalian and other newly opened coastal cities is China's shortage of experienced and talented technical personnel and managers. Dalian may enjoy an edge over other ports, however, owing to the presence in the city of the China National Training Center for Industrial, Scientific, and Technical Management. The center was set up five years ago as a joint project by China and the US Department of Commerce. A total of 750 Chinese industrial plant managers, scientific and managerial cadres, and teachers from advanced institutes have studied under experts from both countries since then. During his trip to China last April, President Reagan agreed with top Chinese officials to extend the protocol governing the Dalian management center for another five years and to expand its scope.

Dalian also can draw on other local educational and research resources. The city has 11 universities and colleges and more than 100 scientific research units. Two communications universities and two railway institutes recently established a joint development company to provide scientific consulting and technical services. Last June, Dalian sent about 150 technical and other personnel to a month-long conference in the older special economic zone of Shenzhen to learn from the experience there. These officials will participate in the

preparatory work for the Dalian zone and in its administration.

Strengthening Dalian's technical base will be critical since the city's Maqiaozi economic and technical development zone has targeted technology-intensive and pollution-free industries. Preferred sectors include many where American firms enjoy a comparative advantage over foreign rivals: microprocessing and software, precision machinery, precision instruments and meters, high-quality chemical products, textiles, and high-grade foodstuffs and beverages.

Dalian also hopes to attract foreign investment in the service industries. It has prepared a plan for development of the tourist industry that seeks foreign capital and technology in the city, its suburbs, and the surrounding area. Several projects, such as the renovation of the Nanshan Hotel, have already begun and other tourist resorts will open next year. A contract for the construction of a foreign tourist hotel was reportedly signed recently with Hong Kong investors.

Although the new zone policy emphasizes capital investment in the zone, Dalian is also making efforts to renovate its existing factories through licensing and imports of machinery and equipment. The State Council recently decided to allocate $100 million annually in foreign exchange starting this year to assist Dalian in purchasing foreign technology.

Shenyang raises its profile

Since Dalian is the gateway to prosperous Liaoning Province, the opening of the city should spur increased foreign interest in other areas of the province as well. The provincial capital of Shenyang has taken steps to ensure that it is not overlooked. Like Dalian, Shenyang is one of 10 Chinese cities with the same authority as provinces in economic management and reform. According to Vice-Mayor Wu Dixin, this enhanced decision-making power has already led to an expansion of business with foreign companies. He told the Shenyang Symposium on International Economic and Technical Cooperation in September 1984 that since last March the city had entered into 65 projects with foreign firms, valued at $36 million. The process appears to be gathering momentum: some 700

STATISTICAL PROFILES OF INVESTMENT AREAS

Compiled by Betsy Saik and Elizabeth Morrison

These briefs contain basic facts about the remaining nine coastal cities, three SEZs and Hainan Island, which have not been dealt with in the text of this issue. The following abbreviations should be noted: GVIO=gross value of industrial output; AHC=annual handling capacity.

COASTAL MUNICIPALITIES

QINHUANGDAO

Location. Northeast Hebei, near Bohai Sea

Area. 7,721 sq km (363.2 sq km urban); four districts and four counties

Population. 2.2 mil. (411,700 urban)

ECONOMY

Industry. *Key industries:* Food processing, glassmaking, building materials, electronics, textiles, machinery, and handicrafts.

GVIO: ¥890 mil. (1983)

No. of ind. employees: 109,000 (1983)

Agriculture. *Key crops:* Fruits, grain, nuts, herbs, timber, sweet potatoes, sesame, and aquatic produce.

Natural Resources. Coal, iron, lead, zinc, gold, silver, uranium, aluminium, graphite, and granite.

INFRASTRUCTURE

Port. Third largest port in China; ice- and silt-free; AHC: 36 mil. tons; 12 berths; ships at anchor four days on average; China's largest petroleum wharf and mechanized coal dock. *Plans:* Slated to be major outlet for Shanxi coal and Daqing oil bound for Japan; increase AHC to 100 mil. tons by 1992; expand six special-purpose berths; rebuild 5 mil. ton oil berth; Coal: two berths with annual capacity of 20 mil. tons will begin operation by end of 1984; building seven 10,000-ton berths with AHC of 60 mil. tons.

Rail. Volume of freight: 11.7 mil. tons (1983); linked with three rail lines; double-track, electric Beijing–Qinhuangdao railway, designed to carry 60 mil. tons of coal from Shanxi annually, will open 1985.

Roads. Volume of freight: 6.2 mil. tons (1983). *Plans:* Building Beijing–Qinhuangdao hwy.

Air. Converting suburban military airport into airfield with domestic and international service.

Water Supply. Laying pipeline to divert water from Qinglong River.

Power Supply. Electricity supplied by Beijing-Tianjin-Tangshan power grid; 25,000 kw power station in suburbs. *Plans:* 1.2 mil. kw thermoelectric station; 200,000 kw heat and power plant.

Communications. Planning 10,000-channel program control exchange system and telecommunications building.

FOREIGN INVESTMENT

Investment by 15 foreign and 63 domestic businesses from June–October 1984 reached ¥400 mil. *Priorities:* Glass, foodstuffs, textiles, and handicrafts.

Economic and Technical Development Zone

Location: Between Shanhaiguan and Qinhuangdao city.

Area: 10 sq km

Priorities: Electronics, meters, textiles, food processing, and handicrafts; introducing 76 industrial projects for foreign investment, 4 with investment of more than ¥100 mil., 6 farming and animal husbandry projects, and a coal-gas plant.

YANTAI

Location. Northeast Shandong

Area. 18,900 sq km (830 sq km urban); largest land area of the 14 coastal cities

Population. 8.1 mil. (684,500 urban)

ECONOMY

Industry. *Key industries:* Food processing, handicrafts, mechanical engineering, electronics, chemicals, textiles, metallurgy, coal, timber, wine, and building materials.

GVIO: ¥4.7 bil. (1983)

No. of ind. employees: 285,000 (1983)

Agriculture. *Key crops:* Rice, wheat, maize, peanuts, sweet potatoes, fruit, and aquatic produce.

Natural Resources. China's biggest gold producer; one of China's major molybdenum mines; copper, iron, zinc, coal, lead, graphite, and marble.

INFRASTRUCTURE

Port. Ice-free; AHC: 6.5 mil. tons; three 10,000-ton and six 5,000-ton berths. *Plans:* Increase AHC to 12–13 mil. tons by 1990 with three 25,000-ton and three 15,000-ton berths; build piling yards, stores, and feeder lines; dredge harbor and reclaim land for future development.

Rail. Volume of freight: 2.1 mil. tons (1983). *Plans:* Renovate Lanyan railway.

Roads. Volume of freight: 24 mil. tons (1983)

Air. Laishan airport, to open this

business people from more than 20 countries attended the conference. They signed 194 contracts with Shenyang officials involving $89 million for various projects and 31 other preliminary agreements.

Foreign companies have reason to be hopeful that this trend will continue. The Liaoning provincial government has recently granted Shenyang City the authority to approve foreign exchange expenditures of up to $5 million per project to import equipment for new joint ventures or compensation trade, coproduction, processing, assembling, or leasing arrangements. Shenyang may approve proposals to spend up to $1 million in foreign exchange to upgrade existing enterprises. One of China's most heavily industrialized cities, Shenyang offers excellent transportation links to potential investors. It is the hub of Liaoning's transportation network, with rail and road links to other important industrial cities throughout northern China.

Dominance of Japanese firms

Liaoning Province already conducts trade with more than 130 countries and regions around the world. Japan has been especially active in the province, drawing on close economic ties dating back to the colonial occupation of the territory from 1905 to 1945. Indeed, Japanese involvement in the province exceeds that of US firms by almost any measure. Liaoning's exports to Japan last year were almost five times the value of the province's exports to America. Between 1979 and 1983, foreign technology and equipment valued at $255.7 million was used for 644 different processing, assembly, compensation trade, joint venture, coproduction, leasing, and other transactions. Goods and technology from Japanese firms accounted for 32 percent of the total value, while that from American firms made up less than 2 percent. All but one of the 19 representative foreign business offices in Dalian have been set up by Japanese firms. Liaoning has a sister relationship with Japan's Toyama Prefecture and the Dalian Foreign Economic Relations and Trade Commission has an agreement with the Bank of Tokyo under which the bank provides advice on the city's development projects and technology transfer proposals.

Two Japanese companies have joint ventures with Liaoning enterprises, both in Shenyang. The Mitake Optical Company and the Shenyang Optical Electronic Intrument Factory jointly run the Shenyang Mitakon Optical Electronic Company. The Shenyang Youyuan Service Corporation is jointly run by Liaoning International Trust and Investment Corporation (LITIC), the Liaoning Friendship Hotel, and Japan's Tokoshoji Company.

Liaoning Province's two ventures outside China are also in Japan. One is the Lumingchun Restaurant in Sapporo, run by the Liaoning International Corporation of Economic and Technical Cooperation and the Shinkoshoji Company. The other is the Liaoning Company in Tokyo, run jointly by LITIC and Toko Bussan Ltd.

Gillette's leading edge

Despite the dominance of Japanese investment, US firms have established a toehold in Liaoning that is expected to grow. In fact, Liaoning's largest joint venture with a foreign party is with a US corporation. The Shenmei Daily-Use Products Company, a joint venture between the Shenyang Daily-Use Metal Industrial Corporation and the Gillette Corporation, began business in May 1983 and has a term of 20 years. The total investment is $28 million and annual production is projected at 50 million "Rhinoceros" brand razor blades (30 percent for export) and 4 million razors (70 percent for export). The joint venture calls for Gillette to train Chinese personnel in the United States and at a subsidiary of the US firm in the Philippines. Four expatriates from Gillette are based in Shenyang at the joint venture company.

Last April another preliminary contract for a substantial joint venture was signed by two US corporations in Dalian. The American Conserving Company of Seattle, Washington, and Western Sales and Services of Fort Worth, Texas, signed an agreement with the Dalian Canning Factory and the Dalian branch of the Bank of China to build an apple concentrate plant by the fall of next year. The Chinese and American sides will each contribute about $2.5 million to set up an enterprise to produce 666,000 gallons of concentrate for export annually. The new enterprise hopes to capitalize on the fact that Dalian's nonurban counties produce almost 15 percent of China's total apple harvest. Another active US company is the Pratt and Whitney Machine Tool Division of Colt Industries, which successfully transferred technology for the manufacture of a computerized digital control lathe to the Shenyang No. 3 Machine Tool Plant in an agreement signed last June.

American organizational links to Dalian and Liaoning are also growing. Illinois has a sister relationship with Liaoning and will open an ex-

Photo courtesy of New China Pictures Co.

Container cranes at work on a pier in Dalian harbor.

port promotion office in Shenyang late this year or early next year. Liaoning's Governor Quan Shuren visited the Illinois State Fair last August and Illinois Governor James Thompson plans a visit to the Chinese province next March. The contacts have helped Illinois companies sell steel industry equipment, petrochemicals, livestock breeding technology, and other goods and know-how to China. Shenyang is the site of the newest US Consulate in China, which opened last May.

Liaoning has a population of 36 million and covers an area almost the size of Illinois and Indiana combined. The province ranked third in the nation in total industrial output and first in heavy industry in 1983. Among the province's most important heavy industrial sectors are metallurgy, machine building, and petrochemicals. Liaoning's light industry centers on textiles. Much of the province's industry is located in a vast complex extending inland from Dalian through Anshan, an iron and steel center, and on to Shenyang. Its rail network, based on the South Manchurian Railroad built by the Japanese, is among the most extensive in China. An important recent improvement to the system was the completion of a large rail marshalling yard linking four busy rail lines in Shenyang.

Liaoning's reserves of iron ore, borax, bentonite, and talc are the largest in China and it also has considerable reserves of manganese, molybdenum, and other minerals. The province has ample sources of energy, including coal production and oil shale deposits of some 3 billion tons. Crude oil production reached 6.3 million tons in 1983 and a newly discovered oil field in Liaohe appears to have significant potential reserves.

In short, the new Dalian economic and technical development zone, together with other cities in Liaoning Province, offers good opportunities for US companies interested in investing in a highly industrialized part of China with abundant natural resources and a well-developed transportation network. With the province actively soliciting foreign participation in its development, and offering new investment incentives, it will be surprising if many firms do not capitalize on the opportunity. 完

(Yantai cont.)

year, will accommodate large planes.

Power Supply. Longkou Power Plant, with two 100,000 kw generators, will be completed in 1984.

Communications. Planning telecommunications center, microwave communications, ground satellite station, and 10,000-channel automatic switchboard.

FOREIGN TRADE

Exports. 415 commodities including shoes, peanuts, silk, wine, and leather; 22% of Shandong's total exports.

FOREIGN INVESTMENT

1978–1983 had 182 projects with foreign investment of $21 mil.; by end of August 1984, 69 projects with foreign investment of $37 mil. approved. *Plans:* Over next five years renovating 81 small and medium-sized enterprises including electronics, clocks, textiles, machinery, wine, beer, food processing, machinery, building materials, chemicals, and tourism at foreign investment of ¥233 mil.

Economic And Technical Development Zone. Fulaishan

Location: Western Yantai

Area: 20 sq km

Priorities: Tourism and processing; 34 enterprises planned including textiles, electronics, chemicals, meters, building materials, and food processing, with estimated total investment of ¥741 mil. (49% from foreign investors).

LIANYUNGANG

Location. Northern Jiangsu

Area. 6,265 sq km (850 sq km urban); 3 counties

Population. 2.2 mil. (430,000 urban)

ECONOMY

Industry. *Key industries:* Chemicals, energy, construction materials, phosphorus, salt, soda ash, fishing, aquatic and general food processing.

GVIO: ¥1.3 bil. (1983)

No. of ind. employees: 122,000 (1983)

Agriculture. *Key crops:* Cotton, peanuts, soybeans, rice, wheat, maize, fruit, chestnuts, animal husbandry, and aquatic produce.

Natural Resoures. Sizable salt and phosphorus deposits; 40 kinds of minerals including gold, silver, copper, iron, basalt, serpentine, crystal, quartz, sand, and marble.

INFRASTRUCTURE

Port. Ice- and silt-free; AHC: 8.7 mil. tons (1983); 9 berths, 5 of which handle 10,000-ton ships. *Plans:* 1985–1987: Increase AHC to 18 mil. tons with additions of two coal wharves with 35,000-ton berths by end of 1985 and 4–6 10,000-ton berths by 1986. 1987–1990: Increase AHC to 25 mil. tons with addition of 11 berths by 1990, including six 10,000 berths.

Rail. Volume of freight: 4.6 mil. tons (1983); eastern terminal of Longhai Railway (the major trunk line linking east and west China). *Plans:* double-tracking eastern portion of Lianyungang–Lanzhou railway.

Roads. Volume of freight: 5.5 mil. tons (1983)

Air. Building civil airport at nearby military airfield by March 1985.

Water Supply. Provided by Hongze Lake and Yangtze River; 10 reservoirs.

Power Supply. Coal mines along Longhai Railway; offshore oil development in Yellow Sea. *Plans:* Expand Xinhai Power Plant near Shanghai; build two 200,000 kw plants.

Communications. Installing 10,000 circuit telephone switches.

FOREIGN INVESTMENT

45 projects since 1979 involving foreign investment. *Plans:* channeling foreign investment of $95 mil. to 91 projects in four areas: advanced processes utilizing phosphorous, silicon, and salt resources; fisheries and food processing; paper products; and glass and building materials; by 1990 plans to complete 187 projects and foreign investment is expected to reach $370 mil.

Economic And Technical Development Zone. Zhongyuntai

Location: Yuntai district, 11 km from harbor, 20 km from city center; adjacent to zone will be domestic economic zone for other provinces to establish offices; eventually will develop 6 sq km Liandao island.

Area: 30 sq km

Priorities: Textiles, electronics, machinery, food processing, and tourism.

NANTONG

Location. Southeast Jiangsu; part of Greater Shanghai Economic Zone

Area. 8,000 sq km (120 sq km urban); 6 counties

Population. 7.4 mil. (220,000 urban)

ECONOMY

Industry. *Key industries:* Textiles, machinery, food processing, ship building, power generation, electronics, chemicals, pharmaceuticals, and construction materials.

GVIO: ¥6 bil. (1983)

No. of ind. employees: 306,000 (1983)

Agriculture. *Key crops:* Cotton, silk, jute, peppermint, spearmint, goat skin, and aquatic produce.

INFRASTRUCTURE

Port. Ice- and silt-free; AHC: 3 mil. tons; accommodates ships up to 50,000 tons; nine wharves and 11 berths can handle total of 24 ships for loading and unloading. *Plans:* Additions include 9 floats with AHC equal to 10–25,000 ton berths, two container wharves, and three 10,000

Off to a late but promising start

Tianjin

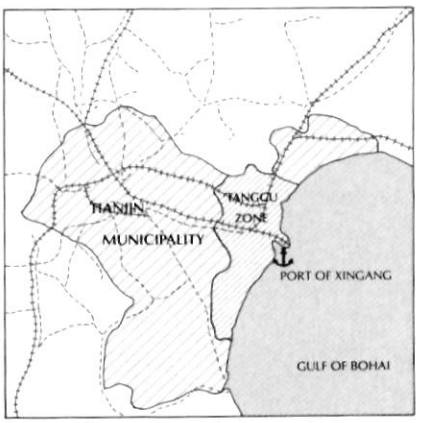
Susan Brinn Siegel

Frequently bypassed by foreign firms in search of investment and trade opportunities, Tianjin has spent the past few years quietly preparing to assume its proper role in China's technical transformation. In the past, Tianjin lacked the glamour of Shanghai, the energy of Guangzhou, and the political importance of nearby Beijing. While competition for international business heated up among these and other major Chinese cities, Tianjin was battling to recover from devastation brought on by the 1976 earthquake and subsequent years of drought.

These problems are now being overcome, however, and foreign investment is booming. Former skeptics now speak with anticipation about Tianjin's prospects as new plans are revealed and contracts signed. In the past year, foreign investment in the city increased from a negligible level of $20 million to $600 million, and the number of joint venture contracts more than doubled to at least 31. The local branch of the Bank of China aggressively increased the level of foreign exchange loans to local enterprises. And there has been a surge in both the number of international conferences and the number of Chinese working delegations sent abroad.

The municipality plans extensive infrastructural development, including new hotels, conference facilities, a phone system, thermal power plants, roads and a major highway. The Xingang Harbor and surrounding Tanggu District have become the focus of expansive development plans and foreign parties are being encouraged to participate in the establishment of an economic and technical development zone.

More than 20 foreign offices have been set up in Tianjin, mostly by Japanese companies. Officials confirm at least several dozen joint venture or licensing agreements, three compensation trade arrangements, and 12 overseas ventures by Tianjin corporations.



Investment agreements cover steel pipes to sport shoes

Hong Kong and Japan have provided Tianjin with most of its investment partners to date, although the US, France, West Germany, and Norway have also participated. Projects include the construction of hotel and convention facilities, geophysical and seismic exploration, and the manufacture of a wide range of products, including steel pipe, wine, slide projectors, photometers, canned mushrooms, carpets, pharmaceuticals, cosmetics, and synthetic fibers. Ventures have also been formed for the provision of printing services, taxi services, prawn breeding, elevator sales and service, and coal gasification. Foreign equity shares reportedly range from 33 percent to 50 percent, with contract durations from 5 to 30 years.

Tianjin's progress has been slower in the area of licensing. Of the 18 licensing agreements reported in the press since 1980, the Tianjin Commission of Foreign Economic Relations and Trade has confirmed signing only seven contracts, and even fewer are actually operating. Licensing agreements include technology for dyeing and finishing cloth, the manufacture of plastic medical equipment, microcomputers, valve actuators, aeromatics extraction, and the akylation of gasoline. The three compensation trade arrangements confirmed by Tianjin officials cover the production of leather products, sport shoes, and cement. The municipality's overseas ventures are concentrated in the areas of trade promotion and restaurants.

Younger leaders implement more flexible policies

Structural reform of Tianjin's industrial leadership started at the bureau level four years ago, and in keeping with national trends, Tianjin's leaders are younger, better educated, and more experienced in economic affairs. Foreign businessmen welcome the accessibility of Tianjin's key decision-makers, notably Li Lanqing, 52, the newly appointed vice-mayor. Li came to Tianjin directly from the Ministry of Foreign Economic Relations and Trade in Beijing, where he was in charge of investment. Looking to the future, the city has recently established the Tianjin Foreign Trade Institute to train a new generation of commercial leaders.

Tianjin's new leaders acknowledge that much of the city's production equipment is obsolete: 41 percent of it is over 10 years old. Accordingly, they have earmarked funds to import machinery and technology for priority manufacturing sectors and key export-producing industries. In the first quarter of 1984, the Bank of China granted foreign exchange loans totaling $36 million to local enterprises for technical transformation, an eightfold increase over the same period in 1983. The bank has also granted increased authority to its local branches in approving foreign currency loans. The Tianjin branch may approve such loans up to $10 million for joint venture projects and up to $3 million to finance investment and leasing projects. The

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Susan Brinn Siegel was a frequent visitor to Tianjin from 1980–1983. Working for the Philadelphia National Bank, she played an active role in the establishment of the sister city relationship between Tianjin and Philadelphia. She is now a consultant with ICF, Incorporated, in Washington, DC.

Tianjin branch has announced plans to enter into lease transactions with foreign suppliers and to extend export credits to overseas buyers of Tianjin's equipment, machinery, and electronics. To encourage direct investment, the Bank of China will grant loans to joint ventures at domestic borrowing rates.

Industrial development priorities

The strategic importance of Tianjin is dictated by its coastal location at the hub of key trade and transportation routes. The city's industrial development dates back 120 years to its days as a treaty port. Although ranked third among China's cities in industrial production prior to 1949, the city fell behind other major centers over the proceeding three decades, due to what Tianjin's new leaders claim was an overemphasis on heavy industry. Over the past four years, city leaders have tried to redress this imbalance by emphasizing light industry and instituting new industrial policies that promote economic efficiency and self-management. Development plans are now aimed at emerging high-growth industries and those sectors where Tianjin has a natural resource advantage or existing industrial expertise. The city will build on its strong foundation in chemicals and pharmaceuticals by expanding the marine chemical and petrochemical industries. Priority will also be given to textiles and garments, metallurgy, medical technology, food processing, machine building, and electronics.

The electronics industry is among the highest priority sectors in the city's plan. Although Tianjin built China's first computer in 1959, the city is far from its goal of becoming China's Silicon Valley. Only seven of the city's more than 30 electronics factories manufacture semiconductors or computers. But increased cooperation with foreign firms is being aggressively sought in these technologies and at least two American firms are already working with Tianjin in this area. Gould Inc. has licensed production of its industrial computers to a local plant, while Data General has a marketing agreement with the city. The city will also seek foreign partners for manufacture of communications devices, meters, measuring and testing instruments, electronic components, and integrated circuits.

(Nantong cont.)

berths with combined AHC of 15 mil. tons by 1990; 17 transshipment berths, and 6 operational areas.

Roads. Volume of freight: 2.5 mil. tons (1983); Now building a ferry across Yangtze River from Nantong to Shazhou County.

Communications. *Plans:* More telex lines; automatic exchange telephone service from Nantong to Shanghai and Nanjing; telecommunications building for 10,000-line telephone exchange and 400 trunklines.

Other. Starting hovercraft and hydrofoil services to Shanghai to cut traveling time in half.

FOREIGN TRADE

Exports. Doubled volume of exports between 1980 and 1983 to reach ¥720 mil.

FOREIGN INVESTMENT

From 1979 through first half of 1984 approved 115 projects utilizing foreign capital, of which 57 have been completed; in August 1984 introduced 100 projects for foreign investment with total value over $70,000 primarily in light industrial areas such as textiles and electronics. *Priorities:* Textiles, machine building, electronics, food processing, chemicals, pharmaceuticals, building materials, and shipbuilding; minicomputer and biological engineering industries will be developed "at an opportune time"; promoting scientific research.

Economic And Technical Development Zone. Fuming

Location: 11 km southeast of city
Area: 10 sq km
Priorities: Proposed 85 projects for foreign investors in seven industries: textiles, electronics, machine-building, chemicals, medicine, food processing, and building materials.

SHANGHAI

Location. Between Zhejiang and Jiangsu Provinces

Area. 6,100 sq km

Population. 11.9 mil. (6.4 mil. urban)

ECONOMY

Industry. *Key industries:* Shipbuilding, metallurgy, electric equipment, textiles, machine building, chemicals, automobiles, and electronics.
GVIO: ¥67.8 bil. (1983)
No. of ind. employees: 2.6 mil.

Agriculture. *Key crops:* Grain, cotton, and rapeseed

INFRASTRUCTURE

Port. Largest in China, handling 90 mil. tons of cargo per year (one-third of the China's international cargo); 97 berths, including 48 deep-water berths capable of handling over 10,000 tons. *Plans:* Increase AHC to more than 100 mil. tons by end of 1985. Complete expansion and renovation of harbor by 1991. Includes constructing China's largest container wharf with AHC of 200,000 standard containers (to be completed October 1985) and rebuilding two coal terminals to increase their AHC from 4.6 mil. to 8.5 mil. tons.

Rail. Volume of freight: 12.9 mil. tons (1983). *Plans:* New passenger rail station by 1987; north–south 130 km railway; 13.5 km subway through urban Shanghai by 1990.

Roads. Volume of freight: 83.4 mil. tons (1983). *Plans:* Building three expressways—one 15.8 km to Jiading, one 19.6 km to Songjiang, and one 44 km to Qingpu.

Air. New international terminal at Hongqiao Airport, with capacity of more than 900 passengers per hour, began trial operation in September. *Plans:* Construction of new hangar, runway, loading area, control tower, warehouses with automatic facilities, and auxiliary facilities; increase annual capacity from 500,000 passengers to more than 5 mil.

Power Supply. Minhang Power Plant has adequate power for development zone; six substations added in 1984. *Plans:* Nuclear power plant at Taishan; conventional power station at Shidongkou; new generating units; and 500,000-volt direct power transmission line from Gezhouba to Shanghai.

Water Supply. *Plans:* Plant to treat 75,000 tons of waste daily; project providing tap water to 30,000 households; new Minhang Water Works.

Communications. Increasing no. of telephones from 130,000 to 500,000.

FOREIGN TRADE

Exports. ¥3.7 bil. (1983); volume accounts for 17% of China's total; 75% of exported commodities are industrial products.

Imports. $492 mil. (1983); includes chemicals, metal products, machinery, electronics technology, timber, consumer goods, transportation, energy equipment, and basic and new materials.

FOREIGN INVESTMENT

In 1983 signed 250 contracts valued at $216 mil.; as of September 1984, 17 joint ventures and 18 cooperative enterprises were established with foreign investment of $104 mil. and $269 mil. respectively; planning 862 technology transfer projects for 1984 and 1985 involving approximately $1 bil.

Priorities: Microelectronics, new materials, fiber optics, lasers, genetic engineering, robotics, marine engineering, cars, shipbuilding, aircraft, telecommunications, petrochemicals, and finance.

Economic and Technical Development Zones. Minhang and Hongqiao (Minhang is an industrial zone and

The director of the Tianjin Commission of Foreign Economic Relations and Trade, Hou Yigang, has cited the city's six key electronics projects:

▶ Importing a microcomputer production line;

▶ Importing microcomputer technology and equipment for the Tianjin Computer Plant;

▶ A joint venture or compensation trade arrangement to procure applied programming software for 16-bit computers and to develop hardware for 32-bit computers;

▶ Importing sample microprocessors and their key parts for the Tianjin Computer Plant for the production of 500 computers annually;

▶ Importing a linear circuit production line to boost the production of power amplifying circuits at the Tianjin Semiconductor Elements Factory; and

▶ Importing an external equipment production line and generator room production line.

Tianjin's extensive energy resources will aid its industrial progress. Large reserves of coal located in the municipality have provided power for Tianjin's industrial sector and the city is situated near the Dagang oil field and petroleum exploration sites in the Gulf of Bohai. Oil from the Renqui field in Hebei Province is piped directly to Tianjin, and the city also has access to generous supplies of natural gas, ores, salt, and building materials.

Improved port and hotel facilities

Development of Tianjin's port of Xingang and the surrounding Tanggu District has been designated a key national construction project. In May of 1984, the harbor was placed under dual national and local leadership, with the Tianjin government assuming the main responsibility for implementation of the project. Tanggu boasts China's first container dock, built in 1981 and construction is underway for a new three-berth container facility scheduled for completion in 1985. The port has an annual cargo handling capacity of 14 million tons, ranking fifth in China. The port now has 27 berths, including specialized facilities to accommodate grain and salt shipments as well as passenger ships. Plans call for doubling the number of berths in the next few years. In preparation for the planned industrial processing zone in Tanggu, efforts are underway to deepen the harbor, improve telecommunications facilities, widen roads to the harbor, and expand rail connections and facilities.

The value of goods exported through Xingang in 1983 was nearly $1.4 billion or 7 percent of China's total exports. About half the goods were produced in Tianjin, representing less than 10 percent of the municipality's gross industrial output. The major commodities exported through the port are textiles and other light industrial products, minerals and metals, chemicals, electronics, and agricultural products.

The Tanggu area will also become a popular place to stay in Tianjin, which is rapidly expanding the number and quality of its accommodations. Tanggu is the site of the new Bohai Hotel and the planned Beifang Hotel. The Crystal Palace and Jindong Hotels are being built closer to the city center. Meanwhile, the best existing hotels in the city include the Tianjin Grand, Tianjin Garden, and Tianjin Friendship hotels.

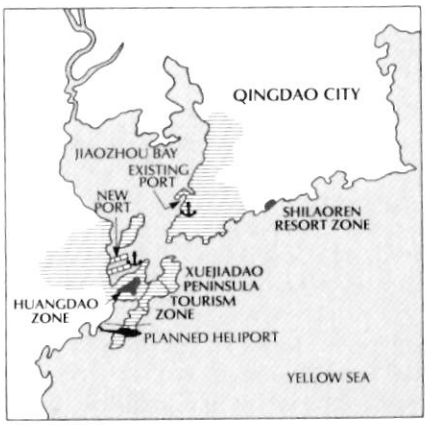
In concert with this major hotel construction, Tianjin plans to expand its conference facilities, and will cooperate with foreign investors to construct an International Trade Center and a Science and Technology Trade Exhibition Center. A new trading center for chemical products recently opened, featuring a laboratory test center and information center to provide technical and consulting services. Heartened by the success of locally held conferences and mini-fairs, Tianjin has announced plans to sponsor more trade shows in the coming years. Participation at such gatherings will be one important barometer of foreign business' estimation of Tianjin's development prospects. 完

More than just beer

Qingdao

Liliana B. Monk

In the minds of many China travelers, Qingdao evokes images of a picturesque summer resort, world famous beer, and the mineral waters from nearby Mount Laoshan. But if Qingdao's economic planners have their way, by the turn of the century the municipality will also be known for its international conference center, Hollywood-like movie studio, port facilities to rival those of Shanghai and Tianjin, and an economic and technical zone for industrial development.



The Chinese government announced last April that Qingdao would be among the 14 coastal cities slated for rapid economic development and expanded foreign involvement. Qingdao's planners believe that the municipality's location, temperate climate, expanding port facilities, abundant natural resources, and advanced industries will attract foreign investment to the city.

Liliana B. Monk is an economist at the US Department of Commerce in the Office of the PRC and Hong Kong. She served last August at the US pavilion at GEOEXPO, a multinational geological equipment show in Beijing, and later traveled to Qingdao.

Known mainly as a summer resort, Qingdao is also a key industrial city on the coast of Shandong Province. Last year, the municipality's foreign trade totaled ¥5.6 billion (almost $2.5 billion), and Qingdao attracted more than $30 million in foreign investment during the first half of this year. Its port ranks fourth in the country, handling up to 22 million tons of cargo annually. Although beer is its most famous export, Qingdao also exports a large variety of industrial products, including soda ash and knitted sportswear. The city is also a major exporter of agricultural and aquatic products such as peanuts and peanut oil, cotton, fruit, wine, prawns, and fish.

Qingdao's economic planners have formulated an ambitious but seemingly achievable phased development strategy with three main features. The city plans to capitalize on the region's natural beauty by expanding tourism; it will establish an economic and technical zone to woo foreign investment in Huangdao district; and it will import advanced technology to upgrade existing industrial enterprises.

Tourism expansion: Xuejiadao and Shilaoren

Given its magnificent scenery, beaches, and pleasant climate, it is no wonder that tourism expansion is one of Qingdao's top priorities. Officials have drawn up detailed plans for two areas set aside exclusively for tourism: Xuejiadao Peninsula and Shilaoren.

Located three kilometers from the Huangdao economic and technical zone, Xuejiadao has a total area of 21 square kilometers. For planning purposes, Qingdao officials have divided the peninsula into three distinct geographic areas. The northern portion has an area of 4.8 sq km and is 170 meters above sea level. A tree-lined park with small pavilions will be built in this section. The central part of Xuejiadao Peninsula is flat with a beach three kilometers long and 300 meters wide facing the bay. Qingdao officials boast that this beach, with its unusually fine sand, is far superior to other Asian beaches, and perhaps even to Hawaii's! Hotels and a trade center will be built at Shique Wan, an area below the beach. The development envisioned for the southern part of the peninsula will be primarily residences for tourists and Chinese

(Shanghai cont.)
Hongqiao an administrative, residential, and recreational area)

Location: Minhang: 30 km sw of the city center; accessible by 3,000-ton vessels, larger ships can use facilities of Shanghai port. Hongqiao: Near airport in Shanghai's western suburbs.

Area: Minhang: 2.1 sq km; Hongqiao: .7 sq km

Priorities: Minhang: Heavy machinery, power plant equipment, water pumps, roller bearings, electrical tools, and prefabricated construction materials. Future development will emphasize chemicals, machine tools, pharmaceuticals, textiles, electronics, building materials, and processed foods. Hongqiao: residences, offices, and recreational area for expatriates.

Development: Minhang: Built four-lane road, public works, power plant, water works, sewage treatment plant, and telephone exchange branch; adequate supplies of water, electricity, and gas; land available for construction of factories; zone can accommodate more than 100 enterprises. Hongqiao: Constructing office buildings, hotels, apartment complexes, and recreational facilities.

NINGBO

Location. Zhejiang on coast of East China Sea.

Area. 9,397 sq km. (403 sq urban); four urban districts and seven counties.

Population. 4.8 mil. (600,000 urban)

ECONOMY

Industry. *Key industries:* Textiles, engineering, petrochemicals, power, aquatic and general food processing, steel, electronics, instruments, medicine, chemicals, pesticides, fertilizer, metals, building materials, shipbuilding, and handicrafts.

GVIO: ¥5.4 bil. (1983);

No. of ind. employees: 284,000 (1983)

Agriculture. *Key crops:* Grain, cotton, rice, barley, beans, grapeseeds, bamboo, tea, and fruits.

INFRASTRUCTURE

Port. Silt- and ice-free, sheltered; AHC: 26.7 mil. tons; third largest Chinese port for passenger transport; large transport and storage areas for goods; depth: 20–100 meters; three harbors—old Ningbo, Zhenhai, and Beilun. Old Ningbo accommodates ships up to 3,000 tons. Zhenhai has one berth capable of handling 10,000-ton ships and one for 3,000-ton ships. Beilun has one of China's largest ore transshipment facilities. Beilun's facilities include one 100,000-ton wharf, two 25,000-ton wharfs, a 50,000-ton oil terminal, unloading and loading capacities of 2,100–4,200 tons per hr, and a radar navigation system.

Plans: Building 30,000 container wharf, adding 15 berths to Zhenhai, including three 10,000-ton and two 3,000-ton berths; may add 30 more berths capable of accommodating up to 100,000-ton class ships with AHC exceeding 100 mil. tons.

Rail. Volume of freight: 2.2 mil. tons (1983); terminal of Xiaoyun line links the rail network through Zhegan and Huhang lines; Ningbo–Xiaoshan railway links with Shanghai–Hangzhou and Zhejiang–Jiangxi lines; daily passenger train links Ningbo, Hangzhou, and Shanghai; special line from Ningbo to Zhenhai port. *Plans:* 38-km spur from Ningbo to Beilun Harbor scheduled by 1985; new railway station near North station under construction; river tunnel linking three harbors; 15 cargo-stacking areas are being extended to increase transport capacity by 30%.

Roads. Volume of freight: 8.1 mil. tons (1983); road system is 2,867 km.; Ningci hwy. leads to Shaoxing and Hangzhou Provinces and the Yinfeng hwy. to Wenzhou and Fujian Provinces.

Air. Upgrading military airport to international airport status.

Power Supply. Zhenhai Power Plant supplies 1.05 mil. kw per year. *Plans:* Adding 400,000 kw generating capacity to plant; building new plant with 2.4 mil. kw capacity.

Communications. *Plans:* 960-line microwave telecommunications system; 10,000-line automatic exchange; international automatic telephone service; modern telecommunications building; satellite ground receiving station.

FOREIGN TRADE

Exports. 1983 imports and exports accounted for approximately 50% of Zhejiang's total at value of $150 mil.; 305 enterprises produce export commodities. *Products:* Water meters, diesel generator sets, brass gate valves, cotton cloth, yarn tubes, textiles, chemicals, metals, tools, matches, fruits, knitted wear, naphtha, aquatic produce, hand woven and embroidered goods, geese, and honey.

FOREIGN INVESTMENT

360 contracts for processing imported material (42 valued at $2.4 mil. during first seven months of 1984 and 17 contracts or tentative agreements on joint ventures signed since 1980. *Priorities:* Engineering, food and oil processing, garments, fine aluminum products, household appliances, and handicrafts.

Economic and Technical Development Zone. Beilun

Location: Beilun harbor, 20–25 km northeast of Ningbo

Area: 10 sq km

Priorities: Handicrafts, tourism,

and foreign staff workers from the nearby Huangdao economic and technical zone. This area will contain guest houses, villas, and bungalows, as well as facilities for golfing and fishing. An underground aquarium is also being considered. A ferry service will eventually transport tourists from Xuejiadao to Zhuchadao, a small island where seafood restaurants will be built.

The second area earmarked exclusively for tourism is Shilaoren, or "Old Stone Man." Located between the old city of Qingdao and Zhanshan Park, this section has a total area of three sq km and, like Xuejiadao, its secluded environment, beautiful scenery, and wide sandy beaches make it ideal for tourism. Shilaoren's development will be accomplished in stages. By 1990, the city plans to develop one sq km that will hold an international conference center (one of eight to be built in China), a hotel, guest houses, commercial center, recreational park, and golf course. One unique feature will be a special television and movie studio to be built at Shilaoren. According to Qingdao officials, a small village in the area and some of Shilaoren's old streets will be left intact for film sets. A set of the city of Beijing will also be built for cinematic purposes.

Turning plans into reality will be challenging, however, because of some basic transport problems. For example, Xuejiadao cannot contemplate a mass infusion of tourists until it improves access from the old city of Qingdao. The city itself will need to upgrade its present small and rather primitive airport and expand its airline service. At present, even Boeing 707 jets are unable to take off or land at the airport. City officials have held talks with the Civil Aviation Administration of China (CAAC) on bringing the airport up to international standards. However, they admit the talks have not gone very well, a fact that may be partly due to Qingdao's lack of experience negotiating with CAAC, as well as CAAC's own ongoing internal reorganization. As an interim measure, the city plans to inaugurate helicopter service from Qingdao's airport to a small landing site near Xuejiadao.

photo by John M. Pisani

A Qingdao-based freighter lines up at the port's special grain berth.

photo courtesy of New China Pictures Co.

New apartments rise above an old street in the Xiqingdao district of Tianjin.

The Huangdao zone: a phased approach

The city's second priority is establishment of a 15 sq km economic and technical development zone in Huangdao district. Huangdao was chosen for its flat terrain, temperate climate, and relatively low population density (83,000 people in an area of 153 sq km as compared with Qingdao's 1.1 million residents in 92 sq km). The district is located on the west side of Jiaozhou Bay, separated by only 2.26 nautical miles from the old city of Qingdao. The city seems willing to develop the Huangdao zone gradually, taking into account expected population growth, energy resources, and existing infrastructure. During the first construction phase, from 1984–1990, four sq km of the zone will be developed to support a population of 40,000. In the second phase, 1990–1995, another four sq km will be developed and the zone's population is expected to reach 70,000. By the targeted completion date of 2000, the Huangdao zone population should reach 100,000. Earlier blueprints of the zone included an additional 10 sq km, but plans for this area's development were later scrapped, an apparent sign of realism on the part of Qingdao's planners.

Again, the most challenging task for Huangdao will be the improvement of transportation facilities. Plans are to build a rail line around the bay to connect Jiaoxian, Qingdao's present railroad station, with Huangdao's two existing minor stations. A 30 meter-wide highway will be constructed parallel to the rail line. Two ferry lines will also be added next year to facilitate traffic between Qingdao City and the Huangdao zone. The Chinese government has already approved the expansion of Qingdao's port facilities, and a new six-berth harbor is to be built at Huangdao by 1989, with an annual cargo handling capacity of 17.4 million tons. By the year 2000 the new harbor's cargo handling facilities will be increased by another 23 million tons. Combined with the old harbor, which now has a capacity of 12 million tons, and the Huangdao oil harbor's 10 million tons, Qingdao's total port capacity should reach 62.4 mil-

lion tons by 2000.

The same phased approach will be applied to expanding Huangdao's energy facilities. A power station now providing 250,000 kw will add another 400,000 kw of installed capacity before 1990. By 1995, the city plans to add yet another 400,000 kw of capacity

The Huangdao zone will eventually be able to accommodate more than 400 enterprises. Qingdao planners especially hope to attract investment in the fields of electronics, measuring instruments, textiles, food processing, and other light industries. Plans are to sign agreements for at least 45 such projects by 1990.

200 projects to upgrade existing enterprises

Qingdao's short-term investment opportunities may well focus on raising the level of technology in existing factories. Of the city's 1,880 enterprises, 440 have been selected for upgrading, and 200 of these seek foreign assistance. To begin with, Qingdao selected 140 plants for upgrading in the areas of electronics, measuring instruments, textiles and other light industrial products, rubber, chemicals, machinery, and construction materials. City officials claim that so far this year, investors have been found and contracts signed for fully one-third of these 140 projects. Following the lead of many other Chinese cities, Qingdao officials emphasize that priority will be given to foreign partners willing to provide advanced technology as well as sell equipment.

By July 1984, Qingdao had signed 50 contracts, worth $30 million. Japanese firms signed 27 of the contracts, accounting for 56 percent of the total value of investment. West German firms followed with 26 percent, while the US was the third largest investor with a little more than 6 percent. Contracts include a project with a Finnish firm to produce 30,000 cubic meters of plywood and an agreement with a Hong Kong company to produce dry wine. Hong Kong firms are also investing in hotel construction in the city. Along with such new projects, however, Qingdao will not neglect its most famous product: Hong Kong firms will invest in the Qingdao No. 2 Brewery that plans to match the annual 100,000-ton output of the city's No. 1 Brewery. 完

(Ningbo cont.)
clothing, chemicals, petrochemicals, cargo transportation, service industries, electronics, and meters.

FUZHOU

Location. Fujian

Area. 12,000 sq km. (44 sq km urban); 5 districts and eight counties

Population. 4.7 mil. (650,000 urban)

ECONOMY

Industry. *Key industries:* Metallurgy, machinery, electronics, chemicals, textiles, pharmaceuticals, plastics, aquatic and general food processing, and handicrafts.

GVIO: ¥2.6 bil. (1983)

No. of ind. employees: 274,000 (1983)

Agriculture. Fruit, sugarcane, tea, peanuts, jute, vegetables, and aquatic produce.

Natural Resources. Clay, granite, pyrophyllite, and kaolin.

INFRASTRUCTURE

Port. Volume of cargo handled: 1.5 mil. tons (1983); two 10,000-ton and two 5,000-ton berths.

Rail. Volume of freight: 1.3 mil. tons (1983); Waiyang–Fuzhou railroad links to national railway network.

Road. Volume of freight: 3.8 mil. tons (1983). *Plans:* Building modern hwy. from Fuzhou to Mawei port.

Air. Airport accommodates Trident and Boeing 707s and will be expanded to handle Boeing 737s.

Water Supply. Seven waterworks with capacity of supplying 250,000 tons per day.

Communications. 10,000 line program-controlled switching system with international telephone and telegram capability.

FOREIGN TRADE

Exports. Building stone, grain, sugar, tea, handicrafts, various light industrial goods, and small motors.

FOREIGN INVESTMENT

Economic And Technical Development Zone. Mawei

Location: Mawei port area, 20 km from city proper; will develop lower reaches of Minjiang River.

Area: 2 sq km

Priorities: Tourism, machinery, meters and instruments, food processing, glass-making, and ship building.

ZHANJIANG

Location. Guangdong 500 km from Guangzhou on Leizhou Peninsula

Area. 12,471 sq km (1,460 sq km urban); 5 counties and 1 district

Population. 4.6 mil. (878,400 urban)

ECONOMY

Industry. *Key industries:* Oil (support base for offshore operations in South China Sea), plastics, cigarettes, textiles, electronics, food processing, machinery, building materials, paper, chemicals, power, fertilizer, shipbuilding, power, fishing, forestry, salt, and leather.

GVIO: ¥1 bil. (1983)

Agriculture. *Key crops:* Sugar cane, rice, rubber, jute, tea, sweet potatoes, aquatic produce, animal husbandry, fruit, sisal, and pepper; *Cultivated land:* 400,000 hectares.

Natural Resources. Coal, oil, and phosphorous

INFRASTRUCTURE

Port. AHC: 11 mil. tons; 15 berths including nine 10,000-ton berths and one 50,000-ton oil berth; coal and mineral ore terminal with annual capacity to transfer 2 mil. tons of coal and 3 mil. tons of phosphorous. *Plans:* Increase AHC to 20 mil. tons by 1990 with 28 berths including six new 10,000-ton berths by 1985 and five more 10,000-ton berths by 1990 (one for containers).

Rail. Volume of freight: 3.6 mil. tons (1983); terminus of Litang-Zhanjiang rail line. *Plans:* 38 sq km extension will connect Litang–Zhanjiang railroad to Fangcheng deep water port.

Roads. Volume of freight: 1.2 mil. tons (1983); hwy. connects city with Guangzhou and Nanning. *Plans:* 8 km Xiahai-Chikan hwy. running through Xiahai zone by 1985.

Air. Expanding airport to accommodate Boeing 737s and 767s by first half of 1985; building airport on Donghai Island.

Water Supply. Extraction capacity for residential and industrial use exceeds 200,00 tons per day.

Power Supply. Facilities include Mouming thermal Power Plant, Zhanjiang Plant, and 220 kv transmission line. *Plans:* 110-kv transmission line and 1800 kw stand-by power station.

Communications. *Plans:* Communications center including microwave high-frequency coastal radio system and automatic telephone system; telex facilities by June 1985; add 5,000 telephone lines by 1985; communication shore-to-rig and rig-to-rig within a 1000 km radius by 1986.

FOREIGN TRADE

Exports. $245 mil. (1983). *Products:* Foodstuffs, coal, handicrafts, animal products, metals, minerals, textiles, chemicals, and machinery.

FOREIGN INVESTMENT

Since 1979 signed 179 contracts and agreements with foreign firms valued at $175 mil. *Priorities:* Small technology-intensive projects of $5 mil. or less.

Economic and Technical Development Zones. Donghai Island and Xiahai

Location: Donghai: S. of Xiashan, 22 km from city. Xiahai: between Xiashan

Building a foreign trade port on a strong base

Wenzhou

Ding Xueping
China Features Correspondent

Located at the mouth of the Ou River on the East China Sea, Wenzhou is southern Zhejiang's largest city. It has a long history of foreign trade, dating back to the Song Dynasty 700 years ago. With the city's new open status, planners hope that Wenzhou can once again become a major foreign trading center.

A crucial factor in Wenzhou's development will be improvement of its port facilities. The historic port is ideally situated for foreign trade, with centralized access to China's coastal cities as well as Hong Kong, Japan, and Korea. The harbor currently has more than 20 berths capable of handling 2.4 million tons of cargo a year. Six of the berths can accommodate 3,000-ton ships, and one can handle 5,000-ton ships.

The central government has approved funding for the construction of four additional wharves at the Yangfushan new harbor area, 4 km from the city proper, which will have an annual cargo handling capacity of 3 million tons and the ability to accommodate 10,000-ton ships and containerized cargo. The project is scheduled for completion by 1990.

Long-term port expansion will also be carried out in three other areas. At Longwan harbor the city is building several berths for ships weighing 5,000–15,000 tons. At Qili Harbor 30 berths are planned for ships weighing 10,000–30,000 tons, and at Damaiyu Harbor berths may eventually be built for 30,000–80,000 ton ships.

A varied industrial base

The city has a strong foundation upon which to build its trade. A traditional business and handicraft center, Wenzhou now has a diversified industrial base. Approximately

5,000 enterprises produce more than 1,000 products. The city's industrial output reached ¥1.8 billion in 1983, an 80 percent increase over 1978. Light industry has been the major focus of Wenzhou's production efforts. The city's most developed industries are food processing, textiles, chemicals, electronics, instruments and meters, shipbuilding, building materials, and leather crafting. Local crafts include wood sculpture, stone carving and inscriptions, inlaid color stones, embroidery, clay sculpture, and wickerwork.

Wenzhou is also an important agricultural area, especially known for its dairy industry, which produces more than half of the nation's dairy exports. (Wenzhou's exports of condensed milk account for one-fourth of China's total.) The area is also rich in fruit and seafood products. Loqing Bay, the best aquatic breeding ground in Zhejiang Province, has 66,000 hectares of beach for cultivating oysters, prawns, and other seafood. Other cash crops include oranges, sugar cane, bamboo shoots, tea, vegetable oil, and spices.

Wenzhou's surrounding area is rich in mineral ores, with more than 40 verifiable varieties. One of its most important minerals is alumstone, with reserves estimated at 300 million tons.

Import plans stress upgrading existing industries

Since 1979, Wenzhou has taken advantage of its location and resources to promote trade. Five contracts and 43 tentative agreements on economic cooperation have been concluded with businesses from Japan, West Germany, the United States, France, Switzerland, Italy, Australia, and Hong Kong. For example, one Wenzhou factory signed a contract with a Hong Kong firm to import parts for assembling video recorders and micro receiver recorders. Another factory introduced an automatic plastic molding machine from France to make plastic bottles. The city's exports reached ¥149 million ($62 million) in 1983. Major exports include processed foods, textiles, embroidered works, clocks, sacking, fireworks, locks, fruit, and seafood.

This year city planners introduced 79 projects to be developed with foreign funds and technology over the next three years (1985–1987). The projects will focus on transforming existing enterprises in six industries: food processing and packaging, textiles and shoe making, fine chemicals, machinery and metals, ceramic building materials, and computers and software. Officials have listed the priority equipment and technology they want to import in each of these sectors.

Wenzhou has also worked out a longer term plan for cooperation with foreign countries that covers the period 1988 to 1990. Again, this plan emphasizes resources the city currently has. The food industry will be improved by importing advanced processing, preservation, and packaging techniques. To further develop its building materials industry in this period, the city will stress the utilization of its abundant alumstone, ceramic ore, and granite reserves.

Special zone at Longwan

City officials have selected an 18 sq km area in Longwan District, located 14 km from the city center, as the site for Wenzhou's economic and technical development zone. Longwan has convenient water transport facilities. It is linked with an inland river and has a 2,100-meter coastline including four berths for 10,000-ton ships. The zone may be divided into

two sections: the east side a center for scientific and technical development emphasizing electronics, food processing, and other light industries, and the western section an alumstone processing and foreign trade transit area.

Wenzhou also has good potential for tourism development. Mount Yandang, 85 km from the city, and the Jiangxin Islet in the Ou River contain many scenic spots. To accommodate more tourists, Wenzhou is building a deluxe hotel with 100 rooms and renovating existing hotels.

Transport and communications pose challenges

To help create a favorable investment environment, Wenzhou must improve the city's inland connections with the rest of China. A new bridge spanning the Ou River will provide easier access to southern Zhejiang Province. Roads connecting with trunk highways in the province will also be improved and a new road between Wenzhou and Mount Yandang is being built.

To provide rail transport, city officials are planning a 233-km trunk line that will connect Wenzhou to the main Hangzhou–Zhuzhou line. By 1986 the city will also have an airport at Haibin, 7 km from the Longwan development zone.

Wenzhou also plans to bolster its communications network. The city is importing a digital telephone exchange and laying two coaxial cables: one 2,700-line cable connecting Wenzhou, Hangzhou, and Fuzhou and another cable linking Hangzhou, Shaoxing, Jiaojiang, and Wenzhou. By 1986 Wenzhou hopes to have direct telephone service linking it with major Chinese cities, as well as a computer service linked to the Beijing and Hangzhou computer centers.

Wenzhou already has a good supply of electric power, as a result of a 220 kv line that linked the city to the east China power grid in 1983. By 1990, the city also plans to build at least two new power stations.

Transforming a city into a major foreign trade center is a formidable task. Wenzhou officials, however, are determined to make their city succeed. If their plans proceed on schedule, traders around the world may once again become familiar with the city of Wenzhou, just as traders were 700 years ago. 完

(Zhanjiang cont.)
and Chikan districts.

Area: Donghai: 286 sq km. Xiahai: 9.2 sq km.

Priorities: Donghai: Heavy industry such as oil refining, shipbuilding, and petrochemicals and freight transfer. Xiahai: Light industry.

BEIHAI

Location. Southern Guangxi on Gulf of Tonkin; 787 km from Hong Kong; open status also applies to Fangcheng port, 41 sea miles from Beihai.

Area. 270 sq km

Population. 166,700 (111,000 urban)

ECONOMY

Industry. *Key industries:* Machinery, chemicals, metallurgy, textiles, handicrafts, aquatic food processing; designated as support base for offshore oil operations.

GVIO: ¥140 mil. (1983)—smallest of 14 port cities

No. of ind. employees: 15,000 (1983)

Agriculture. *Key crops:* Grain, pigs, poultry, dairy cows, aquatic produce. *Cultivation land:* 8,000 hectares.

Natural Resources. Petroleum, kaolin, gypsum, titanium, quartz, ilmenite, pottery clay, volcanic ash, titanium, coral grains, and ocean minerals.

INFRASTRUCTURE

Port. *Beihai Harbor:* AHC: 860,000 tons; seven 10,000-ton berths; 25,000 sq meters storage; Beihai and Fangcheng provide only port access to Guangxi Province. *Plans:* Building one or two 10,000-ton berths.

Fangcheng Harbor: AHC: 4.6 mil. tons; nine berths including two 25,000-ton and five 10,000-ton berths. *Plans:* Increase AHC to over 13 mil. tons; add three berths with 25,000–50,000-ton capacities, including container dock; building 100,000-ton coal wharf and 50,000-ton petroleum wharf.

Main development is at the more sheltered Fangcheng port. Plans to make these two ports China's major outlet for phosphate, coal, cement, and other products of southwestern provinces.

Rail. *Plans:* 108 km link between Beihai and Qinzhou will connect Beihai with Fangcheng port; Fangcheng will be center of railway network linking Beihai with major cities in China's southwest.

Roads. Volume of freight: 360,000 mil. tons (1983). *Plans:* upgrading Beihai–Qinzhou hwy.

Air. Has small airport; building larger civil airport 20 km from city.

Water Supply. Increasing Beihai's daily capacity of 53,000 tons to 100,000 tons and later 280,000 tons.

Power Supply. 200 kv Qinzhou–Beihai power line to be finished early 1985; planning 110 kv substation for Beihai and building another nearby; increasing Qinzhou–Fangcheng power line from 35 kv to 110 kv.

Communications. Planning 2,000 line automatic telephone network, telex network, microwave communications trunk from Nanning, and direct long distance dialling; later expanding system to 50,000–80,000 lines; Fangcheng will install similar facilities.

FOREIGN TRADE

Exports. ¥20 mil. (1983)

FOREIGN INVESTMENT

81 agreements and letters of interest for economic cooperation worth ¥370 mil., as of May 1984. Most involve infrastructure construction and manufacturing. *Priorities:* Fishing, aquatic food processing, marine chemicals, electronics, textiles, pharmaceuticals, handicrafts, tourism, shipbuilding, building materials, and aviation.

Economic and Technical Development Zone. Beihai *Location:* Most of Beihai municipality

Area: 250 sq km

Priorities: General industry (Fangcheng: general port development).

SPECIAL ECONOMIC ZONES

XIAMEN

Location. Coastal Fujian

Area. 1,510 sq km (Xiamen Island: 131 sq km)

Population. 980,000 (Xiamen Island: 330,000)

ECONOMY

Industry. *Key industries:* Power generation, electronics, machinery, ship repairing and building, precision instruments and meters, chemicals, pharmaceuticals, textiles, food processing, plastics, and leather.

GVIO: ¥665 mil. (January–June, 1984)

Agriculture. *Key crops:* Rice, peanuts, sugar cane, tea, and fruit.

INFRASTRUCTURE

Port. Dongdu Wharf facilities available to Xiamen SEZ enterprises; Ice- and silt-free; AHC: 4 mil. tons; 22 small and medium sized wharves accommodating ships up to 10,000 tons; 4 deep water berths; 50,000-ton class wheat and fertilizer wharf; 30,000-meter godown area; 110,000 sq meter storage space; port integrated with rail and road facilities. *Plans:* Raise AHC to 12–14 tons; add container wharf with AHC of 30,000 standard containers; add 100,000-ton berth.

Rail. Terminal of Yingtan–Xiamen railway, which connects it to national railway network. *Plans:* Electrifying 694 km Yingtan-Xiamen railroad to

China's southern gateway prepares for foreign investment

Guangzhou

Wang Zhituan and Gu Hangang

Guangzhou, one of China's earliest foreign trading centers, is also one of the best situated to benefit from China's modern open door policy. Guangzhou will take advantage of its new status as one of the 14 open coastal cities by establishing an economic and technical development zone at Huangpu, importing advanced foreign technology, and encouraging investors in both the city proper and the Huangpu zone. Foreigners may also work with Guangzhou organizations to establish joint research projects to improve the local capability to design high-grade goods.

Long before 1949, Guangzhou began serving as the gateway to southern China and one of the nation's most important foreign trade ports. Today Guangzhou trades with 5,000 foreign firms from 133 countries and regions. The two ports of Guangzhou and Huangpu have a total cargo capacity of 26 million tons and handle a large volume of transit trade with Hong Kong, including important commodities such as grain, cotton, and rubber.

In recent years, the city's external economic relations have grown rapidly. From 1979 to June 1984, Guangzhou signed 180 foreign investment contracts totaling $553 million. These contracts included 10 equity joint ventures, 124 contractual joint ventures, 44 compensation trade arrangements, and 2 leasing transactions. In addition, 12,000 other trade contracts—mostly raw materials processing for foreign firms—earned Guangzhou at least $300 million.

The United States is an important business partner for Guangzhou. Recent contracts include H. G. Heinz Co.'s investment of $10 million to produce high-nutrition cereal for infants in a joint venture expected to begin operation next year. Guangzhou also signed a sister port agreement with Los Angeles in October and both ports hope to increase their two-way trade.

Huangpu zone to be focus of foreign involvement

In planning its future development, Guangzhou intends to take advantage of its long experience with foreign commerce and its close ties and physical proximity to Shenzhen and Hong Kong. Establishing the economic and technical development zone at Huangpu, formerly called Whampoa, will be the focus of initial efforts. Huangpu lies on the north bank of the Pearl River 35 kilometers east of Guangzhou and only 88 sea miles from Hong Kong. The Guangzhou–Shenzhen highway passes through the Huangpu zone, and the rail line connecting the two cities runs just north of the zone. Guangzhou was the first of the 14 open cities to send a high-level business delegation to Hong Kong after the April announcement of the city's new status. A Guangzhou group met with Hong Kong business leaders last September to promote both the city's exports and investment in the Huangpu economic and technical development zone.

Guangdong provincial officials have recently submitted a plan for the development of the Huangpu zone to the State Council in Beijing for approval, which would divide the 36-square kilometer zone into five sections: a central area for administration, two new industrial areas, a section for tourism and recreational development, and an area containing older factories slated for technical upgrading. The zone plan calls for three phases of development, each lasting about two years. The first phase, begun in late 1984, will concentrate on administration and construction of basic infrastructure such as water supply, power supply, sewers, and communications facilities. Existing infrastructure in the zone includes an eight-berth port, a 600,000 kw power plant, and a water supply plant with two main pipes, each with a capacity of 7,000 tons per hour. Work will also begin on a number of industrial, managerial, and residential buildings for the zone. In the second phase, construction projects begun in the first phase will be completed and intense efforts will be made to attract foreign capital. Enterprises using this foreign capital would go into operation by the third phase. Technical upgrading of existing enterprises in Huangpu would proceed through all three stages. The present population of the zone is 48,000, but this figure is expected to grow to at least 150,000 by 1990.

Guangzhou sets guiding principles

In examining and approving industrial and research projects for Guangzhou and the Huangpu zone, city officials plan to abide by the following principles.

▶ The most important projects are those involving emerging industries such as computers and other information technologies, biological engineering, and advanced materials. Examples of urgently needed projects include assembly lines for microprocessors and linear circuits,

Wang Zhituan and Gu Hangang are associated with the Guangdong Provincial Academy of Social Sciences in Guangzhou and are involved in planning the Huangpu economic and technical development zone.

technology and equipment to produce other electronic components and computer peripherals, software development, an information center, and new technology for the chemical industry.

▶ Projects producing goods in short supply or goods now imported from abroad will also receive priority. For example, Guangzhou specifically lacks basic technology in packaging materials, new molds, and numerous intermediate products.

▶ In Guangzhou's urban district, preference will be given to projects that promote technical innovation in existing industries. Relevant industries include food processing, household electrical appliances, textiles, Chinese medicine, and new building materials.

▶ New projects in the Huangpu economic and technical development zone should promote technical innovation in the zone's existing enterprises, or improve the zone's basic infrastructure.

New exhibition center underscores increased local autonomy

Many people know Guangzhou as the site of the famous twice-yearly trade fairs held at Guangzhou's Foreign Trade Center. These fairs are controlled by the central government in Beijing, but a major new exhibition complex being built in Guangzhou will enjoy more local autonomy. The complex is called the Guangzhou International Scientific Technologies Trade Exhibition and Exchange Center, and is a joint venture between the Xinghua Industrial Co. (jointly owned by the Guangdong provincial government and the Guangdong Foreign Trade Bureau) and the Carveston Co. Ltd. of Hong Kong. Carveston enlisted a consortium of seven foreign banks led by the Hong Kong and Shanghai Bank to lend $20 million to finance construction; Xinghua will provide the site. The new center will have 41,000 square meters of floor space, including a hotel with 200 rooms and space for 60 office units. Work on the complex began last July and is to be completed by the end of 1985.

Construction will begin in early 1985 on a new commercial complex, including a trio of skyscrapers (one 53 stories and the other two 35 stories), that will become Guangzhou's business center after five years. The

(Xiamen cont.)

double annual freight capacity to 12 mil. tons; Xiamen station will increase AHC to 5 mil. tons of goods.

Roads. Connections to Guangdong, Jiangxi, and rest of Fujian Province.

Air. Expanding international airport to accommodate 747s.

Water Supply. Water works supply 60,000 tons per day. *Plans:* Daodian Waterworks will provide 20,000 tons per day to Huli in the first stage of development and 40,000 tons per day in the second stage.

Power Supply. Linked to Fujian's southwest power grids; 220,000-volt power transformer and transmission line links Yongan and Xiamen. *Plans:* 400,000 kw power plants at Yungan and Zhangping will supply Xiamen via undersea cables.

Communications. Direct dialing to Hong Kong. *Plans:* 10,000 line computerized switchboard and 960 channel microwave system.

FOREIGN TRADE

Exports. *Export volume:* $120 mil. (1983); 81% of exports are industrial and mineral products, a large portion are canned foods.

FOREIGN INVESTMENT

82 contracts to date (52 in 1984) with investment of $385 mil. 80% of investment is from overseas Chinese and Hong Kong compatriots, although in first half of 1984, Japanese and Western investors were responsible for 30%.

Special Investment Zone. Huli Industrial District

Location: Adjacent to Dongdu Harbor, seven km from old city.

Area: Original 2.5 sq km SEZ was recently expanded to include all of Xiamen island.

Priorities: Electronics, instruments and meters, machinery, chemicals, building materials, textiles, food processing, fibers, and chemical and biological engineering.

SHANTOU

Location. Coastal Guangdong; 180 nautical miles NE of Hong Kong.

Area. 256 sq km (SEZ: 3.3 sq km)

Population. 9 mil. (730,000 urban)

ECONOMY

Industry. *Key industries:* Photosensitive materials, electronics, textiles, canned goods, furniture, plastics, and handicrafts and traditional products.

Agriculture. *Key Crops:* Fruits, vegetables, and marine products; future agricultural development will center on 19.3 sq km and emphasize horticulture, animal husbandry, fruits, vegetables, and fisheries; 300 acres will be allocated to spices.

INFRASTRUCTURE

Port. AHC: 2 mil. tons; one 3,000 ton and two 5,000-ton berths. *Plans:* 1.7 sq km port and warehouse district south of Longhu zone; four wharves, two deep water ports, and a 3,000-ton container berth (three 5,000 ton wharves and the container berth will be in use by August 1985); passenger pier for ships of up to 5,000 tons by June 1985.

Rail. Building 494 km line linking Shantou to Guangzhou-Shenzhen line.

Roads. Connections with Guangzhou, Shenzhen, and Zhangzhou. *Plans:* 2.7 km hwy. from Shantou city to Longhu zone; bridge linking Shantou with Guangao district.

Air. Expanding airport for international service

Water Supply. Supply adequate for the Longhu district. *Plans:* Expansion to provide 20,000 tons of water daily.

Power Supply. 300,000 kw capacity generator and link to Guangdong electric network. *Plans:* 110 kv substation; thermal plant with 1 mil. kw capacity; coal-fired plant with 200,000 kw capacity expandable to 1 mil. kw.

Communications. Has 203 long-distance lines. *Plans:* 97 more long distance lines and 7,000 channel phone system by end of 1984; 1,800 km microwave network to connect Shantou with other areas of Guangdong; 4,000 line automatic telephone system.

FOREIGN TRADE

Exports. Mainly light industrial products, such as handicrafts, embroidered goods, and bamboo ware.

FOREIGN INVESTMENT

Agreements signed for 30 projects since 1982 involving ¥40 mil., mainly with overseas Chinese and Hong Kong investors.

Special Investment Zone. Longhu & Guangao

Location: Longhu: Eastern suburbs of Shantou; Guangao: On Dahao Island opposite Shantou harbor

Area: Longhu: 22.6 sq km (1.6 sq km industrial district); Guangao: 30 sq km

Priorities: Longhu: establishing 250 enterprises with 50,000 employees; emphasizing food processing, electronics, transportation, telecommunications, tourism, agriculture, petrochemicals, daily-use chemicals, household appliances, textiles, plastics, metals, and handicrafts. Guangao: Emphasizing petrochemicals with 50,000-ton capacity oil wharf and 20,000-ton wharf.

SHENZHEN

Location. Guangdong's southern border with Hong Kong's New Territories

Area. 327.5 sq km (30 sq km urban)

Population. 300,000

ECONOMY

Industry. *Key industries:* Electron-

(Shenzhen cont.)
ics, textiles, oil, petrochemicals, footwear, steel, and shipping containers.

GVIO: ¥802 mil. (1983)—one third from foreign enterprises

Agriculture. *Key crops:* Dairy products and poultry.

INFRASTRUCTURE

Ports. *Chiwan in Shekou:* Silt-free; 10,000-ton berths. *Plans:* Additional deep-water berths to accommodate 20,000- to 50,000-ton ships for general cargo, containers, and bulk fertilizer; new oil berth. *Depang:* Adding more deep water facilities requiring $25 mil. investment. *Mawan:* 50,000–100,000 ton capacity berths **Rail.** Increasing Luohu Railway Station capacity from 8 to 35 mil. passengers a year; double-tracking and electrifying Guangzhou–Shenzhen Railway; constructing 41 km spur connecting Buji to Chiwan.

Roads. 55 roads totaling 85 km built or widened; construction of 1,000 km hwy. from Shenzhen to Yueyang, Hunan, will begin this year; building 30 km, $58 mil. hwy. from Luohu Lake to Mawan.

Air. Heliport at Nantou. Plans: Considering international airport that could supplement Hong Kong's.

Power Supply. Planning 700 mw thermal power plant at Chiwan and nuclear power plant at Daya Bay.

Communications. Direct telephone lines with Guangzhou, Beijing, and Hong Kong; 2700 channel microwave system. *Plans:* Adding 30,000 lines.

FOREIGN TRADE

Exports. Exports to Hong Kong account for 70% of trade; by 1990, hopes that exports reach $5.2 bil.

FOREIGN INVESTMENT

About 2,700 agreements with foreign firms signed by end of June 1984 at value of $1.8 bil. (90% of investment by overseas Chinese, mostly Hong Kong residents); heavy emphasis on property development. *Priorities:* Electronics, petrochemicals, oil, food, textiles, construction materials, precision instruments, tourism, agriculture, and animal husbandry; building supply base for South China Sea oil exploration and development.

Special Investment Zone. Shekou Industrial Area

Location: 30 km from Shenzhen city in western part of the SEZ

Area: 2.14 sq km

Population: 15,000

Infrastructure: Well developed, with hwy. linking it to nearby Chiwan harbor, 20,000 cubic meter per day water main, 1.35 mil. kw-hours per day electrical substation, and microwave communications.

Priorities: Yachts, marine containers, structural steel, aluminium, electronics, toys, food, furniture, tourism.

HAINAN ISLAND

Location. Guangdong, off Leizhou Peninsula

Area. 34,000 sq km

Population. 5.8 mil.

ECONOMY

Industry. *Key industries:* Resource development, fishing, aquatic and general food processing, and marine breeding.

GVIO: ¥686.3 mil. (1980);Haikou city accounted for 31%.

Agriculture. *Key crops:* Rubber (China's main rubber producer); pineapple, cashew nuts, pepper, tea, coffee, cocoa, sugar, peanuts, citronella, coconuts, quinine, palm oil, hemp, and flax.

Natural Resources. Oil, gas, iron, titanium, ilmenite, shale, gold, copper, tin, cobalt, quartz, crystal, marble, and granite.

INFRASTRUCTURE

Port. Renovating Haikou, Basuo (Dongfang), and Qinglan; building terminals for 10,000 ships; Yanpu to be developed into an international port for ships up to 50,000 tons, with an AHC of 2.3 mil. tons.

Rail. Three rail lines. *Plans:* Haikou is constructing a new line connecting the Sanya–Jiusuo Railway with the Basuo–Shilu Railway.

Roads. Upgrading hwys. rebuilding 336 km eastern route of Haikou-Yulin Hwy.

Air. Expanding Haikou airport to accommodate Tridents and Boeing 747s; building new airport in Sanya.

Power Supply. One of Guandong's three main generating units. *Plans:* Three mobile power stations; hydroelectric operating station; nuclear power station.

Communications. New microwave telecommunications system will connect Hainan and Guangzhou; automatic telephone service by 1985.

FOREIGN INVESTMENT

95 contracts signed between 1980 and May 1984 with total value of $101 mil. (86% foreign investment) including fishing and marine breeding, automobiles, and electronics; 46 contracts or agreements signed from January–June 1984 involving foreign investment of $52 mil.; eight projects, valued at $247 mil., targeted for 1990 in cooperation with foreign firms including wood-shaving factory, international hotel, sugar refinery, expansion of rubber products plant, industrial glycerine factory, electronics factory, and $100 mil. cement works.

Priorities: Onshore oil exploration, building materials, mining, metallurgy, petrochemicals, titanium dioxide, glass, tropical plants, timber, animal by-products, and aquatic produce.

project will be jointly managed by the Guangzhou Trade Development Co. and the Guangzhou branches of the Bank of China and the Industry and Commerce Bank of China.

Oil and industry fuel the boom

Guangzhou and the Huangpu zone to the east of the city are well situated to benefit from the exploitation of offshore oil resources in the South China Sea. Eventually Guangzhou hopes to be a rear service base for the oil industry, focusing on downstream chemical processing. Construction began in July 1984 on eight office buildings, which will make up the South China Sea Oil Center. The first stage of construction is expected to be completed in three years, allowing limited use of the facilities by the end of 1986. Total investment in the project is $98.5 million and includes investors from the United States, Japan, France, Britain, and Hong Kong.

Guangzhou also plans to set up a ¥40 million offshore oil supply base in the Huangpu zone. Foreign investors will be invited to participate in the planned construction of a port, warehouses, and living quarters.

New investors in Guangzhou will find a city with a well established industrial base consisting of 4,000 enterprises employing 780,000 people. The gross value of the city's industrial output in 1983 was ¥11.8 billion, accounting for 40 percent of total output in Guangdong Province and 30 percent of that in all of southern China. Light industry's output was ¥7.6 billion, or 64 percent of the city's total.

Both the Guangdong provincial and the Guangzhou municipal governments attach major importance to the region's expanded authority to deal with foreign traders and investors. They set up the Guangzhou Trade and Development Corp. last June to oversee joint ventures with foreigners and import technology and equipment.

So far zone officials have held talks with more than 200 potential investors from the United States, Canada, France, Japan, Singapore, Thailand, Hong Kong, Macao, and other countries. With work on the Huangpu economic and technical development zone already underway, zone officials confidently predict that investors will be happy with what they find. 完

Guangdong economists discuss problems and prospects in China's four SEZs

Whither the SEZs?

George T. Crane

One of the most uncertain aspects of China's special economic zones is their purpose. Apart from attracting new technology and valuable foreign exchange, what are their goals? Are they being achieved? Basically, what are the zones intended to accomplish?

In a recent series of interviews, a number of prominent Chinese economists clarified the goals of the SEZs. Among the interviewees were: Sun Ru, director of the Economics Research Section of the Guangdong Provincial Academy of Social Sciences; Lei Qiang, vice-chairman of the economics department at Zhongshan University in Guangzhou; and Zhang Yuanyuan, vice-chairman of the economics department at Jinan University in Guangzhou. All of these men have written widely on the SEZs and have had some participation, through high-level conferences, in the actual policy-making process. Although they had been interviewed separately, there is considerable agreement among them regarding what the zones are meant to do and how they might be able to do it. This accord, taken together with recent statements and articles by academic and government leaders around the country, suggests a growing consensus in China on the goals and future development of the SEZs.

Small but "special"

The three economists believe that the general function of the zones is to serve national economic development needs as represented in the current modernization drive. They all rank the particular goals of the zones in terms of their national impact. In Sun Ru's words: "An important question to ask about the SEZs is: how do they relate to national development? They are small, particular zones. Theirs is not a national policy but a regional and local policy that seeks to influence national development." When he says they are not a "national policy" he means that all of China is not and will not become an SEZ. The zones' distinctiveness from the national economy is what makes them "special." But they must have national relevance, he argues.

In short, the SEZ's single most important objective is to attract "relatively" advanced technology. The economists were unanimous that this goal supersedes increasing employment or boosting foreign exchange. Sun Ru notes that the zones are so small compared to the national economy that employment and foreign exchange will only be of local significance. By contrast, encouraging technology transfer is seen as having the greatest national impact.

The emphasis on technology transfer begs another question: what kind of technology? Unfortunately, the economists, as well as most other Chinese sources, are rather vague when it comes to describing exactly what sort of technology they want. But they do know what they don't want. They do not want the SEZs to be just low-technology processing and assembly zones. Lei Qiang suggests that these highly specialized and simplistic processes often fail the important test: is the technology appropriate to China's needs? Can it be easily absorbed into the economy? Zhang Yuanyuan points to electroplating and printing industries in Shenzhen as examples of appropriate technology. These enterprises use advanced processes that can be applied domestically, he believes. Sun Ru mentions the Jiangmen Radio Factory in Zhuhai, a joint venture with Sanyo, as a promising model of technology transfer. Lei Qiang calls attention to agricultural projects of various sorts that have incorporated the latest Western methods and machinery. But he also singles out office automation and other types of technological innovations in the commercial sector. Clearly, manufacturing is not the only game in town.

Pragmatism comes first

China's desire for modern technology appears to be tempered by market realities, however. Sun Ru and Zhang Yuanyuan both recognize that in the short term China's current level of development will force the country to accept less-than-ideal technology transfer arrangements. To break into the highly competitive electronics and computer market, for example, the SEZs must continue to accept processing and assembly deals despite their minimal influence on China's national electronics and computer industries. Lei Qiang expresses this more pragmatic attitude: "We expect mutual advantages to be drawn from the zones. Each side should benefit as they see fit. However, we realize that international competition complicates this, and may cause us to rearrange our priorities in order to attract business."

Modernizing management

Beijing is extremely anxious for foreign management techniques to "rub off" on Chinese managers. Specifically, in the SEZs the Chinese hope that joint ventures and foreign-owned enterprises will provide models of Western management tech-

George T. Crane, a graduate student at the University of Wisconsin, is writing his dissertation on SEZs. He conducted these interviews while in China from August 1983 to March 1984.

niques that can be observed and, when practical, copied. This, too, is in accord with the national goal of linking the "open door" policy toward foreign investment with domestic managerial reform. In the opinion of Zhang Yuanyuan, absorbing Western management practices in the zones should be easier than assimilating advanced technology, owing to the government's very strong commitment to raising productivity, worker incentives, and rational management.

But limits do exist. The Chinese government is very sensitive to charges from conservative quarters that it is allowing Chinese workers to be "exploited" by foreign firms. Much ink has been spilled arguing that the zones are not new "concessions" nor infringements on Chinese sovereignty. It is an important issue to all Chinese policy-makers. This sensitivity is one reason why wages in the zones are generally higher than those in the national economy. In this way the SEZs can remain more or less competitive (Shenzhen's wage rate is kept below Hong Kong's) while avoiding potential domestic criticism. The Chinese fear of exploitation, however, is the main reason why some foreign companies have complained that *in practice* they do not have enough flexibility in hiring and firing.

Opening markets

"The SEZs are a classroom," notes Lei Qiang. "They are the method by which China can better understand the world, the international market, and gain international experience." Technology and management reforms are obviously a part of this experience. Yet the zones are seen not just as a means of absorbing things Western but also as showcases for promoting things Chinese. The hope here is that international experience can be gained directly through the establishment of Chinese owned and operated factories alongside foreign enterprises and the marketing of Chinese goods.

Especially significant is the growing role of the SEZs as links between domestic and foreign enterprises. Sun Ru argues that the policy of *nei lian*, or "uniting with the interior," distinguishes China's zones from export processing zones in other countries. The policy calls upon SEZ corporations to form more three-way deals among themselves, foreign investors, and domestic enterprises. It is hoped that these forms of *san jia lian he* arrangements, or "three family alliances," will help open China's vast interior to world trade. As usual, the foreign firm is expected to provide capital and technology while the zone corporation contributes labor and land. The domestic Chinese enterprise brought in by the SEZ corporation is expected to provide skilled labor. How well the system works, if it works at all, will depend on how well the SEZ authorities can convince foreign investors to share their trade secrets with skilled Chinese workers and engineers, many of whom will one day rotate back to their home enterprises in the interior.

Sun Ru points to another form of *nei lian* of more immediate significance. Provincial investment corporations have offices in the zones, where foreign investors can negotiate directly with provincial representatives. In effect the SEZs are already becoming direct stepping stones to the rest of China.

Encouraging American investment

A major shortcoming of China's SEZs today, the three economists agreed, is their failure to attract high-tech firms, especially those from Japan and the US. Most zone enterprises are small operations (averaging under $140,000, according to a recent survey conducted in Shenzhen) set up with Hong Kong capital. Sun Ru deplores the low level of technology that is currently found in the SEZs. He and his colleague, Lei Qiang, are quick to point out that only recently have the zones begun to offer the infrastructure needed by the sort of firms China wants to attract. For this reason, Sun Ru sees the beginning of a new phase of more rapid SEZ development, and a shift to more technology-intensive investments from the US, Western Europe, and Japan. "The percentage of investments from Hong Kong," he notes, "should decline relative to investments from the US, Western Europe, and Japan." He points with some satisfaction, but unfortunately without publicly available figures, to the trend in 1983. Apparently, in 1983 there had been a significant jump in the number of contracts signed with companies from the West and Japan.

This "new trend" is the subject of an article in the April 4 issue of the *Shenzhen Special Zone Daily*, which reports an increase in the amount of investment per contract and an improvement in technology transfer for the first quarter of 1984. While there has been an 11 percent increase in the number of contracts signed, it claims the amount of pledged investment has jumped 50 percent, showing an overall increase in the amount of investment per contract. Yet even if the current trend is promising, the SEZs have a long way to go to become a major conduit of Western technology into China.

"Preferential" terms

China's hunger for advanced technology recently prompted a new round of talks about "preferential conditions." Larger tax concessions may be in the offing, as well as policies to gradually open the domestic Chinese market to the products of SEZ enterprises. In April OMI International of the US announced that it had received permission to market in China 80 percent of the output of its Shenzhen plant. This is not an isolated case. In his "Report on the Work of the Government" Premier Zhao has stated that access to the domestic market is a negotiable issue for any company that brings advanced technology or management opportunities to China. With the possibility of supplying "oil for the lamps of China," Western investors may well have a positive incentive to put their capital and technology in the zones. They will at least have a new bargaining point.

Launching a special SEZ currency

A major innovation in the SEZs would be the introduction of a new convertible currency. This would permit investors to earn their money in a hard currency without having to worry about converting Chinese yuan or certificates into some other form.

At present, there are three types of currency circulating in the zones: renminbi, foreign exchange certificates, and Hong Kong dollars. The renminbi is the weakest, and is traded unofficially well below its posted exchange rate. In some instances it has even been reported that local Chinese merchants refuse to accept renminbi. Chinese authorities realize that this is a serious problem that could undermine the

domestic value of the renminbi.

Furthermore, there is widespread recognition of a need for a convertible currency for zone transactions. Currently, the foreign exchange certificate and the Hong Kong dollar play this role, but these are considered temporary solutions. Besides, the certificates are tied to the renminbi and therefore to the domestic economy, which China's monetary authorities still endeavor to isolate from world market forces. Nor do certificates command the necessary investor confidence to serve as an advantageous medium of trade. The use of the Hong Kong dollar is perceived as something of an embarrassment. Basically, the Chinese want their own international currency.

The most likely solution is a special SEZ currency that is freely floating, within prescribed bands (or pegged to the Hong Kong dollar initially), and which cannot be used within the domestic Chinese economy. Such a currency would be a means of facilitating international business while continuing to shield the national economy from international financial shocks, which is exactly what Chinese policy-makers want.

Opinion in China on the issuance of a special zone currency falls into two camps: sooner and later. Some analysts argue that the time is not yet right for a zone currency. They fear that the economy of the zones is itself not strong enough to support an internationally convertible currency. They also worry that world market forces may hinder the performance of the zones, and worse, threaten domestic repercussions. Protectionist forces are strong in China.

On the other hand, there are those who argue that early issuance of a zone currency would in fact serve to strengthen the economic development of the zones. They have greater faith in the current situation and future prospects of the zones. The extraordinary aspect of the entire debate is that there appears to be little, if any, opposition to the principle of a special zone currency. Virtually all analysts agree on its necessity, their differences lie mainly in the timing.

Zhang Yuanyuan, who has written widely on the currency issue, is cautiously in favor of the sooner school of thought. His circumspection is characteristic of the Chinese approach to the entire matter. Such an unprecedented step cannot be put into practice overnight. It would entail structural reforms. Zhang argues that a zone currency should be issued and managed by a special zone bank. The relationship that such a monetary authority would have with the People's Bank of China and Bank of China is not clear. Yet it is evident that some changes in the SEZ banking system would be necessary. To many Chinese economists, the question is still shrouded in uncertainty. The actual issuance of a new currency is therefore likely to depend on SEZ performance, domestic political factors, and of course China's future policy toward Hong Kong. 完

Guangdong's number two SEZ tries harder

Focus on Zhuhai

Tim Williams

Zhuhai special economic zone is admittedly less developed than Shenzhen, its sister SEZ on the opposite bank of the Pearl River Estuary. From 1980 through early 1984 less than 50 contracts had been signed with foreign investors, a small fraction of the more than 2,000 contracts signed in Shenzhen during the same period. Nonetheless, recent developments have begun to focus more attention, both domestic and international, on Zhuhai, and this trend seems likely to continue. In the overall PRC national economic strategy, Zhuhai will become an important component of the Pearl River Delta economic area, which accounts for only 7 percent of provincial land area, but 60 percent of industrial output and one-third of agricultural production. Guangzhou is the central city, and Zhuhai hopes to become an important trading and manufacturing center in this wealthy delta region.

Zhuhai planners expect the South China Sea oilfields to become a major source of income for the SEZ, because of its advantageous location for

the provision of support services to the oilfields in the lower Pearl River delta. Already an authorized oil supply base, Zhuhai lies only 80 nautical miles north of the closest oil exploration area—about two hours sailing time and well within helicopter range. This is significantly closer than Chiwan, the oil support base being developed at Shenzhen, and could represent a potential savings of up to $1,500 per supply vessel trip.

The Zhuhai SEZ covers just over 15 sq km and is part of the much larger Zhuhai municipality, which lies 156 km south of Guangzhou, bordering on the Portuguese enclave of Macao. Zhuhai can be reached by road either from the rest of Guangdong Province to the north, or from Macao to the south. A 36-mile ferry and hydrofoil service operates across the mouth of the Pearl River from Hong Kong, and another ferry service to Shenzhen has recently been inaugurated. Unlike Shenzhen,

Tim Williams, PRC area manager for Lloyds Bank International in Hong Kong, visits Zhuhai frequently on business. He has been involved in financing China's foreign trade for more than 10 years, and is now responsible for developing and coordinating Lloyds Bank International's worldwide business with China.

Zhuhai does not have railroad access, a factor in its relatively slow development. But like Shenzhen, Zhuhai boasts a new heliport that will operate a commercial passenger service to Guangzhou and serve oil rigs in the South China Sea. The heliport, with parking for 30 helicopters, plans to expand its offering of commercial air routes.

Zhuhai authorities are now at work on other infrastructure improvements that will enhance the zone's attractiveness to investors. In the short term, Zhuhai plans to concentrate 90 percent of foreign investment on such key infrastructure projects as development of the existing Jiuzhou port into a dual-purpose deep-water commercial port and oil-supply base (*see* "Zhuhai's Hong Kong Connection," page 39). The highway network, described by zone authorities as only "preliminarily formed," will undergo major improvements. A trunk road to Shenzhen and Guangzhou is under construction, and there are eight newly built and widened local roads with a total length of about 20 km.

Meanwhile, 330,000 square meters of land has been leveled for future factories, and some of the basic industrial infrastructure is already in place. The zone's water supply of 60,000 to 80,000 tons per day, from the Dajingshan and Jida Reservoirs and the Gongbei and Jiuzhou Waterworks, is more than adequate for current needs. Power comes from the Guangdong provincial network, with a local 220 KV transformer station recently added and a 110 KV station under construction.

Zhuhai's telecommunications are relatively advanced and still being improved. Since 1983 the city has been connected via a 960-channel microwave system to Guangzhou, Shenzhen, and Hong Kong with direct dialing service available to and from Hong Kong. A 2,000 line automatic telephone system is planned.

Planning for industrial growth

In addition to its offshore oil focus, Zhuhai SEZ will encourage establishment of technology-intensive industries in accordance with the PRC's general SEZ development policy. Zone authorities have targeted building materials, electronics, light industry and textiles, food processing, machine building, and petrochemicals for industrial projects. It is also hoped that the simultaneous development of commerce, tourism, housing, agriculture, and animal husbandry will take place.

Zhuhai SEZ has been divided into six functional sections, each of which has been assigned specific development goals:

- ▶ Gongbei: adjacent to the border with Macao, Gongbei will be the focal point for the SEZ's administration, culture, finance, and commerce.
- ▶ Xiawan: northwest of Gongbei, Xiawan is an industrial section that has targeted the building materials industry for priority development.
- ▶ Beiling: situated northeast of Xiawan, Beiling is intended to become a center for the SEZ's scientific research, culture, and training. Light industry, textiles, and electronics processing will be its main industries.
- ▶ Jida: situated in the northeast of the zone, emphasis here is on tourism, with the Zhuhai resort and Shijingshan Tourist Center already in operation. Commercial and foreign trade activities are also being developed.
- ▶ Shihuashan: occupying the eastern section of the zone, Shihuashan includes Jiuzhou Harbor and the heliport.
- ▶ Silver Valley: slated to become a tourist and recreation center, with high quality residential quarters.

The governing body for the Zhuhai zone's development is the Zhuhai

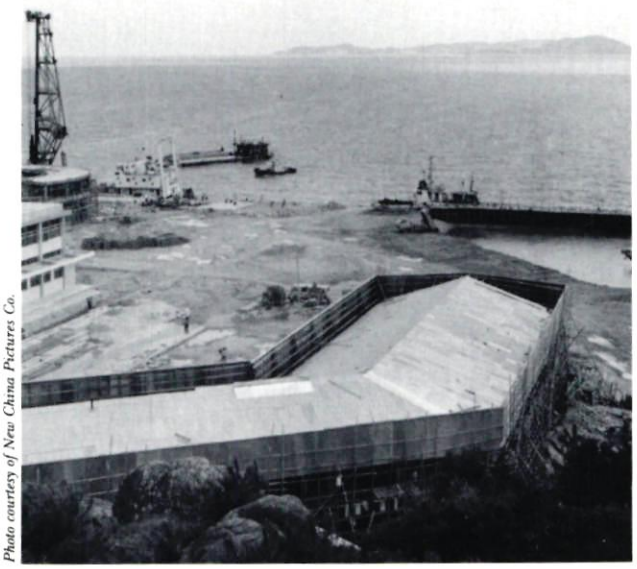


Photo courtesy of New China Pictures Co.

Construction of the Jiuzhou harbor in Zhuhai's special economic zone.

Photo courtesy of New China Pictures Co.

Xiangzhou, commercial center of Zhuhai municipality (below)

SEZ Administrative Committee, which operates under the Zhuhai Municipal People's Government, with general supervisory and coordinating control and jurisdiction exercised by the Guangdong Province Special Economic Zone Administrative Committee. The economic arm of the zone is the Zhuhai Special Economic Zone Development Company (ZHSEZDC), established with a registered capital of ¥550 million under enabling legislation approved by the Fifth National People's Congress in 1980. ZHSEZDC is the chief conduit through which the municipality makes investments in the zone. These investments may be wholly owned, equity joint ventures, or other types of cooperative undertakings. There are already some 30 enterprises that ZHSEZDC owns exclusively or in which it has some form of equity participation. These include two residential housing developments, office buildings, a resort hotel, and tourist center. ZHSEZDC is headed by Chairman Wu Guangyi, who concurrently serves as general manager. The Zhuhai SEZ Economic Committee, chaired by Zhuhai Mayor Liang Guangda, provides local guidance and liaison.

Accelerated development guidelines adopted in June

In addition to the investment incentives offered by Shenzhen and the other special economic zones in Guangdong Province (*see* March-April 1984 *CBR*, pp. 13–14), the Communist Party Committee of Zhuhai Municipality adopted revised guidelines in June 1984 to accelerate Zhuhai's development. The guidelines spotlight the following 10 areas:

▶ Project examination and approval. Formalities will be simplified and, in general, take no longer than 15 days. Organs will be set up at the city, county, and district levels to take overall charge of examination and approval.

▶ More active support for efforts to import advanced technology and equipment to upgrade existing enterprises. Exemption from customs duties, import duty, and commerce tax will be granted for import of advanced key equipment that China cannot produce, or the domestic supply of which cannot be guaranteed, until 1990.

▶ Further reductions or exemptions from taxes to select joint ventures and wholly owned foreign enterprises. This treatment can be extended not only to select foreign investors but to enterprises operated by other Chinese provinces and cities as well.

▶ Reduced expenses on land use, administration costs, and service charges for projects that use sizable amounts of land or have slow return on investment.

▶ Promotion of "diversification", i.e., abolishing monopolies that exist in numerous business and industrial areas.

▶ Foreign exchange control. Tightened control but more liberal policies will be put into effect, and measures to retrieve foreign exchange "from the masses" will be adopted.

▶ Vigorous promotion of exports through the processing of imported materials.

▶ Permission to sell some products manufactured in the zone on the domestic market.

▶ Extended limits of authority for financial control.

▶ Overseas Chinese investors will be granted even greater preferential treatment than "ordinary foreign businessmen."

Although many of these new guidelines appear to merely reiterate existing activities in Zhuhai, they confirm the zone's intention to aggressively court investment. Zhuhai will not be content to remain Guangdong Province's "second SEZ" indefinitely. 完

Zhuhai does not have railroad access, a factor in its relatively slow development. But like Shenzhen, Zhuhai boasts a new heliport that will operate a commercial passenger service to Guangzhou and serve oil rigs in the south China Sea.

After sizing up Zhuhai's potential, two Hong Kong firms have decided to develop large blocks of land in the zone.

Zhuhai's Hong Kong Connection

Madelyn C. Ross

Silverbay: A port, oil base, and industrial zone

Hong Kong's Gladhover Ltd. plans to develop approximately half of Zhuhai's 15 sq km under several joint venture agreements collectively referred to as the Silverbay Development Project. This project constitutes one of China's largest joint ventures yet, and some of the plans it includes will take years to complete.

Top priority for Gladhover is turning Zhuhai's Jiuzhou Harbor into a deep-water commercial port and oil supply base. This is being undertaken by a joint venture company comprised of Gladhover Ltd, 40 percent; the Zhuhai Special Economic Zone Development Corporation (ZHSEZDC), 40 percent; and the China Nanhai Oil Joint Services Corporation (CNOJSC), 20 percent. The joint venture company, the Nanhai Oil Zhuhai Special Economic Zone Development and Services Company Ltd. (NOZESCO) was formed in March 1984.

In August Gladhover focused international interest on Zhuhai when it raised $64 million for Jiuzhou Harbor development on NOZESCO's behalf. A 10-bank syndicate led by Lloyds Bank International, and including the Bank of China and the Mellon Bank of Pittsburgh, agreed to provide $37.2 million for port improvements and $26.8 million for adjoining office and residential buildings to support the oil industry. International tendering got underway in September and the new deep-water wharf is expected to be serviceable by May 1985. Construction of the adjacent oil base will be keyed to the pace of port development.

The provision of oil support services is just one economic rationale for the port according to Robert Silin, managing director of the Silverbay Development Corporation—Gladhover's marketing arm in Zhuhai. In fact, the bulk of port revenues could potentially come from

cargo shipping instead of oil support services. The lower Pearl River Delta, an alluvial basin, lacks a deep-water port. This means that Zhuhai's Jiuzhou Harbor, which will eventually be able to accommodate two 10,000 ton vessels and six oil support boats, will be an important stimulus to the economic development of the region. Also, Zhuhai's location on the southwest bank of the Pearl River Delta places it relatively close to Southeast Asia, and thus makes it an attractive investment site for firms producing products for export to Southeast Asian markets.

Studies undertaken by both Chinese and foreign firms indicate that the problem of silting at Jiuzhou will not be a major hindrance to the port's operation, although regular service dredging will probably be required.

A second major focus of activity for Gladhover is Zhuhai's Xiawan industrial area, where, in a joint venture with the ZHSEZDC, Gladhover will develop 2.5 sq km of land into an industrial park. To be called the Silverbay Industrial Zone, this project could absorb an additional $150 million in investment from Gladhover.

In 1982 Gladhover commissioned a feasibility study of the Zhuhai area, done by a US accounting firm. The study confirmed Gladhover Chairman B. J. Wong's original impression that the region's large reserves of high-grade silicate, clay, feldspar, and quartz provide an ideal base for the building materials industry. Thus Gladhover hopes to attract such industries as specialty glass, tile, sanitaryware, gypsum board, and extruded aluminum products to the Silverbay industrial zone. Food processing plants that utilize locally produced ingredients will also be promoted. An Australian insulating materials factory plans to build Silverbay's first factory. Negotiations for tile, gypsum board, glass, and sanitaryware plants are also underway, and agreements covering four new investment projects were signed in early November.

Silverbay Development Corporation's Director Silin notes that Silverbay investors should initially plan on exporting at least 70 percent of production. Under certain conditions, Gladhover may itself become a joint venture partner with the companies investing in the zone to help them develop a marketing structure for their products in China and Southeast Asia. The markets in the densely populated Pearl River Delta region, where 11 million people reside, may expand as the region's foreign exchange earnings grow. Silin feels that this traditionally affluent and rapidly industrializing region may eventually absorb more than 30 percent of the production from Zhuhai's joint venture factories.

Finally, Gladhover's plans extend beyond these two major projects in Zhuhai's eastern section to the Silver Valley area of western Zhuhai, where the company hopes to build a housing complex for oil industry executives. This development of Silver Valley is presently on hold until a new location can be found for the military barracks there. However, Gladhover is thinking far ahead and has every intention of being a major factor in the development of the western as well as the eastern bank of the SEZ.

Zhuhai's location on the southwest bank of the Pearl River Delta places it relatively close to southeast Asia, and makes it an attractive investment site for firms producing products for export to Southeast Asian markets

Everbright's agricultural and industrial plan for Zhuhai

Hong Kong's China Everbright Holdings Company Ltd. has also recently taken an active interest in Zhuhai, and like Gladhover plans to develop large tracts of land there. Agricultural reclamation is the focus of the Zhuhai SEZ Pearl River Modaomen Development Company, a 50-year joint venture between Everbright, the Pearl River Water Resources Commission, and the SEZ.

The Modaomen Land Reclamation project covers 170 sq km on the westernmost estuary of the Pearl River, 16 km west of Zhuhai city proper. A feasibility study finished in July 1984 indicated that land reclamation could be completed in six years and will require an investment of $100 million. According to Dong Cishan of Everbright, the area can support large-scale sugar cane production, a sugar refinery with up to 4,000 tons of cane per day capacity, yeast production, papermaking, fish and shrimp ponds, and a variety of fruit and vegetable crops and related agricultural processing facilities. Development at Modaomen may eventually become an agricultural model for the rest of the Pearl River Delta.

Meanwhile, Everbright also plans to develop the Zhuhai Beiling Industrial Estate (ZBLIE), which will occupy 4 sq km in the Beiling industrial area. This area will focus on light and high technology industries such as electronics, instruments, and meters. An area covering 1.5 sq km will be developed first, to accommodate some 20 factories.

Everbright engaged Morrison-Knudsen International in August 1984 to conduct a feasibility study of industrial development potential in the region, with assistance provided by the US government's Trade and Development Program. Several letters of intent with Macao investors have already been signed, one for integrated circuit technology and another for injection moulding. It is hoped that the first factories will be operational by late 1985. Although most investment has come from Macao to date, Swedish, Danish, and American firms have also expressed an interest in ZBLIE.

Everbright's ZBLIE is located just 3 km west of the Jiuzhou port and 2 km north of Macao at the junction of north–south and east–west roads. ZBLIE is also located just north of the Silverbay Industrial tract being developed by Gladhover Ltd, and the two industrial zones may compete for investors. However, both Gladhover and Everbright appear optimistic that there will be enough investors to keep both industrial zones occupied. These two zones have defined their industrial priorities differently, which should minimize overlap.

Meanwhile, Gladhover's harbor project and Everbright's agricultural reclamation project should, when completed, prove important supplements to *all* of Zhuhai's industrial activities, and therefore complement the efforts of both companies to attract investors to Zhuhai. 完

Investment Projects in China

David Richter

China's provinces began to systematically release lists of projects open to foreign investors in mid-1982. The following compilation brings together for the first time all of these lists, organized by economic sector rather than geographic location.

Such a list provides a convenient starting point for the potential investor in search of the right partner in China, for it locates at a glance those economic entities that are already actively seeking investment in each sector. Investors may have already been found for some particular projects. However, each economic entity listed here has undergone a rigorous selection process in order to solicit foreign investment for its project, and thus these factories and farms represent an elite group with a high likelihood of continuing foreign involvement. In many cases, these projects are further backed by provincial promises of better access to energy supplies, transportation, and raw materials.

For more information about these projects, National Council members may contact David Richter of the National Council Library at (202) 429-0340.

AGRICULTURAL PRODUCTION

Agro-Commercial Company, Haikou, GD: coconut husk mill
Associated Enterprise, FJ: seafood products
Beihai Prawn Breeding Farm, GX: prawn breeding
Dalian Aquatic Breeding Company, LN: kelp processing
Dalian Aquatic Products Corp., LN: fish gruel
Dalian Marine Fishing Company, LN: seafood products
Dalian Municipal Agricultural Bureau, LN: fruit trees
Dapo Farm, Hainan, GD: pineapple planting
Datong Agricultural & Pastoral Machinery Plant, SX: fodder
Datong Sugar Refinery, SX: rice pellet dregs
Dongguo County Aquatic Product Supply & Marketing Company, LN: shrimp cakes
Donghai County Livestock Breeding Farm, JS: cattle
Donghu Farm, HB: chicken farm
Fujian Lysine Plant, FJ: sugar refining
Fujian Refined Sugar Plant, FJ: sugar refining
Ganjia Pasture in Xiahe County, GS: agribus JV
Guangdong Province Coastal Region Water Products Bureau, GD: fish breeding
Guixian Sugar Refinery, GX: citric acid production
Guiyang Essential Oils Factory, GZ: cypress oil
Hainan Aquatic Cultivation Company, GZ: prawn breeding
Haoxian County Egg Processing Factory, AH: pasteurisers
Heilongjiang Isomerized Sweet Factory, HL: sorghum syrup
Hubei Provincial Aquatic Products Company, HB: aquatic products
Jiangsu Provincial Marine Fishing Company, JS: fishing trawlers
Jianli County Building Materials Industry Mgmt. Company, HB: straw board
Jinjiang Sugar Refinery, FJ: sugar refining
Langlang Geyucheng Dairy Farm, HEB: dairy cattle
Liaocheng City Aquatic Product Bureau, SD: incubators
Liaoning Provincial Aquatic Supply & Marketing Company, LN: seafood products
Longganhu Farm, HB: ducks & egg products
Longxi Sugar Refinery, FJ: sugar
Ludong Aquatic Bureau, JS: automatic layer baking machine
Lutai Farm, HEB: sausage producing eqpt. & technology
Mianshan Pasture, GS: joint venture
Mingin County, GS: food production
Nanning & Guixian sugar refineries, GX: yeast manufacturing eqpt.
Nantong Fat Mill, JS: cotton seed oil refining eqpt.
Nantong No. 1 Marine Fishing Company, JS: trawlers & fish processing
Nanyang Fungus Inst., HEN: fungus processing eqpt.
Nanbin Farm, Hainan, GD: palm oil planting & processing
Putian Gourmet Powder Plant, FJ: sugar
Putian Sugar Refinery, FJ: sugar
Qimen Tea Machinery Plant, AH: tea-pruning & picking
Qingdao Hongxing Chemical Factory, SD: palm oil
Qingdao Red Star People's Commune, SD: bait processing & refrigerator cars
Qingyang Dongzhiyuan Cattle Base, GS: cattle
Qiongshan County Trust Company, Hainan, GD: pineapple production
Sanhe County Mixed Feed Factory, HEB: feed production
Sanjiang Farm & Luodou Farm, GD: seawater breeding
Sanmenhu Farm, HB: animal husbandry
Shandong Chengkou Saltworks, SD: prawn breeding & bait processing
Shijazhuang Yudi Township Agricultural-Industrial-Commercial Corp., HEB: tomato planting & processing
Tangshan Feed Corp., HEB: mixed feed processing
Tianjin Shuanglin Farm, TJ: animal husbandry
Tianjin State Farm Bureau, TJ: milk products production
Tianqiao Prawn Farm, Jinxi, LN: prawn & clam cultivating
Tieling Prefectural Fodder Mill, LN: mixed fodder processing
Wuhan Farm, HB: cattle raising & milk processing
Xiamen Citric Acid Plant, FJ: sugar
Xiamen Eel-Breeding Farm, FJ: eel breeding
Xiamen Sugar Refinery, FJ: sugar
Xianyou Lysine Plant, FJ: sugar
Xilu State Farm, Hainan, GD: sweet aster production
Yifeng Horticulture Center, HEN: low temperature fermentation facilities & technology
Yingkou Aquatic Production Breeding Corp., LN: bait processing & prawn breeding
Yuefang Company, Hainan, GD: rubber plant processing
Zhaozheng Aquatic Products, FJ: aquatic products
Associated Enterprise, FJ: seafood products

AGRICULTURAL INPUTS

Anda Phosphate Fertilizer Factory, HL: fertilizer
Benxi Chemical Fertilizer Factory, LN: control eqpt.
Changpo Commune, Hainan Island: chemical fertilizer
Fujian Rosin Factory, FJ: rosin, sizing material, acidolysis glycerine
Fuyang Citric Acid Factory, AH: citric acid
Jiaonan County Chemical Factory, SD: brown alga glue, mannitol, iodine
Jinan Chemical Fertilizer Plant, SH: fertilizer manufacturing eqpt.
Jinchuan Phosphate Fertilizer Plant, GS: fertilizer
Liaohe Fertilizer Plant, Yingkou, LN: tubings for shifting furnace
Mudanjiang Agricultural Chemicals Factory, HL: polyvinyl alcohol
Qinghai No. 3 Chemical Plant, QH: fertilizer workshop
Tianjin Agricultural Commission, TJ: organic fertilizer
Tieling Prefectural Oil Factory, LN: protein extracting eqpt
Xian Nitrogen Fertilizer Plant, SN: synthetic NH3, refined methanol

AGRICULTURAL MACHINERY

Guangdong Aquatic Product External Economic Service Corporation, GD: fishing eqpt.
Hubei General Cotton Ginning Machine Plant, HB: cotton gin
Ma'anshan Meters & Instruments Plant, AH: soil analysis
Qidong Marine Fishery Corporation, JS: towing net fisher
Qingdao Tractor Plant, SD: tractors
Shandong Tractor Plant, SD: tractors
Shenyang Small Tractor Plant, LN: tractors
Shijazhuang Tractor Parts Factory, HEB: piston rings
Taizhou Fishing Net Factory, JS: net-knitting machine
Wuhan Farm, HB: artificial insemination eqpt.
Xinyang Diesel Engine Factory, HEN: strawing eqpt.
Yuncheng Tractor Plant, SN: tractors

CHEMICALS & PETROCHEMICALS

Anshan No. 3 Chemical Plant, LN: meta-benzoictri-anhydride
Anqing Toilet Soap Factory, AH: oil water separators
Anyang Dye-Stuff Factory, HEN: dyestuff, sand-grinder & sizer
Benxi Auxiliary Factory, LN: micro calcium carbonate
Benxi Synthetic Chemical Works, LN: electroplating
Bingzhou Flexible Graphite Sealing Parts Factory, SD: graphite
Caohekou Chemical Plant, LN: chlorinated resin
Changsha Fat Chemical Plant, HN: ricebran oil, wax, & fatty acid
Changshou Chemical Works, Chongqing, SC: rubber manufacturing eqpt.
Chlorine Rubber Finishing Facilities, Chongqing, SC: eqpt
Chongqing Paint Factory, SC: acrylic acid resin paint
Chongqing Synthetic Chemical Factory, SC: granular polyformaldehyde
Dalian Chemical Industry Corporation, LN: NH3 & N separating installations
Dalian Dye Factory, LN: dispersion blue S-BGL
Dalian Dyestuff Plant, LN: disperse type dye stuff
Dalian Hongxin Chemical Plant, LN: 600 T/Y para-benzene-diphenol
Dalian Jinguang Chemical Plant, LN: film-covered slow-erosion agents
Dalian Paint Plant, LN: acrylic coatings eqpt.
Dalian Tongde Chemical Plant, LN: polyacrylamide
Dandong Chemical Fiber Plant, LN: multiple effect evaporators
Dandong Daily Expenses Chemicals Factory, LN: glycerine
Dandong No. 5 Cotton Mill, LN: chemical fiber filtering eqpt.
Dandong Zhenxing People Daily Chemicals Factory, LN: cosmetics
Daqaidam Chemical Plant, QH: glauber salt
Fushun Carbon Black Factory, LN: separation device
Fushun Chemical Fiber Plant, LN: polycrylonitrile
Fushun Chemical Industry Co., LN: wax for arts & crafts
Fushun No. 2 Shale Oil Refinery, LN: petroleum products
Fushun Petroleum Corp., LN: oil shale refining
Fujian Petrochemical Works, FJ: oil refinery, ethylene plant, & NH3
Fuzhou Artificial Rutile Factory, FJ: petroleum products
Fuzhou Printing Ink Factory, FJ: colophony resin
Gaotai Chemical Plant, GS: mirabilite ore
Guangdong Foshan Chemical Engineering Factory, GD: printing ink for plastics
Guangzhou Chemical Fiber Plant, GZ: glassine
Guangzhou Nitrogenous Fertilizer Plant, GZ: synthetic nitrogen
Guangzhou Paint Factory, GZ: paint
Guanzhou Perfumery, GZ: perfume
Guangzhou Petrochemical Planning Office, GZ: ethylene
Guangzhou Rubber Hose Plant, GD: vacuum-feeding, weaving, wire plying machines
Guangzhou Thermos Flasks Factory, GD: spray-painting eqpt.
Glauber Salt Factory, Pingan, QH: glauber salt
Haimen Rubber Seals Factory, ZJ: surface treatment eqpt
Haining Chemical Fiber Plant, ZJ: polypropylene filament
Hangzhou Changzhen Chemical Factory, ZJ: ethylene keton, butene sorbic acid
Hangzhou Pesticide Factory, ZJ: methyl chlorine compound
Hangzhou Printing & Dyeing Mill, ZJ: printing eqpt.
Hangzhou Printing Ink & Paint Factory, ZJ: printing ink resin
Hangzhou Printing Ink & Paint Factory Special Workshop, ZJ: paint
Hangzhou Toothpaste Factory, ZJ: paste-making, packing eqpt.
Hangzhou Yongming Resin Mill, ZJ: epoxy & silicon products
Harbin No. 4 Chemical Engineering Factory, HL: phthalic anhydride
Harbin No. 5 Chemical Engineering Factory, HL: phthalic anhydride
Qiqihar Paint Factory, HL: paint filtering installation
Harbin Paint Factory, HL: paint filtering installation
Hefei Chemical Works, AH: ion exchange electrolytic bath
Hefei Rubber Factory, AH: rubber production
Hengyang Insulating Material Factory, HN: insulating glue
Huainan Fertilizer Plant, AH: synthetic acetic acid
Huangshi Building Material Supply & Marketing Co., HB: latex paint
Huangshi Limestone Mill, HB: calcium silicate
Huishan Pesticide Plant, Wuxi, JS: isocyanate adhesive
Hunan Rubber Goods Factory, HN: rubber
Jiayuguan Chemical Plant, GS: solid soda
Jinan Chemical Fiber Mill, SD: superfine polyamide
Jinan Chemical Fiber Plant, SD: superfine polyamide or polyester fibers
Jinan Printing Ink Mill, Qindgao, SD: ink
Jinan Synthetic Fiber Plant, SD: balling machines, knitters
Jinzhou Heavyduty Machinery Plant, LN: ethylene
Jinzhou No. 6 Petroleum Refinery, LN: high-pressure polyethylene
Kaifeng No. 2 Chemical Works, HEN: electrolyzers for caustic soda
Kaifeng Rubber Plant, HEN: belts, rollers for spinning
Lanzhou Northwest Paint Factory, GS: powder pigment
Liaoning Textile Inst., LN: laboratory polymer apparatuses
Liaoyang Chemical Fiber Industrial Corp., LN: processing waste fibers
Longjiang Chemical Plant, FJ: toluene diiso cyanester TDI
Meixi Forestry Bureau Resin Factory, HL: processed lumber resin eqpt.
Minhou Leather Factory, FJ: rubberized fabrics producing eqpt.
Nanjing Lishui Chemical Plant, JS: strontium carbonate granulation
Nantong Synthetic Fiber Plant, JS: polyester filament
Ningbo Pesticide Factory, ZJ: liquid sumithion
Provincial Light Industrial Products Research Center, GS: cosmetics emulsification machines
Qingdao Chemical Plant, SD: bleaching powder
Qingdao Chemical Works, SD: bleach powder concentrate
Qingdao Chengyang Chemical Works, SD: lead monoxide
Qingdao Dyestuff Factory, SD: dyes
Qingdao Dyestuff Plant, SD: neutral dye
Qingdao Hongqi Chemical Factory, SD: granulated sodium benzoate
Qingdao No. 2 Rubber Factory, SD: Banbury mixer, dual extruder
Qingdao Paint Factory, SD: non-poison pencil lacquer resin
Qingdao Pesticide Factory, SD: decamethrin
Qingdao Rubber Products Factory, SD: rubber blankets
Qingdao Rubber Research Inst., SD: H.T.D. synchronous belts
Qingdao Synthetic Fiber Plant, SD: urea-formaldehyde molding powder
Qinghai Bone Glue Factory, QH: gelatin & calcium phosphate
Qinghai Electrochemicals Works, QH: NA
Qinghai Liming Chemical Plant, QH: caustic soda
Qishi Electrochemical Factory, HL: hydropolyethylene resin
Qishi Paint Factory, HL: acetate resin for painting
Quzhou Chemical Works, ZJ: sodium hydroxide
Rudong Chemical Factory, JS: epoxy paint
Rudong Insecticide Plant, JS: alpha-naphthol
Shaanxi Province External Economic Committee, SN: raw lacquer
Shanghai Dyestuffs Chemical Factory, SH: disperse dyes
Shanghai Latex Rubber Factory, SH: rubber household gloves

Shanghai No. 1 Dyestuffs Factory, SH: azo pigments technology
Shanghai No. 2 Rubber Products Factory, SH: vulcanizing
Shanghai No. 4 Rubber Product Factory, SH: rubber coated cloth
Shanghai No. 7 Dyestuffs Factory, SH: catalyst & carrier MFR
Shanghai Resin Factory, SH: organic silicone monomer
Shanghai Solvents Factory, SH: trioxane bulk polymerization
Shanghai Synthetic Detergent Factory, SH: detergent powder spray
Shanghai Tianyuan Chemical Factory, SH: caustic soda
Shanghai Waterproof Materials Factory, SH: multifunction asphalt felt
Shanghai Wujing Chemical Works, SH: high temperature shift catalysts
Shanghai Wusong Chemical Works, SH: TD1
Shanxi Chemical Works, SX: polychloroprene rubber
Shashi Organic Chemical Plant, HB: polymethyl methacrylate
Shashi Paint Factory, HB: latex paint
Shenyang Chemical Plant, LN: pesticides,
Shenyang Daily Use Chemicals Factory, LN: cosmetics
Shenyang Paint Factory, LN: alkyd resin installation
Shenyang Petrochemical Plant, LN: polyether
Shizuishan Resin Plant, NX: bleaching powder
Suzhou Anxiliary Agent Plant, JS: carbon black polyformaldehyde
Suzhou Carbon Black Plant, JS: carbon black
Suzhou Melting Promoter Factory, JS: polyformaldehyde
Taicang County Plastic Agents Factory, JS: acrylic ester & glue
Taiyuan Chemical Plant, SX: TD1
Taiyuan Detergent Plant, SX: washing powder
Tianjin No. 1 Perfumery, TJ: dimethye benzyl carbinol
Tianjin No. 1 Daily Use Chemical Articles Factory, TJ: cosmetics
Tianjin No. 4 Daily Use Chemical Factory, TJ: shoe polish
Tianjin Perfumery, TJ: musk
Tianjin Printing Ink Plant, TJ: printing ink technology
Tianjin Synthetic Detergent Factory, TJ: granulating device
Tianjin Toothpaste Factory, TJ: toothpaste production line
Titanium Dioxide Production Plant, Hainan, GD: titanium dioxide
Wuhan Bus Assembly Plant, HB: corrosive coating
Wuhan Dyestuff Plant, HB: dyestuffs
Wuhan General Chemical Auxiliary Agent Plant, HB: amino acid
Wuhan General Paint Plant, HB: acrylic acid resin
Wuxi No. 2 Rubber Factory, JS: rubber rollers & rings
Wuxi Oil Refinery, JS: lubricant fat
Wuxi Paint Mill, JS: melting, dissolving molding machines & grinders
Wuxi Resin Plant, JS: biphenol A
Wuxi Synthetic Chemical Plant, JS: fatty alcohol & catalyst
Wuzhou Starch Factory, GX: trangle brand starch
Xiamen Rubber Factory, FJ: sneakers, cart tires
Xiamen Soda Ash Plant, FJ: soda ash, ammonia chloride
Xiamen Sodium Carbonate Works, FJ: ammonia chloride
Xian Chemical Engineering Plant, SN: refining eqpt
Xian Paint Plant, SN: refinery heating machines, resin pot
Xingtai Pesticide Plant, HEB: granulated pesticides
Xinli Chemical Fiber Plant, Shantou, GD: nylon filament
Xuchang Insulating Material Factory, HEN: varnishes, laminating materials
Xuzhou Electric Chemical Plant, JS: caustic soda
Yangquan Ferric Oxide Factory, SX: ferric oxide, sulphuric acid
Yangzhou Chemical Factory, JS: phenolic aldehyde plastic
Yichang Paint Chemicals Factory, HB: alkyd resin
Yinchuan Rubber Factory, NX: conveyer belt production line
Yinchuan Rubber Plant, NX: radial ply tires
Yingkou Chemical Fiber Plant, LN: metering pumps & meters
Yingkou Fluorescent Material Plant, LN: fluorescent materials
Yingkou Petrochemical Plant, LN: multi-effect grease
Yuci Chemical Fiber Plant, SX: polyacrylic staple fiber
Yuhang Dongteng Farm Insecticide Factory, ZJ: grinding machines
Yumen Chemical Plant, GS: sulfurated soda
Yuncheng Synthetic Detergent Plant, SX: washing powder
Yuyao Chemical Fiber Plant, ZJ: viscose fiber
Zhaodong No. 1 Chemical Engineering Factory, HL: chemicals
Zhenjiang Resin Factory, JS: resin paste
Zhengding County Furfural Factory, HEB: xylitol
Zhengding Xian Furfural Plant, HB: furfural
Zhengzhou Grease Chemical Factory, HEN: protein devices

CONSTRUCTION MATERIALS

Anqing City Marble Slab Quarry, AH: marble processing machines
Anqing Porcelain Factory, AH: porcelain bricks, hygienic ceramics
Anqing White Cement Factory, AH: cement
Baimashan Cement Plant, AH: cement
Baoding Synthetic Material Factory, HEB: construction paint
Baoji Chemical Engineering & Machinery Plant, SN: enamelled glass
Beihai Plate Glass Factory, GX: plate glass
Benxi Cement Plant, LN: low temperature power generating eqpt.
Boshan Building Ceramics Factory, SD: automatic brick-makers
Changle Stone Tablet Factory, FJ: stone tablet
Changpo Brown Coal & Shale Mine, Hainan, GD: cement
Chaozhou Ceramics Industry Co., GD: kaolin
China Cement Plant, JS: cement
Chinhuangdao Yiuhua Glass Factory, HB: carpets & bathtubs
Chongqing Cement Factory, SC: cement
Chongqing No. 2 Bricks Plant, SC: terrazzo
Chuxian County Cement Factory, AH: cement
Dalian Cement Products Factory, LN: calcium silicate boards
Dalian Glass Factory, LN: float glass standard boxes
Dandong Building Materials Bureau, LN: marble plates, artificial marble
Dandong Refractory Material Factory, LN: porcelain bricks
Dangyang County Changbanpo Brick & Tile Plant, HB: production line
Daxin Brick & Tile Plant, SH: concrete blocks production
Development Company Shantou, GD: ceramic bricks
Digang Cement Plant, AH: cement
Dongshan Glass Factory, FJ: standard boxes
Huian Glass Factory, FJ: standard boxes, plate glass
Changlo Glass Factory, FJ: standard boxes, plate glass
Xiamen Xinhua Glass Factory, FJ: standard boxes
Fengtai County Pot & Bowl Making Factory, AH: bricks
Foshan Jianguo Porcelain Factory, GD: glazed color bricks
Foshan Pottery & Porcelain Co., GD: lavatory utensils
Fujian New Building Materials Plants, FJ: hollow blocks
Shunchang Cement Works, FJ: cement
Fujian No. 125 Cement Works, FJ: cement
Fuqing Granite Slab Plant, FJ: granite slabs, raw granite
Fushun Refractory Material Factory, LN: firebrick
Fuzhou Enamelware Factory, FJ: enamel chunks
Fuzhou Refractory Plant, FJ: porcelain parts
Gongyuan Cement Plant, LN: white cement
Guangdong Foshan Renmin Porcelain Factory, GD: production line
Guangzhou Building Porcelain Factory, GZ: sanitary supplies
Gulang Cement Plant, GS: cement
Haikou Ceramics Plant, Hainan Island: ceramic tiles
Hangzhou Cement Products Factory, ZJ: mineral wool, terrazzo
Hanzhong Cement Works, SN: cement
Hangzhou Chemical Industrial Building Design & Development Co., ZJ: PVC door & window
Hangzhou Fushunjiang Cement Factory, ZJ: cement
Hangzhou Marble Factory, ZJ: thick-coating cement
Huaibei Cement Plant, AH: cement
Huainan City Porcelain Factory, AH: glazed bricks
Huangshi Municipality Limestone Mill, HB: cement
Hubei New Building Materials Factory, HB: terrazzo
Huian Stone Products Factory, FJ: tombstones
Fuqing Granite Slab Factory, FJ: granite slab
Hunan Building Ceramics Factory, HN: marble processing, terrazzo
Hunan Marble Processing Plant, HN: marble slab, terrazzo
Jiangling County Bricks & Tiles Plant, HB: mineral wool products
Jinan No. 1 Plastic Mill, SD: plastic building materials
Jingshan County Cement Products Plant, HB: marble sheet
Lanzhou Plate Glass Plant, GS: glass
Lanzhou Yaojie Cement Plant, GS: cement
Lianjiang Hongxing Porcelain Factory, GD: glazing & shaping production line
Litang Glazed Tile Factory, GX: construction materials
Lizhou City Artistic Ceramics, GX: hard ceramics
Lunan Cement Plant, SD: cement
Luoyang Steel Window Frame General Plant, HEN: window frames
Minqing Construction Porcelain Factory, FJ: glazed brick
Minqing Glazed Tile Plant, FJ: glazed tiles
Minqing Porcelain Plant, FJ: construction materials
Minqing Toilet Porcelain Works, FJ: construction material
Minqing Ceramic Insulator Plant, FJ: construction material
Jinjiang Sanitary Porcelain Plant, FJ: construction material
Nanjing Insulation Material Plant, JS: fiberglass
Nanyang District, HEN: marble
Nixing Brickyard, GX: bricks
Pingdu Marble Quarry, SD: marble extraction & processing eqpt.
Qindao Nailery, SD: nails
Qiqihar Glass Factory, HL: standard boxes, plate glass
Quanzhou Glazed Tile Factory, FJ: construction material
Quanzhou Floor Tile Factory, FJ: construction material
Quanzhou Porcelain Sanitary Ware Factory, FJ: sanitary ware
Quanzhou Sanitary Ceramics Plant, FJ: sanitary tiles
Quyang Marble Quarry, HEB: mining & processing marble stones
Quyang Xian Marble Mine, HB: marble
Shaanxi Lueyang Asbestos Mine, SN: asbestos
Shaanxi Provincial Civil Engineering Bureau, SN: Aluminum-alloyed doors & windows
Shangbu Industrial District, Shenzhen, GD: doors & windows
Shanghai No. 1 Enamelware Factory, SH: cast iron bathtubs
Shanghai Cement Industry Corporation, TJ: cement
Shanghai Quartz Glass Plant, SH: terrazzo slab
Shantou Glass Factory, GD: glassware
Shantou SEZ Development Corp., GD: construction materials
Shenyang Ceramics Factory, LN: glazed tiles
Shenyang Elevator Plant, LN: speed-adjustable elevator
Shenyang Marble Factory, LN: terrazzo
Shunchang Cement Plant, FJ: cement
Sichuan Building Machinery Plant, SC: tower cranes
Suzhou China Clay Co., JS: clay processing eqpt.
Suzhou Porcelain Clay Co., JS: selection & sorting
Taiyuan Chemical Plant, SN: PVC doors & windows
Taiyuan Dongguan Brick & Tile Plant, SN: bricks
Taoshan Cement Plant, AH: cement
Tianjin Aluminum-alloy Plant, TJ: aluminum door & window frames
Tianjin Asbestos Product Mill, TJ: asbestos processing
Tianjin Building Material Factory, TJ: measuring instruments
Tianjin Enamelware Factory, TJ: continuous enamel furnace
Tianjin Fiberglass Mill, TJ: fiberglass felt production line
Tianjin Gypsum & Plaster Board Factory, TJ: sanitary ware
Tianjin Marble Mill, TJ: terrazzo production line
Tongling Cement Factory, AH: cement
Wujiang Asbestos Plant, JS: cement load-pressing plate
Wutaishan Marble Factory, SX: production lines, quarrying eqpt.
Xiamen Xinhua Glassworks, FJ: plate glass production line
Xian Asbestos Products Factory, SN: asbestos
Xian No. 2 Brick Plant, SN: plaster plates
Xianyang Pottery Plant, SN: glazed tiles
Xiaogan Brick Plant, HB: production line
Xichuan Marble Mine, HEN: mining & processing eqpt.
Xinanjiang Man-made Board Factory, ZJ: structured & weft board
Xishui County Marble Factory, HB: marble
Xinhua Cement Plant, HN: cement
Xinyang No. 2 Precast Building Material Factory, HEN: block shaping machine
Xuzhou Building Ceramics Plant, JS: glazed tile
Xuzhou Electrolytic Chemical Factory, JS: door & window
Yaoxian County Cement Plant, SN: outer-kiln decomposition line
Yingshan County Marble Quarry, HB: granite
Yixing Marble Plate Processing Factory, JS: quarrying & production eqpt.
Yongan Dahu Cement Plant, FJ: dry-process clinker cement plant
Zhangping County Buy License Artificial Marble Factory, FJ: polyester concrete
Zhangzhou Red Floor Tile Factory, FJ: construction material
Zhuangli Ceramics Factory, SN: glazed tiles

ELECTRONICS

Anhui Bearing Industrial Corp., AH: meters
Anhui Radio Factory, AH: printed circuits, micro-computers
Anqing Electrical Meters & Instruments Plant, AH: meters, household appliances
Anqiu Semiconductor Factory, SD: triodes
Beijing Computer Factory No. 1, BJ: computers
Beijing No. 5 Semiconductor Device Factory, BJ: audio IC
Beijing Optical Instrument Factory (BOIF), BJ: vectron
Beijing Optical Instrument Factory No. 2, BJ: AA spectroscope
Beijing Radio Instrument Industry Corp., BJ: IC test instrument
Bengbu Air Compressor Plant, AH: rotary air compressors
Bengbu Battery Factory, AH: alkaline batteries
Bengbu No. 6 Radio Factory, AH: resistors
Bengbu Printing House, AH: electronic color scanners
Benxi No. 1 Radio Factory, LN: ultrasonic flow-meter
Benxi No. 10 Radio Factory, LN: screw threading board
Bengbu Semiconductor Appliance Factory, AH: pressure transducers
Benxi Semiconductor Device Factory, LN: diode-sealing eqpt.
Benxi Steel Enterprise Electrical Eqpt. Repairing Plant, LN: battery lamps
Boshan Electric Bulb Factory, SD: fluorescent lamps
Boshan Electrical Machinery Plant, SD: electric motors
Boshan Motor Plant, SD: D.C. motors
Boshan Radio Component Factory, SD: capacitors
Changzhou Battery Factory, JS: micro-batteries
Changzhou Electric Motor & Appliances Factory, JS: motors
Changzhou No. 2 Electronic Apparatus Factory, JS: lasers
Changzhou No. 2 Electronic Instrument Factory, JS: laser
Changzhou Semiconductor Factory, JS: integrated circuits
Changzhi Explosion-Proof Motor Plant, SX: motors
Chaozhou Radio Ceramic Parts Factory, GD: small chip resistors
China Huaqiang Electronic Devices Corp., GD: integrated circuits
Chongqing Bulbs Factory, SC: fluorescent tube-drawing machines
Chongqing High-Frequency Ceramics Plant, SC: ceramic parts
Chongqing No. 4 Radio Factory, SC: high power transistor cores
Chongqing Variable Condenser Plant, SC: condensers
Datong Bulb Factory, SX: miner's lamp bulbs
Dalian Instrument & Meter Component Plant, LN: silicon
Dalian No. 7 Radio Factory, LN: electronic eqpt.
Liaoning Potentialmeters Factory, LN: carbon film
Dalian No. 322 Transitor Factory, LN: transistors
Dalian Smelting Plant, LN: safety lamps
Datong No. 2 Radio Component Factory, SX: capacitors
Dezhou No. 3 Radio Factory, SD: transformers, TV sets
Electronic Computer United Company of Tianjin, TJ: computers
Fujian Integrated Circuit Factory, FJ: circuit blocks
Fujian Electronic Computer Factory, FJ: pocket calculators
Fujian No. 2 Radio Parts Factory, FJ: potentiometers
Fushun Electronics Apparatus Factory, LN: keyboards
Fuzhou Metallurgical Plant, FJ: storage battery plate
Fuzhou No. 4 Radio Plant, FJ: antenna rods
Fuzhou Transformer Plant, FJ: shearing & coiling production eqpt.
Guangdong Electronics Corp., GD: soft magnetic disc-driver
Guangdong Province Electric Co., GD: computers, telecommunications
Guangdong Semiconductor Factory, GD: transistor core
Guangdong Shaoguan No. 1 Wireless Factory, GD: micro-computers
Guangdong Semiconductor Factory, GD: TV & integrated circuits
Guangji Radio Component Plant, HB: potentiometers
Guangzhou Ceramics Capacitor Factory, GD: capacitors
Guangzhou Electronic Tube Factory: magnetic tape, discs
Guangzhou Miniature Electronic Machine Factory, GD: machines
Guangzhou Nanyang Electrical Devices Plant, GD: motors
Guangzhou No. 2 Electric Wire Plant, GD: insulated wires
Guangzhou Renmin Electrical Goods Factory, GD: transformers
Haikou Electronics Factory, Hainan, GD: crystals
Hangzhou Instrument Component Factory, ZJ: led cores
Hangzhou Instrument Factory, ZJ: kilowatt-hour meters
Hangzhou No. 2 Radio Factory, ZJ: glass-sealed diodes
Hangzhou No. 6 Radio Factory, ZJ: organic film capacitors
Hangzhou No. 9 Radio Factory, ZJ: magnetic-heads
Hangzhou Semiconductor Triode Device Factory, ZJ: triodes
Harbin Transistor Factory, HL: silicon diodes & triodes
Hefei Electronic Tube Factory, AH: solar energy
Hefei Battery Plant, AH: batteries
Hefei Electric Bulb Plant, AH: bulb blowing machine

PROVINCE KEY

AH-Anhui	HL-Heilongjiang	SD-Shandong
BJ-Beijing	HN-Hunan	SH-Shanghai
FJ-Fujian	JL-Jilin	SN-Shaanxi
GD-Guangdong	JS-Jiangsu	SX-Shanxi
GS-Gansu	JX-Jiangxi	TJ-Tianjin
GX-Guangxi	LN-Liaoning	XJ-Xinjiang
GZ-Guizhou	NM-Nei Monggol	XZ-Xizang
HB-Hubei	NX-Ningxia	YN-Yunnan
HEB-Hebei	QH-Qinghai	ZJ-Zhejiang
HEN-Henan	SC-Sichuan	

Hefei Electron Tube Factory, AH: vacuum devices, bulbs
Hefei No. 3 Electronic Element Factory, AH: potentiometers
Hefei No. 5 Electronic Elements Factory, AH: capacitors
Hefei Magnetic Material Plant, AH: changeover switches
Hefei Semiconductor Factory, AH: infrared sensors
Hefei Transistors Plant, AH: sealed plastic tubes
Hegang Transistor Factory, HL: transistors
Hengyang Semiconductor Factory, HN: bridge rectifiers
Hongwei Machinery Plant, GS: circuit board printing
Houma Cable Factory, SX: communication cables
Houma Lamp Cap Factory, SX: lamp caps
Hubei Switch Factory, HB: circuit breakers
Hunan Semiconductor Plant, HN: triodes
Hunan Xinhua Radio Appliances Factory, HN: integrated circuits
Huzhou Semiconductor Device General Factory, ZJ: wave filter
Jiangmen No. 2 Wireless Factory, GD: miniature machinery
Magnetic Materials Factory, AH: ferro-magnetic, magnetic heads
Jiangsu Radio Factory, JS: microprocessors
Jiaxing Battery Factory, ZJ: R6 batteries
Jiaxing No. 2 Electronic Apparatus Plant, ZJ: printed substrate
Jiaxing Electric Controlling Eqpt. Plant, ZJ: circuit breakers
Jinan Bulb Factory, Qingdao, SD: glass-blowing machines
Jinan No. 3 Semiconductor Factory, SD: components production
Jinan No. 4 Semiconductor Factory, SD: forming machines
Jinan No. 8 Radio Factory, SD: electric circuit plate production
Jinan No. 12 Radio Factory, SD: capacitor production
Jinan Transformer Plant, SD: transformers, foil type coils
Jingdezhen Radio Factory, JX: integrated circuits
Jingdong Electrical Eqpt. Factory, GS: flyback transformers
Jining Silicon Components Factory, SD: silicon components
Jinshi Electronic Diode Making Factory, HN: fluorescent lamps
Jinyun Rectifier Factory, ZJ: silicon rectifier
Kaifeng No. 1 Radio Factory, HEN: transformers
Kaifeng No. 2 Radio Factory, HEN: microcomputers
Lanzhou Auxiliary Factory, GS: initiators
Lanzhou Electrical Machinery Plant, GS: electrical motors
Lianyungang Telecommunication Instrument Factory, JS: quartz crystals
Lianyungang Transformer Plant, JS: transformers
Liaoning No. 2 Radio Factory, LN: controller PC
Liaoning No. 3 Radio Factory, Yingkou, LN: fire alarm devices
Liaoyang Crystal Component Plant, LN: quartz crystal
Linan Electronic Component Factory, ZJ: electronic components
Linfen Micro Motors Plant, SX: micro motors
Liuzhou Electron Tube Factory, GX: multilayer chips
Luoyang Semiconductor Factory, HEN: silicon-controlled rectifiers
Ma'anshan Magnetic Materials Factory, AH: field shaping technology
Microcomputer Co. Ltd. of Shenzhen, GD: microcomputers
Mudanjiang Magnetic Head Factory, HL: digital magnetic heads
Nanjing No. 4 Radio Element Factory, JS: multi-layer capacitors
Nanjing No. 11 Radio Element Factory, JS: metal film resistors
Nanping Electrical Machinery Plant, FJ: turbogenerating eqpt.
Nantong No. 1 Electronic Component Factory, JS: film capacitors
Ningbo Capacitor Factory, ZJ: aluminium plastic capacitors
Ningbo Magnetic Material Plant, ZJ: magnetic material
Ningbo No. 2 Radio Factory, ZJ: triode
Ningbo Transformer Plant, ZJ: foil-coil transformer
Ningguang Electronics Factory, NX: capacitant transistor diodes
Ningxia Electronic Instruments Factory, NX: testing eqpt.
Ningxian Radio Appliances Factory, HN: capacitors
Peripheral Eqpt. Factory, FJ: computers
Qingdao Counters Factory, SD: mechanical & electronic counters
Qingdao Electrical Appliance Components Factory, SD: rectifiers
Qingdao Kilowatt-Hour Meter Factory, SD: meters
Qingdao Kinescope Factory, SD: monochrome picture tubes
Qingdao Micrometer Plant, SD: matrix dot printer
Shandong Electronic Eqpt. Factory, SD: micro-treatment machinery
Shandong Provincial Radio Factory, SD: mine communication eqpt
Shanghai Electrode Plant, SH: electrode production
Shanghai Electron Tube Factory, SH: fluorescent lamps
Shanghai Electrophoto Device Factory, SH: sensors
Shanghai First Automation Instrumentation Factory, SH: monitoring system
Shanghai Guanghui Lighting Fitting Factory, SH: search lights
Shanghai No. 2 Smeltery, SH: scale integrated circuits
Shanghai No. 3 Analytical Instument Factory, SH: TLC scanners
Shanghai No. 4 Radio Factory, SH: automatic radar plotting aid
Shanghai No. 6 Electron Tube Factory, SH: fluorescent bulbs
Shanghai No. 6 Semiconductor Devices Factory, SH: diodes
Shanghai No. 7 Radio Factory, SH: silicon transistors
Shanghai No. 10 Radio Factory, SH: integrated circuits, triodes
Shanghai No. 14 Radio Factory, SH: FET
Shanghai No. 17 Radio Factory, SH: glass & zener diodes
Shanghai No. 26 Radio Factory, SH: signal generators
Shanghai No. 29 Radio Factory, SH: silicon transistors
Shanghai Radio Instrument Factory, SH: electronic counter
Shanghai Textile Mechanical & Electric Eqpt. Plant, SH: frequency converters
Shanghai Transformer Works, SH: transformers
Shanghai Wu Yi Electric Motor Factory, SH: rotary motors
Shanghai Ya Ming Electric Lamp Works, SH: HPS lamp
Shantou Battery Factory, GD: batteries
Shantou Electric Motor Works, GD: electrical eqpt.
Shantou No. 4 Wireless Factory, GD: plastic sealed transistors
Shantou Semiconductor Factory, GD: plastic sealed transistors
Shantou Ultrasonic & Electronic Apparatus Factory, GD: ultrasonic flaw detectors
Shanxi Electronics Industry Corp., SX: floppy discs
Shanxi No. 2 Radio Factory, SX: alarms for poisonous gases
Shanxi Tranformer Plant, SX: master digital transformers
Shashi No. 1 Radio Factory, HB: circuit board
Shenyang Battery Plant, LN: lead belt reaming & assembling
Shenyang 213 MachineTool Plant, LN: low-voltage electrical appliances
Shenyang Micromotor Plant, LN: electrical eqpt.
Shenyang No. 1 Radio Factory, LN: capacitors
Shenyang No. 2 Radio Factory, LN: coaxial jointer & switch
Shenyang No. 2 Transistor Factory, LN: wave filter
Shenyang No. 3 Radio Factory, LN: electrolytic capacitors
Shenyang No. 12 Radio Factory, LN: antenna system
Shenyang Semiconductor Material Plant, LN: silicon pulling furnace
Shenyang Storage Battery Plant, LN: auto storage batteries
Shenzhen Huayue Electronic Parts Corp., GD: laser parts
Shenzhen Yuebao Electronics United Corp., GD: magnetic heads
Shijiazhuan No. 2 Radio Factory, HEB: semiconductor apparatus
Shiyan Semiconductor Factory, HB: diodes
Sichuan No. 6 Instrument Factory, SC: IC production line
Suzhou Semiconductor General Factory, JS: integrated circuits
Suzhou Synthetic Crystal Factory, JS: quartz resonators
Suzhou Telecommunications & Electric Motor Factory, JS: micromotors
Tianjin No. 1, No. 9, & No. 10 Component Factories, TJ: mini-resistors, potentialmeters
Tianjin No. 1 Radio Elements Factory, TJ: capacitor
Tianjin No. 1 Transformer Plant, TJ: flyback transformers
Tianjin No. 2 Radio Factory, TJ: microcomputers
Tianjin No. 3 Automatic Meters Factory, TJ: water meters
Tianjin No. 3 Bulb Factory, TJ: mini-bulbs
Tianjin No. 4 Automation Meter Factory, TJ: PC program controllers
Tianjin No. 6 Radio Component Factory, TJ: time-delay wire
Tianjin No. 9 Radio Parts Factory, TJ: carbon resistors
Tianjin No. 15 Radio Parts Factory, TJ: capacitor
Tianjin No. 10 Radio Components Factory, TJ: potentiometers
Tianjin No. 3 Semiconductor Parts Factory, TJ: diodes
Tianjin No. 4 Semiconductor Elements Factory, TJ: diode sealing
Tianjin Plastic Rubber-Covered Wire Factory, TJ: wire
Tianjin Second Municipal Bureau of Machine-building Industry, TJ: facsimile machines
Tianjin Semiconductor Device Factory, TJ: integrated circuits
Tianjin Telephone Bureau, TJ: program-controlled facilities
Tianjin Transformer Plant, TJ: corrugated transformer oil tanks
Tianjin Transistor Material Factory, TJ: silicon single crystal
Tianjin Television Factory, TJ: marine communication apparatus
Tianshui Battery Factory, GS: commodity batteries
Tianshui Factory, GS: machine tool motor components
Tongling Radio Components Factory, AH: capacitors
Tongling No. 2 Radio Parts Factory, AH: capacitors
Weifang Electronic Computer Factory, SD: micro soft & hard wares
Weifang Electronic Instrument Factory, SD: radio telephones
Weihai Semiconductor Components Factory, SD: triodes
Wuhan Automation Instruments & Meters Factory, HB: recording instruments
Wuhan Ceramic Component Plant, HB: monolithic capacitors
Wuhan Electronic Device Factory, HB: instruments, communication cables
Wuhan Jinghua Color Printing House, HB: plate making eqpt.
Wuhan No. 3 Semiconductor Factory, HB: silicon rectifier diodes
Wuhan No. 4 Capacitor Factory, HB: circuit boards
Wuhan Radio Capacitor Factory, HB: electrolytic capacitors
Wuhan Radio Component Plant, HB: resistors & sensors
Wuhan Radio Standard Fasteners Factory, HB: radio fasteners
Wuhan Resistance Factory No. 1, HB: metallized film resistors
Wuhan Semiconductor Factory, HB: transistor tubes
Wuhan Switchgear Factory, HB: a.c. contactor
Wuhu Micromotors Plant, AH: fractional motors
Wuxi Capacitor Factory, JS: corrosion energy-storing foils
Wuxi Computer Factory, JS: computer Chinese termination
Wuxi Condenser Factory, JS: electrolysis condensers
Wuxi No. 7 Radio Element Factory, JS: transistors
Wuxi No. 9 Radio Elements Factory, JS: plastic sealed tubes
Wuzhou Storage Battery Factory, GX: storage battery plates
Xiamen Bulb Factory, FJ: disc bulb-blowing machines
Xiamen Electronic Computer, FJ: computers
Xiamen Electrical Control Apparatus Plant, FJ: switches
Xiamerr Electric Motors Plant, FJ: heavy electric motors
Xiamen Electronic Cells Factory, FJ: cardboard electric cells
Xiamen Semiconductor Factory, FJ: computers
Xian Capacitor Factory, SN: capacitor technology
Xian High-Voltage Electrical Porcelain Factory, SN: lighting arresting technology
Xian Metallurgical, Mechanical, & Electrical Products Bureau, SN: electrical products
Xian Motor Plant, SN: asynchronous motors
Xian Transformer & Electric Oven Factory, SN: reactors
Xian Transistor Plant, SN: 16-digit micro-processors
Xiangfan Electrical Machinery Plant, HB: energy saving motors
Xiangfan Laser Eqpt. Plant, HB: carbon dioxide lasers
Xiangfan Instrument & Meter Components Plant, HB: instruments & meters
Xiangtan Semiconductor Factory, HN: silicon transistors
Xinxiang Semiconductor Factory, HEN: transistors
Xuchang Electronic Relay Equipment Plant, HEN: testing instruments
Xuzhou Electronic Instrument Factory, JS: sweep-frequency instruments
Xuzhou Magnetic Material Factory, JS: ferrite antenna rods
Xuzhou No. 3 Radio Factory, JS: specialized motors
Xuzhou Rectifier Factory, JS: rectifiers
Xuzhou Semiconductor Factory, JS: transistors
Yangzhou Rectifier Factory, JS: silicon rectifying bridge
Yangzhou Rongguang Battery Factory, JS: paper matrix cells
Yangzhou Transistor Factory, JS: darlinton components
Yantai No. 4 Radio Factory, SD: variable capacitor
Yantai No. 6 Radio Factory, SD: soft plate data station
Yichang Electrothermal & Electrical Appliances Factory, HB: electrothermal tubes
Yinchuan Meter Works, NX: meters & instruments
Yinchuan Ningguang Electronic Factory, NX: single crystal wafer
Yingkou electromagnet Factory, LN: electromagnetic plates
Yingkou General Copying Machinery Plant, LN: copying machine
Yingkou No. 1 Radio Factory, monazite capacitor
Yingkou Radio Eqpt. Factory, LN: insulators
Yingkou Radio Machinery Plant, LN: microelectric motors
Yiyang Electronic Appliances Factory, HN: carbonizing system
Yongchuan Inst. of Solid State Circuits, SC: integrated circuit
Yongjian Recording Eqpt. Factory, SH: magnetic heads
Yueyang Hoisting Electromagnet Plant, HN: hoisting electromagnets
Zhanjiang No. 7 Factory, GD: porcelain capacitor
Zhangjiakou No. 1 Radio Factory, HEB: wave band translators
Zhangjiakou No. 5 Radio Factory, HEB: film capacitors
Zhejiang Radio Factory, ZJ: computer intregrated circuit
Zhenjiang Capacitor Factory, JS: capacitors
Zhenjiang Electron Tube Factory, JS: fluorescent ring lamps
Zhenjiang Semiconductor Factory, JS: head transistors
Zhongshan No. 2 Wireless Factory, GD: silicon heads
Zhuzhou No. 10 Radio Factory, HEN: capacitors
Zucheng Radio Parts Factory, SD: transistor radio parts
Zibo No. 6 Radio Factory, SD: carbon film resistance
Zibo No. 83 Shengjian Factory, SD: water purification eqpt.
Zibo Radio Porcelain Components Factory, SD: components

ELECTRONICS-CONSUMER PRODUCTS

Anshan Electronics Equipment Plant, LN: plugs
Anyang No. 1 Radio Factory, HEN: black & white TVs
Baohua Electronics Co., Ltd., Shenzhen, GD: radios
Bengbu Radio Appliances Factory, AH: speakers
Bengbu No. 1 Radio Factory, AH: radio-sets, multimeters
Bengbu No. 4 Radio Factory, AH: tuning coils
Bengbu No. 6 Radio Factory, AH: metal diaphragm resistors
Cangzhou No. 2 Radio Factory, HEB: all-channel tuners
Changzhou Television Set Factory, JS: TV sets
Chongqing Jialing Radio Factory, SC: microcomputer production
Dalian Chemical Industry Corp., LN: computers
Dalian Computer Development Center, LN: microcomputers
Dalian Kinescope Plant, LN: tubes & screens
Dalian Magnetic Spindle Factory, LN: magnetic head parts
Dalian No. 3 Radio Factory, LN: electromagnetic tape calculator
Dalian No. 14 Radio Factory, LN: decorative trim technology
Dalian Radio Factory, LN: pocket radios
Dalian Magnetic Head Factory, LN: recorder, heads, & motors
Dalian Tape Recorder Factory, LN: stereo cassette recorders
Dalian Telecommunication Equipment Plant, LN: tape recorders
Dalian Telecommunications & Electrical Machine Factory, LN: tape recorders
Dalian Television Factory, LN: mini conversation machines
Dalian Television Tube Plant, LN: glass bulb & electron gun production
Dandong Electronic Toy Factory, LN: battery-operated toys
Dandong General Tuner Factory, LN: VHF tuning
Dandong Television Set Factory, LN; black & white TVs
First Radio Factory of Kaifeng, HEN: TVs, radio transformers, transformer cores
Fifth Element Factory of Kaifeng, HEN: line output transformers
Foshan Postal & Telecommunication Bureau, GD: telephone exchanger
Fujian Hitachi Television Set Plant, FJ: TVs
Fushun Electronics Apparatus Factory, LN: Chinese character equipment
Fuzhou No. 2 Radio Components Plant, FJ: loudspeakers
Fuzhou Radio-Recorder Plant, FJ: recorders
Fuzhou Toys Factory, FJ: electronic & handicraft toys
Guangdong Electronic Corporation, GD: laser VCRs
Guangzhou Guoguang Electric Sound Equipment Factory, GD: loudspeakers
Hangzhou Electric Fan Factory, ZJ: electric fans
Hangzhou Electroacoustic Factory, ZJ: paper cones
Hangzhou No. 8 Radio Factory, ZJ: portable wireless transmitters
Hangzhou Qunyin Radio Factory, ZJ: FM stero radios
Hangzhou Tape Recorder Factory, ZJ: tape recorders
Hangzhou Television Factory, ZJ: video recorders
Hebi Radio Factory, HEN: recorder mechanisms
Hefei No. 1 Radio Factory, AH: testing instruments, VCRs
Hefie No. 4 Electronic Elements Factory, AH: loudspeakers
Hongdu Radio Factory, JX: capacitors, transformers
Hubei Macheng Telecommunications Equipment Plant, HB: telephones
Hubei Radio Factory, HB: microcomputers
Hubei Wire Factory, HB: telephones
Huizhou Toy Factory, GD: electronic toys
Jiangmen No. 2 Wireless Factory, GD: recorder parts
Jinan House Electrical Appliance Industry Corp., SD: appliances
Jinan No. 5 Radio Factory, SD: loudspeakers
Liaoning No. 3 Radio Factory, Yingkou, LN: surface decorations
Liaoning No. 5 Radio Factory, LN: pocket-size telephone
Liaoning No. 6 Radio Factory, LN: radio sets
Liaoning Precision Instrument Factory, LN: computer
Lizhou City No. 2 Radio Components Factory, GX: potentionmeters
Nancheng Radio Factory, JX: radio recorders
Nanjing Brightness Electrical Appliance Factory, JS: electrical shaver
Nanjing No. 7 Radio Factory, JS: electric tuners, color TVs
Ningbo No. 5 Radio Factory, ZJ: tape recorder magnetic head
Ninghai Plant of Electric Shaver Appliance for Daily Use, ZJ: electric shavers
Qingdao Microelectrical Machinery Plant, SD: tape recorders
Qingdao Radio Factory, SD: radio sets
Qingdao Semiconductor Spare Parts Factory, SD: transformers
Qingdao Television Factory, SD: color TVs
Shanghai Feiyue Electro-acoustics General Factory, SH: loudspeakers, microphones
Shanghai No. 3 Radio Factory, SH: tape recorders
Shanghai No. 28 Radio Factory, SH: delay line
Shanghai Recording Equipment Factory, SH: VCRs
Shanghai Tape Recording Equipment Factory, SH: VCRs
Shanghai Telecommunications Works, SH: telephone sets
Shanghai Toy Magnet Factory, SH: toy motor production
Shanghai Xin-Zhong-Hua Knives & Scissors Factory, SH: electric shavers
Shanxi Radio Factory, SX: mine communications equipment
Shashi First Radio Factory, HB: radio cassette recorders

Shashi Nanhu Machinery General Plant, HB: radio cassette recorders
Shashi Optical Instrument Factory, HB: optical plastic lens
Shenyang General Computer Peripheral Eqpt. Factory, LN: soft disc driver
Shenyang General Television Factory, LN: signal source system
Shenyang Videorecorder Factory, LN: videorecorders
Shenzhen Huaqiang Electronic Industrial Corp., GD: computer telephone sets
Shenzhen Radio Factory, GD: videorecorders
Shijiazhuang No. 2 Radio Equipment Factory, HEB: radio eqpt.
Shijiazhuang No. 2 Wireless Factory, HB: semiconductor spare parts
Shijiazhuang No. 5 Radio Factory, HEB: loudspeakers
Shijiazhuang Television Set Factory, HEB: screen-size color TVs
Suzhou Television Factory, JS: digital TVs & digital devices
Taiyuan No. 2 Radio Factory, SX: AM/FM receivers & recorders
Third Radio Factory of Hebi, HEN: TV receivers harmonizers
Tianjin Dongfeng Electrical Machinery Plant, TJ: cassette tapes
Tianjin Jinhua Radio Factory, TJ: recorder cores
Tianjin Municipal No. 13 Radio Components Factory, TJ: cassette tapes
Tianjin No. 5 Radio Component Factory, TJ: high-frequency heads
Tianjin Toy Factory, TJ: electronic toys
Weifang Magnetic Head Factory, SD: stereo magnetic heads
Weifang Magnetic Tape Factory, SD: cassette & VCRs
Weifang Radio Factory, SD: radio-cassette recorders
Weifang Tape Recorder Factory, SD: mandrel
Wuhan Binhu Machinery Plant, HB: pocket call systems
Wuhan Electro-Acoustics Device Factory, HB: loud speakers
Wuhan Inst. of Peripheral Eqpt. for Industrial Control Computers, HB: needle-type printers
Wuhan Radio Antenna Factory, HB: CATV antennas
Wuhan Radio Component Plant, HB: color TV sets
Wuhan Radio Factory, HB: telephone sets
Wuhan Radio Factory No. 2, HB: microcomputers
Wuhan Television Parts Plant, HB: television tuners
Wuhan Television Set Factory, HB: color TV technology
Wuxi County Tape Plant, JS: video magnetic tape
Wuxi No. 2 Radio Element Factory, JS: TV elements
Wuxi No. 6 Electronic Element Plant, JS: high-frequency tuners
Wuxi No. 7 Radio Element Plant, JS: sealing eqpt./technology
Wuxi Radio Factory, JS: recorders
Wuxi Television Factory, JS: color TVs
Wuxi Electronic Tube Factory, JS: black & white TV tubes
Wuxi Vacuum Tube Factory, JS: black & white tubes
Wuzhou Loud Speaker Appliances Factory, JX: loud speakers
Xian No. 1 Radio Factory, SN: colored cassette videorecorders
Xiangfan Municipality Magnetic Tape Plant, HB: magnetic tapes
Xiangfan Radio Factory, HB: mobile telephone systems
Xiangfan Television Set Factory, HB: color TVs
Xinxiang General Radio Factory, HEN: radio & TVs
Xinyang Broadcasting Eqpt. Factory, HEN: loudspeakers
Yichun Radio Elements Factory, JX: carbon film potentiometer
Yingkou No. 11 Radio Factory, LN: cassette tapes
Yingkou Radio Machinery Plant, LN: recorders
Yangquan General Loudspeaker Factory, SX: lousdpeakers
Yangzhou Electric Toys Factory, JS: battery-operated toys
Yantai Watch Factory, SD: instruments & meters
Zhangzhou No. 1 Radio Factory, FJ: silicon diodes
Zhejiang Datong Radio Factory, ZJ: cassette recorder core
Zhongshan County Postal & Telecommunication Bureau, GD: telephone exchanger
Zhoushan Telecommunication Eqpt. Plant, ZJ: tape recorder motor

ENERGY

Changpo Brown Coal & Shale Mine, Hainan, GD: power plant, cement plant, chemical fertilizer plant
Chongqing Hydraulic Generator Plant, SC: electric generating sets
Chongqing Water Turbine Factory, SC: generating units
Daguangba Hydroelectric Power Station, Hainan, GD: reservoir generator set
Dalian No. 2 Generator Factory, Dalian: crane generator
Guangdong Province Water Conservation & Electricity Bureau, GD: generator system
Datengxia Hydropower Station, GX: hydroelectric
Longyang Gorge Power Station, QH: hydroelectric
Ningbo Solar Power Factory, ZJ: solar power
Hangzhou Oil Refining Factory, ZJ: white & refined oil products
Panjin Natural Gas Chemical Plant, LN: natural gas
Hangzhou Oxygen-Producing Machinery Plant, ZJ: power generator
Hangzhou Power Generating Equipment Plant, ZJ: testing stands
Hefei Bicycle Factory, AH: electrostatic generators
Kaifeng Solar Cell Factory, HEN: solar cells
Lenghu Oilfield, QH: petroleum
Longtan Hydroelectric Station, GX: hydroelectric
Qingdao Chemical Fertilizer Plant, SD: titanium plate thermo exchangers
Shaxikou Hydropower Station, FJ: electricity
Shenzhen Crude Oil Dehydration Base, GD: crude oil
Shenzhen Municipal People's Government, GD: coal-fired generator
Xian City Gas Co., SN: gasworks
Wuhan Binghu Machinery Plant, HB: microwave equipment, signal generators, TV receivers
Yichang Municipality Electrical Machinery General Plant, HB: generator units
Yingkou Plastic Factory, LN: red-mud sewage gas film

FOOD PROCESSING

Anqing Huyumei Cannery, AH: tin cans
Beihai Starch Factory, GX: centrifugal machine
Bengbu Alcohol Plant, AH: beer bottling
Bengbu Food Processing Plant, AH: peanut, sesame, cheese
Bengbu Macking Plant, AH: meat cans
Caozhuang Food Products Factory, SD: fruit bread
Changli Brewery, HEB: wine
Changli Winery, HEB: wine
Changzhou Gourmet Powder Factory, JS: leucine
Liaoning Branch of CEROILS, LN: air-cooled fruit storage
Chongqing Hardened Oils Factory, SC: edible oil manufacturing equipment
Dairy Products Factory of Dalian, LN: fresh milk, sterilized packaging equipment
Dalian Aquatic Products Supply & Marketing Co., LN: cold storage
Dalian Bohai Brewery, LN: automatic soft drink production line
Dalian Brewery, LN: continuous fermenting equipment
Dalian Cannery, LN: fruit canning equipment, juice pressing
Dalian Confectionary Factory, LN: crunchy candies
Dalian Cooked Meat Products Mill, LN: cooked meat products
Dalian First Light Industry Corp., snack food & bread
Dalian Foodstuff Factory, LN: pastry
Dalian Grease Industry Plant, LN: margarine
Dalian Tinned Food Factory, LN: tins
Dalian Winery, LN: fermenting equipment for grape wines
Dangshan Winery, AH: fruit juice
Datong Multiple Foodstuffs & Beverage Plant, SX: beverages
Dieling Light & Textile Industry Bureau, LN: maize
Donggang Food Factory, GS: bread
Dongguan Sugar Refinery, GD: standardized active dry yeast
Donghai County Food Processing Factory, JS: peanut protein
Dongtai County Soy Sauce & Vinegar Works, JS: protein extraction
Dongzhao People's Commune, Zhengzhou, HEN: rabbit meat
Echeng Bakery & Confectionery, HB: edible oils
Fengxian County Winery, JS: can filling line
First Provincial Light Industry Bureau, GD: tapioca processing
Fuqing Canning Plant, FJ: canning
Fuyang Citric Acid Factory, AH: citric acid from sweet potato starch
Fuyue Dairy, HL: cream & nonfat milk powder
Fuzhou Brewery, FJ: beer
Fuzhou Beverage Factory, FJ: beverages
Fuzhou Confectionary Factory, FJ: confectionary
Gannan Dairy Product Factory, GS: dairy
Guandong Denghai County Foodstuffs Factory, GD: peanut products
Guangdong Zhanjiang Canned Food Factory, GD: cans
Guangzhou Municipal Food Grain Bureau, GD: instant rice
Guanshengyuan Confectionery, SC: chocolate
Guilin Brewery, GX: beer
Hainan Wenchang County Foodstuffs Factory, GD: shredded coconut products
Hangzhou Administrative Bureau of Gardens & Historical Relics, ZJ: spring water
Hangzhou Brewery, ZJ: beer, soft drinks
Hanzhou Canned Food Factory, ZJ: food packaging
Hangzhou Film Printing Products Factory, ZJ: food packaging
Hangzhou Food Factory, ZJ: wafer biscuits, milk powdering
Hangzhou Fuchunjiang Beverage, ZJ: two-piece aluminum tanks
Hangzhou Tea-processing Machine Factory, ZJ: stalk-selecting machines
Hangzhou Wheat Flour Factory, ZJ: bread
Harbin County Dairy, HL: goat milk yogurt
Harbin Oil Extraction Factory, HL: soy bean oil
Harbin Songjiang Canning Factory, HL: soy bean milk
Hefei Brewery, AH: beer can fillers
Heilongjiang Mixed Feed Factory, HL: mixed feed
Heilongjiang Margarine Plant, HL: refined oil & margerine
Heilongjiang Provincial Food Industrial Corp., HL: milk sterilizer
Honghu County Food Cannery, HB: canning
Huainan Household Chemicals Works, AH: artificial cream
Huajian Co., Hainan, GD: duck processing
Huangfan Qu Farm, HEN: soybean milk crystalline grain
Huashanyu Confectionery, SC: biscuits
Hu Yumei Tin Corp., AH: tinned food
Jiangling County Cereals, Oils, & Foodstuffs Industry Co., HB: oil extraction
Jiangling County First Machinery Plant, HB: bean curd, milk
Jinan City Production & Sales Corp., SD: bread, biscuits
Jincheng Egg Products Factory, SX: canned food, beverages
Kaifeng Glass Factory, HN: beer bottling
Kaifeng Starch Factory, HEN: isomeric sugar
Kangxian County, GS: soft drinks
Kunshan Oils & Fats Chemical Works, JS: vegetable oil products
Lanfang Ice Cream Plant, HEB: ice cream
Lanzhou Meat Factory, GS: sausage
Lianyungang Brewery, JS: malt, beer
Lianyungang Canned Goods Plant, JS: canned asparagus
Lianyungang Winery, JS: fruit wines
Lingwu Canned Fruit Wine Factory, NX: tin cans
Linze County, GS: maize starch, fruit syrup
Lunan Joint Corp. of Animal Husbandry, Industry & Commerce, SD: geese, ducks
Luohe Canning Factory, HEN: canned asparagus
Minle County, GS: garlic
Minquan Farm, HEN: wine
Nanjing Plant Oil Factory, JS: margarine, butter
Nantao Pickle Factory, Shenzhen, GD: soy sauce, pickles
Ningxia Light & Textile Industry Office No. 3 Sugar Refinery, NX: sugar
Ningxia Yu Quan Grape Winery, NX: wine
Ningxia Yuquanying Farm, NX: brined mushrooms
Ping Luo Sugar Refinery, NX: sugar
Provincial Sugar, Confectionery & Cigarette Corp., GS: beans
Qiaoyi Co., LN: picnic food
Qingdao Beer Brewery, SD: beer
Qingdao Beverage Import-Export Corp., SD: beer
Qingdao Candy & Drinks Factory, SD: toffee
Qingdao Canned Foodstuffs Mill, SD: fruit juice, bean milk
Qingdao Chocolate Corp. Ltd., SD: chocolate
Qingdao Combined Meat Processing Plant, SD: meat
Qingdao Foodstuffs Plant, SD: peanut butter
Qingdao Gourmet Powder Factory, SD: gourmet powder
Qingdao No. 2 Food Plant, SD: peanuts
Qingdao No. 2 Food Products Factory, SD: bread
Qingdao Oils, Cereals, & Foodstuffs Plant, SD: noodles
Qingdao Sifang Pastry Factory, SD: baby food
Qingdao Soda Water Factory, SD: fruit juice, soda water
Qingdao Winery, SD: champagne
Quanzhou Beverage Factory, FJ: beverages
Quanzhou Candy & Biscuit Factory, FJ: amylum soft candy
Quanzhou Confectionary Factory, FJ: confectionary
Quanzhou Gourmet Powder Works, FJ: glutamic acid
Qiqihar Brewery, HL: beer canning
Qiqihar Dairy, HL: instant infant products
Rongcheng Cannery, SD: canned asparagus
Rushan Cannery, Sd: canned asparagus
Sanhe County Economic Commission, HEB: corn oil
Shaanxi Branch of the CEROILS, SN: cold storage
Shaanxi Shangnan Canned Food Factory, SN: canned mihoutao
Shanghai Children's Food Factory, SH: chocolate
Shanghai Flour Mill, SH: noodles
Shanghai Foodstuffs Corp., SH: viscose fiber casing equipment
Shanghai Foodstuff Machinery Works, SH: foodstuff machinery
Shanghai No. 1 Food Processing Factory, SH: automatic seamers
Shanghai No. 2 Oil & Fat Mill, SH: cocoa butter replacer
Shanghai No. 5 Food Factory, SH: toffee
Shanghai No. 6 Brewery Factory, SH: food foaming agent
Shanghai No. 6 Food Processing Factory, SH: filled candy
Shanhaiguan Foodstuffs Factory, HWB. minced meat
Shantou Brewery, GD: beer
Shanyin Livestock Farm, SX: milk powder, butter
Shenyang Brewery, LN: beer bottling
Shenyang Can Printing & Manufacturing Factory, LN: cans
Shenyang Confectionery Factory, LN: chocolate
Shenyang Grain Bureau, LN: flour
Shenyang No. 1 Foodstuff Factory, LN: instant food
Shijiazhuang Flour Mill, HEB: flour
Songcheng Confectionery Factory, Kaifeng, HEN: watermelon juice
Suoxian County Bakery & Confectionery, SX: oatmeal
Suoxian County Potato Chips Cannery, SX: potato chips
Suxian Confectionary Factory, AH: starch
Taigu Dairy Products Plant, SX: goat milk cheese
Taikang Dairy, HL: instant infant products
Taiyuan No. 1 Food Products Factory, SX: baby food
Tangshan Changli Winery, HB: wine
Tianjin Agricultural Administrative Bureau, TJ: liquor
Tianjin Condiments Co., TJ: condiments
Tianjin Farm Mgmt. Bureau, TJ: milk products
Tianjin Friendship Cannery, TJ: sausage
Tianjin Friendship Packing Factory, TJ: juice cans
Tianjin Limin Bakery & Confectionery, TJ: soft candies
Tianjin Monosodium Glutamate Factory, TJ: bacteria centrifugal machines
Tianjin Municipal Shanhaiguan Aerated Water Factory, TJ: juice
Tieling Separated Bean Protein Powder Mill, LN: protein powder
Tunxi Tinned Food Factory, AH: fruit juice
Weifang Confectionery Factory, Qingdao, SD: biscuits machines
Wuhan Bakery & confectionery, HB: soft canned food
Wulian Beverage Factory, Qingdao, SD: haw juice
Wuwei Huangyangzhen Sugar Factory, GS: rice processing
Wuxi Enzyme Factory, JS: saccharase fungus
Wuzhou Starch Factory, GX: glucose syrup
Wuzhou Wine Factory, GX: wine
Xiahe County, GS: beef, mutton
Xiamen Animal Feed Plant, FJ: animal feed
Xiamen Brewery, FJ: beer
Xiamen Beverage Factory, FJ: beverages
Xiamen Confectionary Factory, FJ: confectionary
Xiamen Returned Overseas Chinese Beer Brewery, FJ: beer
Xian Agriculture Industry Commerce Joint Corp., SN: wine
Xian Brewery, SN: beer bottling
Xian Chemical Reagent Factory, SN: food additives
Xiangfan Municipality Bureau of Food, HB: glutinous rice products
Xiangfan Municipality Wheat Flour Mill, HB: flour
Xiaoshan Brewery, ZJ: beer
Xiaoxian County Winery, AH: wine
Xiaoxian Grape Wine & Cannery Joint Corp., AH: wine
Xiaoxian Group Wine & Canned Food Joint Co., AH: canned mushrooms
Xihua Farm, HEN: wine
Zhongyuan Roller Factory, HEN: flour milling machines
Xinding Livestock Farm, SX: milk
Xinyi County Milk Products Corp., JS: peanut albumen
Xiuyan County Canned Food Factory, Dandong, LN: mushrooms
Xuzhou Vegetables Co., JS: yam, chives
Yangzhou Food Processing Factory, JS: ham
Yangzhou Sanhe Pickle Works, JS: canned pickles
Yantai Champagne Winery, SD: champagne
Yantai General Cannery, SD: canned asparagus
Yantai Zhangyu Wine Co., SD: wine
Yi'an Sugar Refinery, HL: sugar
Yifeng Horticulture Farm, HEN: wine
Yimianpo Winery, HL: black currant wine
Yinchuan Brewery, NX: soda water bottling
Yingkou Canned Food Factory, LN: canned asparagus
Yingkou Salt Pond Factory, LN: refined salt
Yinkou Spice Factory, LN: bean & fruit foodstuffs
Yishan County Brewery, AH: fruit juice
Zhangye Sugar Refinery, GS: beet root
Zhangzhou Beverage Factory, FJ: beverages
Zhangzhou Confectionary Factory, FJ: confectionary
Zhangzhou Sugar Factory, FJ: lump sugar
Zhengzhou Food Factory, HEN: candies, biscuits, beverages
Zhengzhou Foodstuff Factory, HEN: bread
Zhengzhou Grease Chemical Factory, HEN: grease, soybean protein
Zhongning County, NX: fructus lycii

HEAVY INDUSTRY

Anhui Machinery Industrial Corp., AH: machine industry items
Anshan Crane Plant, LN: chain block
Anshan Dust Removers Industrial Corp., LN: dust removers
Anshan High Pressure Container Factory, LN: sealing oxygen cylinders
Anshan No. 2 Chemical Plant, LN: furnace black
Baizhen Piston Works, SD: engine pistons
Baoding Casting Machinery Plant, HEB: vacuum-sealing
Baoding No. 2 Transformer Plant, HEB: corrugated oil tanks
Beihai Air-blower Factory, GX: air-blower products
Beihai Motor Factory, GX: micro-motor production line
Beihai Ship Disassembling Yard, GX: ship disassembling
Beihai Ship Yard, GX: fishing vessels
Beihai Water Pump Factory, GX: water pump products
Beihai Universal Machinery Factory, GX: window & door frames
Beijing Aluminium Foil Plant, BJ: welded tube
Beijing Bearing Industry Corp., BJ: ball bearing
Beijing First General Machinery Factory, BJ: metal diaphragm compressor
Bengbu Air Compressor Plant, AH: air compressors
Bengbu No. 2 Air Compressor Plant, AH: mobile compressor
Benxi Brewery, LN: heat exchanging plates
Benxi County Agricultural & Animal Husbandry Farm, LN: laser cutters
Benxi Electric Equipment Repairing Factory, LN: lamps
Benxi Nonferrous Corp., LN: aluminum products, dies
Benxi No. 1 Radio Factory, LN: flowmeters
Benxi No. 3 Machine Tools Works, LN: screw-making machines
Benxi No. 9 Radio Factory, LN: die processing, punching equipment
Benxi No. 10 Radio Factory, LN: screws, bolts, screw dies

Benxi Oil Press, LN: fat refining
Benxi Steel Pipe Plant, LN: longitudinal shearing machines
Benxi Tools Plant, LN: electrical hammer heads
Benxi Tungsten & Molybdenum Products Factory, LN: rotary hammer units
Benxi Water Pump Factory, LN: pumps
Binzhou Piston Factory, SD: aluminum pistons
Boshan Automobile Component Parts Factory, SD: friction welding machine
Boshan Cement Plant, SD: vertical kiln
Boshan Pump Factory, SD: centrifugal pumps
Boshan Vacuum Pump Factory, SD: vacuum pump
Chang Cheng Machine Tool Works, NX: robots
Changsha Water Pump Plant, HN: centrifugal pumps
Changzheng Machinery Factory, GS: air conditioners
Changzhi Bearing Factory, SX: bearings
Changzhou No. 2 Electric Meters Plant, JS: meters
Changzhou Transformer Plant, JS: transformers
Changzhou Thermal Meter Plant, JS: glass tubes
Changzhou Welding Electrode Factory, JS: electric plating
Chaoyang Beipiao Machinery Plant, LN: electrical dust removers
Chaoyang Engineering Machinery Plant, LN; wheel loader
Chengde Mining Machinery Factory, HEB: chain conveyors
Chongqing Air Compressor Plant, SC: compressors
Chongqing First Rubber Products Factory, SC: toothed rubber belts
Chongqing Hydraulic Generator Plant, SC: industrial robots
Chongqing Refrigerator Factory, SC: refrigerator production line
Chongqing Tool Works, Shenzhen, GD: gear cutters
Dafeng Free-Wheel Factory, JS: roller chain settings
Dahe Machine Tool Works, NX: honing machines
Dalian Chemical Industry Corp., LN: circle turbines
Dalian Cement Plant, LN: rotary kiln
Dalian Dispatch & Electric Motor Plant, LN: DC electric motor
Dalian Electric Motor Plant, LN: motors
Dalian Electrical Machine Factory, LN: asynchronous alternators
Dalian Forging Factory, LN: casting
Dalian Freezer Factory, LN: air-conditioning storages
Dalian Fuel Injection Pump & Nozzle Plant, LN: nozzles
Dalian Forklift Factory, LN: forklifts
Dalian General Machinery Company, LN: pneumatic power unit
Dalian Grease Industry Plant, LN: fat refining
Dalian High-pressure Valve Factory, LN: testing instruments
Dalian Instrument Factory, LN: flowmeters
Dalian Lock Factory, LN: hardware
Dalian Low-tension Switchgear Plant, LN: molds
Dalian Machine-building Industry Corp., LN: testing instruments
Dalian Machine-tool Research Inst., LN: filters
Dalian Motor Factory, LN: molds
Dalian No.2 Electrical Machine Factory, LN: wire-rotor generators
Dalian No.3 Instrument Plant, LN: instruments
Dalian No.5 Instrument Factory, LN: feed indicators
Dalian No.6 Instrument Factory, LN: instruments
Dalian Steel Plant, LN: boilers
Dalian Telecommunications Motors Factory, LN: micro-motors
Dandong Automobile Factory, LN: molds & dies
Dandong Instrument Factory, LN: instruments
Dandong 518 Tractor Accessories Plant, LN: crankshaft
Dezhou Hydraulic-machine Plant, Qingdao, SD: eqpt. & know-how
Fushun Auto Electrical Motor Plant, LN: engines
Fushun Liaoxin Automobile General Plant, LN: auto bodies
Fuxin Bus Bar Factory, LN: bus bar sealing
Fuxin No.2 Wire Communication Eqpt. Plant, LN: exchange unit
Fuzhou Transformer Plant, FJ: fuel tanks
Guangji Diesel Engine Plant, HB: diesel engines
Guangzhou Heavy Machinery Factory, GD: centrifuges
Guangzhou Refrigerating Machine Plant, GD: air conditioning
Guangdong Shaiguan Turbine Machinery Factory, GD: turbines
Guangzhou Specialized Wireless Eqpt. Factory, GD: technology
Hangzhou Boiler Factory, ZJ: boilers
Hangzhou Brake Materials Factory, ZJ: friction materials
Hangzhou Electric Heater Factory, ZJ: heater eqpt.
Hangzhou Gear-box Plant, ZJ: gear boxes
Hangzhou Gear Testing Center, ZJ: test eqpt.
Hangzhou General Refrigerator Factory, ZJ: refrigerators
Hangzhou Heavy Machinery Plant, ZJ: hydraulic excavator
Hangzhou Mold Factory, ZJ: discharge processing machine
Hangzhou No.1 Radio Eqpt. Factory, ZJ: wire-cutting machine
Hangzhou Oil Felt Factory, ZJ: coating materials
Hangzhou Rubber Factory, ZJ: tires
Hangzhou Water Pump Factory, ZJ: water pumps
Hanjiang Tools Plant, SN: cutting tools
Hebi Coal Mine Administration Round Link Chain Factory, HEN: chain link
Honghu Radio Components Factory, HB: electric motor toys
Hongyan Machinery Plant, SC: diesel engines
Huangshi Cooling Eqpt. Plant, HB: air compressors
Huangshi Metalforming Machine Plant, HB: guillotine shears
Huangshi Refrigerating Eqpt. Factory, HB: refrigeration eqpt.
Huangxian Oil Pump Nozzle Plant, SD: nozzles
Huanren County Pilose Antler Factory, LN: laser cutters
Hubei Automobile Electric Machinery Plant, HB: starters
Hubei Farm Machinery Hydraulic Parts Factory, HB: pumps
Hubei Hongqi Electric Wire Factory, HB: cables
Hubei Hydraulic Products Plant, HB: valves
Hubei Motor Vehicle Battery Factory, HB: batteries
Hubei Motor Vehicle Electric Apparatus Factory, HB: technology
Hubei Motor Vehicle Steering Wheel Factory, HB: seat pads
Hubei Provincial Guangji County Cement Plant, HB: vertical kiln
Hubei Shashi First Electric Refrigerator Fittings Plant, HB: evaporator
Hubei Steel Ball Plant, HB: freezing machines
Hubei Xianning Engineering Machinery Plant, HB: sealed chains
Hunan Siangtan Cable Factory, GD: cables
Jiangsu Provincial Marine Company, JS: purse seiners
Jiangsu Provincial Marine Fishing Company, JS: shoal detectors
Jiangsu Provincial Posts & Telecommunications Administration, JS: switchboards
Jiangyin Steel Cable Factory, JS: conveyor belts
Jiangzhou Prefectural Bricks & Tiles Factory, HB: tile production
Jiaxing Metallurgical Machinery Plant, ZJ: gear reducer
Jinan Bearing Plant, SD: high precision bearings
Jinan Boiler Plant, SD: boilers
Jinan Paint Factory, SD: street paints
Jinan Pneumatic Eqpt. Plant, SD: valves
Jinan Test Machine Plant, SD: hydraulic test machines
Jingshan Machinery Plant, HB: vehicles
Jinzhou Heavy Machinery Factory, LN: petrochemical containers
Kaifeng Air Separation Eqpt. Plant, HEN: exchangers
Laiyang Power-Machinery Works, SD: diesel engines
Lanzhou Bearing Plant, GS: bearings
Lanzhou Storage Battery Factory, GS: plate casting/coating
Lanzhou Universal Machine Works, GS: oil pumps
Lianshan Ball-bearing Factory, SD: bearings
Liaoning No.2 Radio Factory, LN: program controllers
Liaoning Precision Instrument Factory, LN: meters
Liaoning Provincial Bearing Corp., LN: bearings
Liaoning Potentiometer Factory, LN: potentiometers
Liaoyang Piston Ring Factory, LN: piston rings
Liaoyang Water-meter Factory, LN: meters
Linan General Lock Factory, ZJ: die casting machines
Linfen Prime Mover Plant, SX: diesel engines
Linyi Pharmaceutical Machinery Plant, Qingdao, SD: engines
Linyi Plant-Protection Machinery Factory, SD: petrol engines
Liuzhou Air-Compressor Factory, GX: heating/cooling eqpt.
Liuzhou Construction Machinery Factory, GX: loaders
Luhuatai Experimental Farm, NX: freezing/drying eqpt.
Nanhai Cable Factory, GD: cables
Nanjing Changhong Radio Factory, JS: quartic technology
Nanjing Copper Tube Plant, JS: antenna casings
Nanjing No.13 Radio Component Factory, JS: transformers
Nanjing Oil Refinery, JS: aluminum bottles
Nanjing Wire & Foil Plant, JS: wire coilers
Nanpin Welding Machine Works, FJ: welding machines
Nantong Bearing Works, JS: bearings
Ningbo Engine Factory, ZJ: diesel engine
Ninghai General Machinery Plant, ZJ: steel wire/rope
Ningyuan Steel Plant, HEB: weld pipes
Northwest Coal-Mining Machinery Factory, NX: conveyors
Pilot Plant of Machinery Research Inst., NX: testing eqpt.
Pingshen Posts & Communications Branch, LN: switchboard
Qingdao Air-conditioning Eqpt. Factory, SD: air conditioners
Qingdao Electric Wire Plant, SD: wires & cables
Qingdao Foundry Machine Plant, SD: shot-blasting eqpt.
Qingdao Gas-cutting Machines Plant, SD: food grills
Qingdao Heat Engineering Instrument & Meter Factory, SD: gas regulator
Qingdao Jimo Valve Factory, SD: forged steel-valves
Qingdao Internal Combustion Engine Factory, SD: diesel engines
Qingdao Metal-Forging & Pressing Machine Plant, SD: spiral pressing
Qingdao No.6 Rubber Factory, SD: conveyor belts
Qingdao Paper-case Factory, SD: screw-pipe coilers
Qingdao Seal Maker, SD: seals
Qingdao Steam Turbine Plant, SD: technology
Qingdao Steel Works, SD: wire rod mill
Qingdao Wood-Working Machinery Plant, SD: drills
Qingshan Testing Machine Works, NX: testing eqpt.
Shandong Cine-Machinery Factory, SD: micro-copying machine
Shandong Copper Wire Factory, SD: wiredrawing facilities
Shanghai Bearing Corp., SH: ball bearings
Shanghai First Hydraulic Element Factory, SH: hydraulic valves
Shanghai Gas Welding Eqpt. Plant, SH: gas welding
Shanghai Hoisting Eqpt. Factory, SH: electrical hoisting eqpt.
Shanghai Machinery Part Corp., SH: pumps & valves
Shanghai No.1 Rubber Product Factory, SH: seals
Shanghai No.1 Switch Factory, SH: hoisting blocks
Shanghai No.1 Variator Machine Works, SH: speed reduction machines
Shanghai No.2 Iron & Steel Works, SH: wire drawing
Shanghai Pujiang Engine Works, SH: compressors
Shanghai Razor Blade Factory, SH: razor blades
Shanghai Tool Factory, SH: rotary milling cutters
Shanghai Wuyi Electric Machinery Plant, SH: die casting
Shanghai Xian Feng Electric Machinery Factory, SH: hoisting eqpt.
Shashi General Valve Factory, HB: valves
Shanxi Machinery Plant, SX: hydraulic hoisters
Shenyang Air Compressor Plant, LN: air compressor
Shenyang Alloy Plant, LN: wire rod rolling
Shenyang Auto Battery Factory, LN: motor vehicle batteries
Shenyang Automobile Braking Pump Factory, LN: valves
Shenyang Automobile Clutch Factory, LN: clutches
Shenyang Automobile Engine Factory, LN: engines
Shenyang Automobile Gear Factory, LN: transmission gears
Shenyang Automobile Manufacturing Factory, LN: brakes
Shenyang Automobile Screen Wiper Factory, LN: wipers
Shenyang Automobile Shock Absorber Factory, LN: shock absorbers
Shenyang Automobile Transmission Shaft Factory, LN: transmission
Shenyang Boiler Plant, LN: boiler
Shenyang Cable Plant, LN: cables
Shenyang Car Manufacturing Factory, LN: car body coating
Shenyang Chemical Machinery Factory, LN: pipe extruder unit
Shenyang China-Czech People Friendship Works, LN: drilling machines
Shenyang Elastic Component Plant, LN: bellows
Shenyang Electric Cable Plant, LN: cables
Shenyang Electric Meter Factory, LN: meters
Shenyang Electric Power Tool Plant, LN: power tools
Shenyang Electric Switch Plant, LN: switches
Shenyang Electric Tool Plant, LN: electric tools
Shenyang Electric Welding Machine Plant, LN: welding eqpt.
Shenyang Electric Wire Factory, LN: copper rod
Shenyang Electrical Motor Plant, LN: motors
Shenyang Elevator Manufacturing Plant, LN: elevators
Shenyang Film-Projector Reflector Plant, LN: projectors
Shenyang Fire Engines Factory, LN: fire engines
Shenyang Low-Voltage Switch Plant, LN: switches
Shenyang Lubricating Eqpt. Plant, LN: chain greaser
Shenyang Micro-Motor Plant, LN: micro motors
Shenyang Mutual Inductor Plant, LN: vacuum casting
Shenyang No.1 Grinding Wheel Plant, LN: grinding wheels
Shenyang No.2 Machine Tool Electrical Appliance Plant, LN: electromagnet
Shenyang No.4 Rubber Plant, LN: rubber-coating machine
Shenyang Pump Plant, LN: flow pump
Shenyang Radio Plating Factory, LN: ABS plating
Shenyang Rubber Belt Factory, LN: rubber belts
Shenyang Scale Instrument Plant, LN: electronic scales
Shenyang Steering Gear Factory, LN: steering boxes
Shenyang Ventilator Plant, LN: air conditioners
Shenyang Woodworking Machine Tool Plant, LN: welding
Sichuan Building Machinery Plant, SC: tower cranes
Sichuan Mining Machinery Plant, SC: cableways
Shijiazhuang Fat Storehouse, HEB: semi-finished oil
Shijiazhuang Iron & Steel Plant, HEB: die casting
Shijiazhuang Pump Factory, HEB: pumps
Shijiazhuang Tractor Parts Factory, HEB: friction welding
Solar Water-heater Factory, LN: water heaters
Suzhou Chain Plant, JS: roller chains
Suzhou Electric Wire Factory, JS: wire
Suzhou Electrical Machinery Plant, JS: testing eqpt.
Suzhou Purification Special Eqpt. Factory, JS: water purification
Suzhou Telecommunication Eqpt. & Electrical Machinery Plant, JS: axial flow blowers
Suzhou TV Set Assembling Plant, JS: epoxy injecting eqpt.
Suzhou Vacuum Cleaner Plant, JS: vacuum cleaners
Taian Agricultural Machinery Test Eqpt., SD: oil injection pump
Taihang Saw Blade Plant, SX: saw blades
Tianjin Air Conditioner Plant, TJ: production line
Tianjin Automation Meters Factory, TJ: bearings
Tianjin Chain Block Factory, TJ: chain block
Tianjin Hydraulic Machinery Plant, TJ: gear boxes
Tianjin Machinery Plant, TJ: axial plunger pump
Tianjin Mechanic Chain Factory, TJ: roller chain
Tianjin Microbearings Factory, TJ: ball bearings
Tianjin Mixer Plant, TJ: pile driver
Tianjin No.1 Meter Component Factory, TJ: meter bearings
Tianjin No.3 Industrial Pump Factory, TJ: pumps
Tianjin Standard Parts Factory, TJ: machine screws
Tianjin Tools Plant, TJ: drills
Tianjin Transportation Machinery Plant, TJ: forklift
Tianshui Pneumatic Tool Works, GS: rock drill
Wenzhou Metallurgical Machinery Plant, ZJ: diesel engines
Wuhan Air-blower Plant, HB: ventilators
Wuhan Asphalt Felt Factory, HB: multi-purpose machine
Wuhan Autogear Factory, HB: gearboxes
Wuhan Automobile Fastener Works, HB: tube fittings
Wuhan Automobile Parts Factory, HB: motor vehicle seats
Wuhan Cable Accessories Plant, HB: cable accessories
Wuhan Changhong Die-casting Eqpt. Factory, HB: molds
Wuhan Commercial Machinery Plant, HB: piston freezing compressors
Wuhan Diesel Engine Plant, HB: engines
Wuhan Dongfeng Electrical Motors Plant, HB: electric motors
Wuhan Duplicator Factory, HB: copying machine
Wuhan General Machinery Plant, HB: wire drawing
Wuhan General Refrigeration Eqpt. Plant, HB: freezer
Wuhan General Valve Plant, HB: pumps
Wuhan Glassfiber Products Factory, HB: sanitary facilities
Wuhan Jingming Rubber Plant, HB: injection forming machine
Wuhan Lorry Body Accessories Research Inst., HB: truck parts
Wuhan Motorcar Steering-Gear Factory, HB: windshields
Wuhan Motor Vehicle Wheel Rim Factory, HB: grain transport
Wuhan Municipality Cable Attachments Factory, HB: cable attachments
Wuhan Municipality Industry Company, HB: jeeps
Wuhan Municipality Motor Vehicle Industry Company, HB: body coverings
Wuhan No.1 Standard Parts Factory, HB: standard parts
Wuhan No.2 Casting Plant, HB: resin iron casting
Wuhan No.5 Radio Factory, HB: plastic jet-coating eqpt.
Wuhan Refrigeration Control Instrument & Meter Factory, HB: valves
Wuhan Refrigerating Machinery Plant, HB: freezers
Wuhan Rubber Products Factory, HB: vulcanizing machine
Wuhan Water Pumps Works, HB: drum pumps
Wuhan Xianghe Machinery Plant, HB: air conditioners
Wuhu Heavy-Duty Machine Tool Plant, AH: boring machines
Wuxi Bearing Plant, JS: bearing pressing stand
Wuxi Damper Plant, JS: damping eqpt.
Wuxi Die Factory, JS: die manufacturing
Wuxi Hydraulic Parts Plant, JS: engines
Wuxi Iron & Steel Plant, JS: furnace
Wuxi Machine Tool Electric Appliances Plant, JS: valves
Wuxi No.2 Radio Component Factory, JS: wave devices
Wuxi No.2 Rubber Factory, JS: rubber belt
Wuxi Oil Pump & Oil Nozzle Factory, JS: engines
Wuxi Oil Refinery, JS: lubricants
Wuxi Pneumatic Element Plant, JS: valves
Wuxi Power Machine Plant, JS: machinery
Wuxi Watt-Hour Meter Plant, JS: meters
Wuxing Motorized Drum Factory, ZJ: motorized drum
Wuzhong Material Testing Machine Factory, NX: deformation measuring system
Wuzhong Microtest Instrument Factory, NX: micro testers
Xian Air Compressor Factory, SN: air compressors
Xian Farm Tools & Instruments Company, SN: farming tools
Xian High Pressure Valve Factory, SN: pressure valves
Xian Scissors Factory, SN: tools
Xiamen Ball Bearing Plant, FJ: ball bearings
Xiament Electric Control Plant, FJ: engines
Xiamen Engineering Machinery Plant, FJ: loaders & bulldozers
Xiangfan Municipality Electric Machinery Plant, HB: motors
Xiangfan No.228 Factory, HB: metal-enameled potentiometers
Xiangtan Electric Wire & Cable Plant, HN: wire & cable
Xiangyang Bearing Plant, HB: bearing rollers
Xibei Bearing Factory, NX: bearings
Xuzhou Heavy Machinery Plant, JS: chassis hoists

Xuzhou Magnetic Materials Plant, JS: magnetic cores
Xuzhou Refractory Materials Factory, JS: electric corundum
Yangzhong County Electric Meter Plant, JS: testing instruments
Yangzhou Fluorescent Materials Factory, JS: fluorescent powder
Yangzhou Rectifier Plant, JS: silicon rectifier bridges
Yangzhou Spring Plant, JS: springs
Yantai Ball Bearing Apparatus Factory, SD: bearings
Yantai General Lock Factory, SD: locks
Yantai Pneumatic Eqpt. Factory, SD: piston cylinders
Yenxian Bench Clamp Factory, SD: magnetic casting
Yichang Electric Wire Factory, HB: wire machines
Yichang Forklift Plant, HB: forklift
Yichang Instruments & Meters Factory, HB: meters/instruments
Yichang Printing Machinery Plant, HB: printing eqpt.
Yichang Diesel Engine Plant, HB: diesel engines
Yinchuan Transformer Factory, NX: oil tanks
Yidu Hydro-machine Parts Plant, Qingdao, SD: pumps
Yingkou Electrically Smelted Magnesia Brick Factory, LN: furnaces
Yingkou Forging Press Factory, LN: bending machinery
Yinhe Instruments Factory, NX: vortex shedding flowmeter
Yizhen Nonferrous Metal Plant, JS: oil press
Yongkang Electric Tool Plant, ZJ: polishing machine
Yuanping Machinery Plant, SX: conveyor idlers
Yuci Cable Plant, SX: cables
Zhejiang Vacuum Eqpt. Factory, ZJ: vacuum pumps
Zhengzhou Boiler Machine Plant, HEN: boilers
Zhengzhou Boiler Factroy, HEN: boilers
Zhongnan Rubber Plant, HB: conveyor belts
Zhongyuan Diesel Engine Accessories Factory, HEN: engines
Zibo Vacuum Pump Factory, SD: vertical radial pump

HOUSEHOLD APPLIANCES

Changzhi Refrigerator Plant, SX: refrigerators
Changzhi Washing Machine Factory, SX: washing machines
Dalian Electrical Machinery Plant, LN: refrigeration
Dalian General Sewing Machine Plant, LN: sewing machines
Dalian Washing Machine Plant, LN: washing machines
Haikou Household Appliances Factory, Hainan, GD: refrigerators
Hefei No. 2 Light Industrial Machinery Plant, AH: technology
Jiangmen Municipal Household Electrical Appliances Company, GD: processing machines
Jiangmen Washing Machine Factory, GD: washing machines
Jiaxin Refrigerator Plant, ZJ: refrigerators
Liuzhou City Cooling Machine Factory, GX: refrigerators
Liuzhou City Sewing Machine Factory, GX: assembly line
Longkou Household Electrical Appliances Plant, SD: fans
Ningbo Refrigerator Plant, ZJ: refrigerators
Qingdao Refrigerator Plant, SD: refrigerators
Shaanxi Sewing Machine Plant, SN: sewing machines
Shanghai No.1 Sewing Machine Needle Factory,SH: needles
Shanghai No.2 Electric Eqpt. Factory, SH: motors
Shanghai No.3 Electric Eqpt. Factory, SH: vacuum cleaners
Shanghai No.5 Sewing Machine Parts Factory, SH: rotary hooks
Shanghai Refrigeratory Factory, SH: refrigerators
Shanghai Washing Machine Head Works, SH: machines
Shanghai Xianfeng Electric Motor Factory, SH: washing machines
Shashi Refrigerator Factory, HB: refrigerators
Shenyang Air Conditioner Factory, LN: air conditioners
Shenyang Garment Company, LN: sewing machines
Suzhou Refrigeratory Factory, JS: refrigerators
Tianjin Refrigerator Factory, TJ: refrigerators
Tianjin Sewing Machine Factory, TJ: sewing machines
Tianjin Table Fan Factory, TJ: electric fans
Wuhan Sewing Machine Works, HB: sewing machines
Wuhan Washing Machine Factory, HB: washing machines
Xiamen Household Electrical Appliance Factory, FJ: washing machine & refrigerator
Xian Alarm Clock Factory, SN: alarm clocks
Xian Sewing Machine Plant, SN: sewing machines
Yexian County Industrial Sewing Machine Factory, SD: sewing machines
Yingkou General Washing Machine Plant, LN: machines
Yingkou Refrigerating Eqpt. Plant, LN: compressors
Yueyang Refrigeration Eqpt. Factory, HN: refrigerators

INFRASTRUCTURE

Baitapo Airport, Lianyungang, JS: airport renovation
China National Aero-Technology Import & Export Corp., Shenzhen, GD: commercial complex
Coordinated Pier, Heliwei & Donglouwei, GD: pier
Dalian Consulting Service Company, LN: containerization
Dongdu No.6 Container Wharf, FJ: containers
Doumen County Agriculture-Industry-Commerce Corp., GD: land reclamation
Fuzhou Printing House, FJ: expansion
Guangzhou Commission For External Economics, GD: commercial center
Guangzhou Education Center, GD: education building
Guangzhou Foreign Economic Relations, GD: commercial center
Guangzhou Health Center, GD: hospital
Guangzhou Import Goods Delivery Station, GD: warehouse
Guangzhou Municipal Science & Technology Exchange Center, GD: building
Guangzhou Gymnasium Renovation, GD: gymnasium
Guangzhou Municipal Sports Commission, GD: stadium renovation
Guangzhou-Shenzhen Railroad Line, GD: railway
Hainan Zhongtu Reservoir Complete Development Project, GD: irrigation
Hezhou Damming Project, GD: damming project
Jincheng Hotel, GS: construction
Jinzhou Fire Protection Instrument Plant, LN: dust detecting
Jiujiang Highway Bridge, Nanhai, GD: bridge construction
Lanshantou Port, Rizhao, SD: wharf construction
Lanzhou Trade Center Building, GS: construction project
Liaoning Provincial Bureau of Chemical Industry, LN: wharf expansion
Minhang New Industrial Area, SH: development
Nanjing Airport, JS: renovation
Nanning/Fangcheng Harbour, GX: railway construction
Nantong Port, JS: container docks
Shanghai Harbor Administration Bureau, SH: harbor development
Shanghai Tunnel Construction Company, SH: eqpt.
Trust & Investment Company, Hainan, GD: irrigation
Xiamen Mercantile Fleet, FJ: container fleet
Xiamen Shipyard, FJ: drilling rigs & ships
Zhanjiang Reclamation & Damming Project, GD: reclamation
Zhangzi People's Commune, Changhai County, LN: refrigerating ship

IRON & STEEL

Anyang Steel Works, HEN: steel making
Changzhen Steel Rolling Factory, ZJ: minimotors
Dalian Iron Works, LN: casting eqpt.
Dalian Metallurgical Industry Corp., LN: steel cord
Dalian Steel Cable Plant, LN: steel cable
Dalian Steel Plant, LN: cold-rolling mills
Dalian Steel Rolling Mill, LN: rolling mill
Feicheng Valve Factory, SD: steel production line
Fenglei Machinery Plant, SX: tube production
Fuzhou Zinc-plated Steel Tube Plant, FJ: tubing
Haian Magnetic Material Factory, JS: iron oxidation
Hangzhou Spring Factory, ZJ: precision springs
Jinan Magnetic Materials Factory, SD: magnetic ferrite
Jixi County Reeling Mill, AH: stainless steel cocoon cooker
Linfen Iron & Steel Company, SX: oxygen generator
Luohe Foundry Machinery Plant, HEN: steel balls
Luoyang Steel Works, HEN: steel alloy products
Maanshan Magnetic Material Plant, AH: steel magnets
Nanjing Rolling Plant, JS: steel sprinkling pipes
No. 3 Iron & Steel Plant, Chongqing, SC: steel tube
Qingdao Steel Plant, SD: continuous casting machine
Qinhuangdao Refractory Materials Factory, HEB: steel casting
Red Flag Steel Rolling Mill, Guangzhou, GD: steel-welding tube machines
Sanming Iron & Steel Plant, FJ: steel wire rods
Shaanxi Iron & Steel Research Inst., SN: rolling mill
Shanghai Iron & Steel Research Inst., SH: furnace
Shanghai Textile Wire Drawing Works, SH: steel wire
Shenyang Steel Rolling Mill, LN: rods
Shenyang Steel Tube Plant, LN: galvanizing machine
Shijiazhuang Iron & Steel Plant, HB: casting & molding
Shijiazhuang Malleable Iron Pipe Fittings Works, HEB: iron pipes
Taigu Malleable Cast Iron Factory, SX: pipe fittings
Taiyuan Stainless Steel Kitchen Utensils Factory, SX: kitchenware
Tianjin Seamless Steel Tube Plant, FJ: related eqpt.
Tianjin Steel Product Plant, TJ: wire level winders
Tianjin Wire Rope Plant, TJ: stress steel wires
Wuxi No.3 Iron & Steel Works, JS: expansion/conversion
Wuxi Steel Cable Plant, JS: steel cable
Xinfu Steel Plant, LN: renovation
Yuci No.2 Wire Rod Plant, SX: steel wire rods

LEATHER & TANNING

Changsha Tannery, HN: tanning eqpt.
Changyuan Leather Shoe Factory, HEN: shoe-making eqpt.
Changzhou Leather Shoes Factory, JS: leather shoes
Changzhou Tanning-Machinery Factory, JS: tanning technology
Chuandong Leather Industrial Company, SC: shoes production
Dandong Tannery, LN: pigskin processing
Fuyang Leather Factory, AH: goatskin shop
Guangdong Huizhou Leather & Hide Factory, GD: leather
Guangzhou Changchen Leather Shoes Factory, GD: shoes
Guangzhou Renmin Leather Factory, GD: production line
Guangzhou Wanli Leather Shoe Factory, GD: shoes
Haiguang Leather Shoes Factory, GZ: shoe production machines
Hangzhou Leather Factory, ZJ: machines
Hefei Leather Shoe Factory, AH: leather shoes
Hefei Tannery, AH: pigskin/sheepskin processing
Hefei No.6 Plastic Factory, AH: PVC artificial leather
Henan Chanyuan Leather Shoes Factory, HEN: shoes
Hongxing Tannery, HB: tanning eqpt.
Jinzhou General Leather Mill, LN: pigskin tanning
Jiamusi Tannery, HL: leather shoes
Jieshou Leather Product Factory, AH: leather suitcases
Jingyuan Fur Plant, GS: fur coats
Kaifeng Leather Processing Plant, HEN: technology & eqpt.
Kaifeng Leather Shoes Factory, HEN: goat leather shoes
Kaifeng Plastics Factory, HEN: PVC synthetic leather
Kaifeng Tannery, HEN: tanning eqpt. & technology
Lianyungang Tannery, JS: tanning eqpt.
Linfen Goatskin Processing Factory, SX: tanning goatskins
Luoyang Leather Shoe Factory, HEN: shoe making machines
Nanchang Tannery, JX: expansion
Nanjing Leather Products Factory, leather suitcases
Nanjing Tannery, JS: goatskin tanning
Nanning Tannery, GX: leather slicing machines
Nantong Tannery, JS: tanning eqpt.
Qingdao No.2 Shoe Plant, SD: shoes
Qingdao Tannery, SD: tanning sheepskins
Qinghai Branch Animal By-Products Import & Export Corp., SD: marmot skins
Qiqihar All-Plastic Carrier Bag Assembly Facilities, HL: suitcases
Shanghai Leather Chemical Plant, SH: polyurethane
Shanghai No.1 Knitted Hosiery Factory, SH: suede
Shantou Leather Making Plant, GD: expansion
Shantou Leather Shoe Products Factory, GD: expansion
Shantou Tannery, GD: tanning eqpt.
Shenyang No.1 Tannery, LN: pigskin tanning eqpt.
Suzhou Tannery, JS: technology & eqpt.
Tannery of Hanzhong City, SN: leather goods
Tianjin Leather Industrial Company, TJ: leather articles
Tianjin No.4 Plastics Factory, TJ: leather cloth
Tianjin Tannery, TJ: tannery production line
Weifang Tannery, SD: pigskin clothing
Weihai Tannery, SD: production eqpt.
Wuhan Tannery, HB: key eqpt.
Wuhu Tannery, AH: pigskin/sheepskin processing
Wuxi Leather Shoe Factory, JS: shoes
Xian Hongqi Leather Shoes Factory, SN: leather shoes
Xian Huaxi Leather Products Factory, SN: leather articles
Xian People's Tannery, SN: key eqpt.
Xingtai Leather Factory, HEB: tanning goat skins
Xining Leather Factory, QH: yak-hide leather
Xinxiang Leather Factory, HEN: processing eqpt. & technology
Yangzhou Tannery, JS: key eqpt.
Yantai Tannery, SD: hide tanning eqpt.
Yinchuan Fur Factory, NX: fur products
Yinchuan Tanning Factory, NX: skin tanning
Zhanjiakou No.1 Tannery, HEB: tanning eqpt.
Zhangzhou Tannery, HEN: production line

LIGHT INDUSTRY

Anyang Bicycle Factory, HEN: electroplating bath
Anyang First Rubber Factory, HEN: tubes & tires
Baoji Chemical Machinery Plant, SN: enamelled glass
Beihai Furniture Factory, GX: furniture
Beihai Garments Factory, GX: shirts
Bengbu Bicycle Factory, AH: bicycles
Bengbu Cigarette Making Factory, AH: cigarettes
Benxi No.9 Radio Factory, LN: toys
Benxi Rubber Chemical Factory, LN: rubber shoes
Cangzhou Watch & Clock Studio, HEB: toys
Changsha Wrist Watch Factory, HN: watches
Changzhi Bicycle Plant, SX: bicycles
Changzhou Organic Chemical Plant, JS: suede production
Chaozhou Porcelain Industry Company, GD: crafts
Chongqing Yangtze Rubber Factory, SC: motorcycle tires
Dalian Ball Pen Factory, LN: pens
Dalian Bottle Cap Factory, LN: bottle caps
Dalian Clothing Research Inst., LN: garment making
Dalian Emulsion Plant, LN: down gloves
Dalian Enamel Industry Plant, LN: enamel
Dalian Glass Plant, LN: kapoks
Dalian Haiyan Bicycle Factory, LN: bicycles
Dalian Linen Plant, LN: carpets
Dalian Pencil Factory, LN: pencils
Dalian Silk Flower Factory, LN: silk flowers
Dalian Wrist Watch Industrial Company, LN: watches
Dandong Fountain Pen Factory, LN: ballpoint pens
Dandong Light Bulb Factory, LN: light bulbs
Dandong No.3 Plastic Factory, LN: tableware
Dandong Press-stud Factory, LN: buttons
Dandong Rubber Tire Plant, LN: tires
Datong Shoe Factory, SX: shoes
Dezhou Furniture Materials Factory, SD: furniture
Fanchang Pottery & Porcelain Factory, AH: pottery & porcelain
Fushun No. 1 Rubber Plant, LN: rubber products
Fuzhou Bicycle Factory, FJ: painting eqpt.
Fuzhou No. 2 Plastic Factory, FJ: sports shoes
Gangu Printing Ink Factory, GS: ink resin
Glass Fiber Wall Paper Factory, Hainan, GD: eqpt. & technology
Guangzhou Bicycle Factory, GD: bicycles
Guangzhou Thermos Flasks Factory, GD: thermos flasks
Guiyang Shoe Last Factory, GZ: shoes
Haikou Nandao Mattress-Making Plant, Hainan, GD: mattress production
Haikou No. 1 Rubber Factory, Hainan, GD: rubber shoes
Hainan Donfang Hong Farm, GD: sisal hemp products
Hangzhou Bicycle Factory, ZJ: painting eqpt.
Hangzhou Brewery, ZJ: bottling eqpt.
Hangzhou Bulb Factory, ZJ: electrostatic coating machines
Hangzhou Chunxiao Garment Factory, ZJ: down coats
Hangzhou Cigarette Factory, ZJ: cigarettes
Hangzhou Friendship Leather Factory, ZJ: gloves
Hangzhou Garment Factory, ZJ: production line for suits
Hangzhou Glass Factory, ZJ: glass production eqpt.
Hangzhou Honglei Leather Shoes Factory, ZJ: shoes
Hangzhou People's Printing Shop, ZJ: color splitting system
Hangzhou Perfumery, ZJ: distilling pots
Hangzhou Rubber Factory, ZJ: rubber production eqpt.
Hangzhou Rubber Shoes Factory, ZJ: shoes
Hangzhou Southeast Chemical Factory, ZJ: soap
Hangzhou Toothpaste Factory, ZJ: toothpaste
Hangzhou Watch Case Factory, ZJ: watch cases
Hangzhou Watch Factory, ZJ: ladies watches
Hangzhou Wenzhou Rubber Shoe Factory, ZJ: shoes
Hangzhou Wooden Product Factory, ZJ: furniture
Hanzhong Prefectural Watch Factory, SN: watches
Harbin Wooden Furniture Manufacturing Factory, HL: furniture
Hefei Fountain Pen Plant, AH: pens
Hefei Huangshan Electric Fan Factory, AH: fans
Hefei Wooden Furniture Plant, AH: wooden furniture
Huangpi County Lamp Holder Factory, HB: lamp eqpt.
Huangshi Municipality Building Ceramics Industry Company, HB: tinted glass
Huangshi Municipality Steel Furniture Factory, HB: furniture
Hubei Furniture Company, HB: manufacturing eqpt.
Jiangnan Furniture Factory, HB: wooden furniture
Jianli County Feather Garment Factory, HB: production line
Jiaxing Electric Fan Factory, ZJ: electric fans
Jinan Cigarette Factory, SD: cigarettes
Jinan Match Factory, SD: matches
Jinan Thermos Flask Case Factory, SD: thermos flasks
Jinzhou Communication Eqpt. Plant, LN: communication eqpt.
Jinzhou Printing House, LN: printing machines
Jiujiang No.4 Plastic Factory, JX: shoemaking
Lanzhou Color Printing Branch of Xinhua, GS: printing industry
Liuzhou Artistic Porcelain Factory, GX: drying/shaping machine
Longhai Woodwork Factory, FJ: wordworking machines
Longyan Cigarette Factory, FJ: cigarette machines
Nanjing Bicycle Factory, JS: gear shifters
Nanjing Fountain Pen Factory, JS: pens & ink
Nanjing Furniture Factory, JS: wooden furniture
Nanjing Metal Furniture Factory, JS: metal furniture
Nanjing Xixia Chemical Plant, JS: cigarette lighters
Nantong Bicycle Factory, JS: frames
Ningbo Cigarette Factory, ZJ: cigarette making machines
Qianjiang County Flat Glass Plant, HB: glass forming eqpt.
Qingdao Adjustable Pencil Factory, SD: pencils
Qingdao Arts & Crafts Factory, SD: jewelry
Qingdao Bicycle Company, SD: footbrakes & rims

Qingdao Cigarette Factory, SD: packaging
Qingdao Furniture Company, SD: furniture
Qingdao Jiaonan Electronic Elements Works, SD: jewelry
Qingdao Jiao Xian Arts & Crafts Factory, SD: electrostatic flocking eqpt.
Qingdao No.1 Wood Products Factory, SD: wooden furniture
Qingdao No.9 Rubber Factory, SD: shoes
Qingdao Paper Mill, SD: cigarette paper
Qingdao Sofa Factory, SD: spring mattresses
Qinggang County Rubber Sport Shoes, HL: production line
Qinhuangdao Haigang Mirror Plant, HEB: mirrors
Qinhuangdao Video & Audio Devices Factory, HEB: glass screens
Qiqihar Furniture Factory, HL: wooden furniture
Quanzhou Artificial Flowers Factory, FJ: polyester flowers
Red Flag Watch Factory, SN: watches
Rongcheng Glass Factory, SD: wine glasses
Shaanxi Provincial Clock & Watch Corp., SN: watches
Shaanxi Provincial No.1 Bureau of Light Industry, SN: drawn cans
Shaanxi Red Flag Wrist Watch Factory, SN: watches
Shandong Light Industrial Machinery Plant, SD: bottle making
Shanghai Bicycle Factory, SH: caliper-type brakes
Shanghai Bicycle Research Institute, SH: derailleurs & reflectors
Shanghai Flashlight Factory, SH: flashlights
Shanghai Glass Machinery Plant, SH: float glass
Shanghai No.1 Glassware Factory, SH: cut glassware
Shanghai Piano Factory, SH: triangle & vertical pianos
Shanghai Toy Printing Factory, SH: toys
Shanghai Violin Factory, SH: stringed instruments
Shanghai Yaohua Glass Plant, SH: non-alkali glass fiber
Shanxi Radio Factory, SX: musical instruments
Shaoxing Bicycle Plant, ZJ: spray painting line
Shashi General Bicycle Factory, HB: electrostatic jet coating
Shenbei Floating Glass Plant, LN: floating glass
Shenyang Bag & Case General Factory, LN: bags & cases
Shenyang Ballast Factory, LN: vacuum cleaners
Shenyang Bicycle Company, LN: bicycles
Shenyang Clock Factory, LN: quartz clocks
Shenyang Electric Bulbs Factory, LN: electric bulbs
Shenyang Electric Fan Factory, LN: fans
Shenyang Electric Heating Element Factory, LN: electric ovens
Shenyang Electric Thermal Appliance Factory, LN: steam irons
Shenyang Fire-Extinguishing Chemicals Factory, LN: fire extinguishers
Shenyang Glass Instruments Factory, LN: molding eqpt.
Shenyang Glassware Factory, LN: glassware
Shenyang Household Electric Apparatus Component Factory, LN: appliances
Shenyang Neon Electrical Appliance Factory, LN: fans & heaters
Shenyang No.3 Electric Heating Appliance Factory, LN: appliances
Shenyang No.3 Lamp Fixture Factory, LN: appliances
Shenyang Plexiglass Ware Factory, LN: extruder
Shenyang Razor Factory, LN: razors
Shenyang Rope Factory, LN: rope
Shenyang Rubber Tube Factory, LN: rubber tube
Shenyang Spring Furniture Factory, LN: furniture
Shenyang Ventilator Factory, LN: ventilators
Shenyang Woodworking Tool Plant, LN: tools
Shenyang Wrist Watch Plant, LN: quartz watches
Shijiazhuang Watch Factory, HEB: watches
Shishou County Electronic Toy Factory, HB: toys
Shizuishan Ceramics Mill, NX: porcelain
Shizuishan Glass Works, NX: glass
Songzi Bulb Factory, HB: headlights
Suzhou High-Frequency Porcelain Insulator Factory, JS: insulation
Suzhou Razor Blade Factory, JS: razor blades
Tangshan Decal Studio, HEB: porcelain decals
Tangshan Porcelain Plant, HEB: porcelain
Tianjin Bicycle Factory, TJ: bicycles
Tianjin Flatware Factory, TJ: flatware
Tianjin Fountain Pen Factory, TJ: pencils & pens
Tianjin Glassware Factory, TJ: glassware
Tianjin Hongqi Enamelware Factory, TJ: kettles
Tianjin No.1 Bed Sheet Factory, TJ: bed sheets
Tianjin No.2 Sports Goods Factory, TJ: tents
Tianjin No.2 Metal Handicrafts Factory, TJ: jewelry
Tianjin No.9 Glassworks, TJ: quartz glass tubes
Tianjin Plate Making Factory, TJ: plates
Tianjin Sewing Machine Factory, TJ: sewing machines
Tianjin Zhonghua Musical Instruments Factory, TJ: guitars
Wuhan Bicycle General Plant, HB: aluminum alloy die-casting
Wuhan Bulb Factory, HB: sodium lamps
Wuhan Donghua Furniture Factory, HB: furniture
Wuhan Electric Fan Factory, HB: fan manufacturing eqpt.
Wuhan Erqi Rubber Factory, HB: elastic bands
Wuhan Iron & Wooden Furniture Factory, HB: steel-plate furniture
Wuhan No.1 Bricks & Tiles Factory, HB: wallpaper
Wuhan No.3 Steel Furniture Factory, HB: furniture
Wuhan Oleochemicals Plant, HB: cleaning technology
Wuhan Printed Metal Tin Factory, HB: drip bottle caps
Wuhan Watch Factory, HB: quartz watches
Wuhan Wooden Furniture Factory, HB: furniture
Wuhu Matches Factory, AH: matches
Wuxi Bicycle Factory, JS: motocycles
Wuxi Light Industry Research Institute, JS: assorted light industry
Wuzhong Plastics Plant, NX: field covering film
Xiamen Bicycle Factory, FJ: bicycles
Xiamen Cigarette Factory, FJ: filter tip manufacturing eqpt.
Xiamen Electronic Toy Factory, FJ: toys
Xiamen Rubber Plant, FJ: shoes
Xiamen Woodwork Factory, FJ: furniture
Xian Bicycle Factory, SN: production eqpt.
Xian General Wrist Watch Factory, SN: watches
Xian Glassware Factory, SN: glassware
Xian Hongli Shoe Factory, SN: cloth shoes
Xian Hongqi Watch Factory, SN: watches
Xian Jade Carving Factory, SN: jade carvings
Xiangfan Toy Factory, HB: toys
Xingtai No.1 Garment Factory, HEB: suits
Xinzheng Cigarette Factory, HEN: cigarettes
Xuchang Cigarette Factory, HEN: cigarettes
Yantai No.1 Furniture Factory, SD: furniture
Yaohua Glass Works, HEB: glass
Yichang Glassfiber Factory, HB: glass fiber
Yinchuan Kangle Wooden Furniture Factory, NX: furniture
Yingkou Cigarette Factory, LN: cigarettes
Yingkou Mouth Organ Factory, LN: musical instruments
Zhangzhou Wooden Furniture Factory, FJ: woodworking eqpt.
Zhengzhou Cigarette Factory, HEN: cigarettes
Zhengzhou No.1 Woodenware Factory, HEN: furniture
Zhenjiang No.4 Plastic Factory, JS: light technology
Zhongxiang County Paper Mill, HB: facial tissue
Zhongxiang County Watchband Plant, HB: watches
Zibo Industrial Ceramics Factory, SD: ceramics

MACHINE TOOLS

Benxi Tools Plant, LN: sawblades
Changjiang Machine Tool Electrical Appliances Plant, SC: appliances
Chengdu Measuring & Cutting Tools Factory, SC: measuring machines
Dalian Machine Tool Research Inst., LN: machine tools
Dalian Electrical Machine Factory, LN: machine tools
Dalian No.1 Universal Machinery Factory, LN: machine tools
Dalian No.2 Machine Tool Factory, LN: machine tools
Dezhou Machine Tool Plant, SD: lathes & boring machines
Guangji Diesel Engine Plant, HB: cleaning technology & parts
Hangzhou Machine Tool Factory, ZJ: processing center
Jinan No.1 Machine Tool Plant, SD: digital control machine tools
Ningjiang Machine Tool Plant, SC: machine tools
Qinchuan Machine Tools Plant, SN: key eqpt.
Shandong Machine Tool Auxiliaries Plant, SD: drilling machine chucks
Shandong Provincial Machinery Building Bureau, SD: machine tools
Shashi No.1 Machine Tool Plant, HB: drilling machines
Shashi No.2 Machine Tool Plant, HB: grinders
Shijiazhuang Bearing Factory, HEB: grinding machines
Tianjin Grinding Machinery Plant, TJ: tool grinding machines
Tianjin No.1 Machine Tool Plant, TJ: hobbing machines
Tianshui 213 Factory, GS: motor & electrical tools
Wuhan Hongwei Tools Plant, HB: cutting machine
Wuhan Machine Tool Accessories Plant, HB: spring clip connectors
Wuhan Machine Tool Plant, HB: grinders
Wuhan No.3 Machine Tool Plant, HB: lathes
Wuhu Heavy-duty Machine Tool Plant, AH: grinding machines
Xian Metallurgical, Mechanical & Electrical Products Bureau, SN: machine tools
Xian Meters Machine Tool Plant, SN: pneumatic eqpt.
Xianglan Machine Tool Electrical Drive Factory, HB: electrical eqpt.
Xianglan Machine Tool Electric Transmission Eqpt. Plant, HB: static changeover devices
Xinxiang Second Tool Factory, HEN: spanners
Xinxiang Tool Factory, HEN: pliers
Yichang Machine Tool Industrial Corp., HB: metal recycling machinery
Yingkou Forging Press Plant, LN: machine tools
Yingkou Machine Tool Plant, LN: tool & cutter grinders
Zhenjiang Hydraulic Parts Factory, JS: hydraulic elements

MEDICAL EQPT.

Hangzhou Electron Tube Factory, ZJ: x-ray tubes
Hangzhou No.1 Pharmaceutical Factory, ZJ: pill-making eqpt.
Hangzhou No.2 Chinese Medicine Factory, ZJ: pill making
Huqingyutang Chinese Medicine Factory, ZJ: technology
Lanzhou Chinese Medicine Factory, GS: extracting, processing, Northwest Medical Appliance Factory, SN: dental eqpt.
Shanghai Changzheng Pharmaceutical Factory, SH: intravenous bags & bottles
Shanghai Medical Diagnostic Instrument Factory, SH: disposable syringes
Taiyuan No.2 Pharmaceutical Factory, SX: sterilizing eqpt.
Tianjin Heping Pharmaceutical Factory, TJ: plastic transfusion bottles
Wuhan Syringe Needle Plant, HB: syringes
Xibei No.1 Medical Apparatus Plant, SN: dental instruments
Zibo Xinhua Medical Apparatus Factory, SD: medical eqpt.

MINING & METALLURGY

Anhui Panxie Coal Field, AH: coal
Anshan No.2 Chemical Plant, LN: carbon black
Benxi Heavy Machine Building Plant, LN: mining cars
Benxi Metal Alloy Plant, LN: copper foil
Changpo Brown Coal & Shale Mine, Luxian County, Hainan, GD: extraction
Changzhou Smeltery, JS: copper wire
Chengde Mining Eqpt. Plant, HEB: conveyors
Changde Xiaoshigou Copper Mine, HEB: mining eqpt.
Chaochun No.3 Mine Xiaotun People's Commune, HEN: coal
China International Trust & Investment Corp., BJ: lightbulbs
China Metallurgical Import & Export Corp., BJ: taper spring rolling mill
China Rare Earth Company, NM: rare earth elements
Dalian Smelting Plant, LN: aluminum products
Dandong Building Materials Bureau, LN: mining marble
Datong Formed Coke Plant, SX: coke
Dianwan Coal Mine, SX: coal
Dingyuan Salt Mine & Sodium Carbonate Factory, AH: salt
Ducun Coal Mine, Suzhou, JS: coal technology
Duobaoshan Copper Mine, HL: copper mining eqpt.
Electric Smelting Magnesium Brickyard, Yingkou, LN: production eqpt.
Foshan Photoelectric Eqpt. Factory, GD: phosphoric gallium
Foshan Yuezhong Printing Factory, GD: aluminum
Fuqing Granite Slab Plant, FJ: granite slab mining
Fujian Hard-Metal Alloy Factory, FJ: hard-metal alloy
Fujian Spar Processing Factory, FJ: spar
Fujian Tungsten Products Factory, Xiamen, FJ: tungsten
Fuzhou Ferroalloys Plant, FJ: aluminum alloy
Gansu Huating Coal Field, GS: coal
Gansu Iron Alloy Plant, GS: ferrosilicon
Gaoping Bofang Shaped Coal Making Factory, SX: shaped coal
Gaoping Coal Preparation Plant, SX: cleaning & preparation eqpt.
Guangde Fluorite Mine, AH: fluorite
Guangdong Metallurgical Department, GD: tungsten
Guangdong Nonferrous Metal Processing Plant, GD: aluminum foil
Guangdong Shaoguan Excavating Machinery Factory, GD: mining eqpt.
Guangzhou Electric Wire Plant, GD: wire drawing
Guangzhou Titanium White Powder Plant, GD: titanium
Guangzhou Zinc Chip Plant, GD: aluminum foil
Guyiminhe Coal Field, NM: coal
Haicheng Talcum Mine, LN: talcum mining
Haikou Aluminum Products Plant, Hainan, GD: aluminum
Hainan External Economic Commission, GD: quartzote quarry
Hainan Trust Company, GD: porcelain clay mining
Handan Steel & Iron General Plant, HEB: wire rod finishers
Handan Wharf Aluminum Factory, HB: pipes
Hangzhou Bearing Bush Factory, ZJ: continuous sintering process
Hangzhou Cable Factory, ZJ: aluminum alloy conductors
Hangzhou People's Printing Shop, ZJ: bronzing machines
Hangzhou Powder Metallurgy Inst., ZJ: friction discs
Hanzhong Calcium Carbide Factory, SN: calcium carbide
Hefei Mining Eqpt. Plant, AH: hydraulic excavators
Hefei Rolled Aluminum Plant, AH: aluminum
Heishan Bentonite Mine, LN: bentonite
Hengnan Fluorite Mine, HN: fluorite
Huangling Coal Mine, SN: coal
Huainan Mining Administration, AH: coal
Huating Coal Field, GS: coal development
Jiangsu Bureau of Metallurgical Industry, JS: bars, tubes, wire
Jiangmen Qihua Wireless Factory, GD: luminous diodes
Jinan Coal Industrial Corporation, SD: coal
Jinan Granite Factory, SD: crushers, derricks, jacks
Jinan Granite Quarry, SD: processing eqpt.
Jincheng Coal Preparation Plant, SX: coal
Jincheng Shaped Coal Making Factory, SX: coal
Jingyuan Chunguang Material Factory, GS: magnetic materials
Jinzhong Coal Preparation Plant, SX: coal
Jixi Coal Mine, SD: expansion
Kuandian Borax Factory, Dandong, LN: borax & boric spar
Laixi Nanshu Graphite Mine, SD: graphite
Lanzhou Gansu Aluminum Plant, GS: electrolytic aluminum
Liayong Chemical Plant for Metallurgical Building Materials, LN: titanium white
Lingshi Coal Preparation Plant, SX: cleaning & preparation eqpt.
Liumao Graphite Mine, HL: graphite mining
Liupanshui Coal Mines, GZ: coal
Longgu Coal Mine, Xuzhou, JS: exploration & development
Longshan Mine, Anyang Coal Mine Bureau, HEN: anthracite
Lueyang Asbestos Mine, SN: asbestos
Luoyang Copper Processing Factory, HEN: copper processing
Lutang Graphite Mine, HN: graphite
Makou Coal Mine, SX: coal
Matou Aluminum Factory, HEB: aluminum pipe shaping/welding
Marble Processing Factory, HL: marble
Mianchi Aluminum Plant, HEN: bauxite calcination eqpt.
Minheng Coal Ash Brick Factory, SH: coal ash ceramsite
Muling Graphite Mine, HL: mining & processing
Nanchang Hard-Alloy Plant, JX: hard alloy
Nanchuan Coal Mine, SN: coal
Nanjing Copper Rod Plant, JS: copper alloy rods
Nanjing Ferroalloys Plant, JS: brass tubes & bars
Nanping Aluminum Plant, FJ: aluminum foil technology
Nanping Lead Plant, FJ: lead foil
Nanzhai Coal Mine, SX: coal
Ningbo Powder Metallurgy Plant, ZJ: metallurgic products
Ningxia Iron Alloy Plant, NX: electromelt arc furnace
Ningxia Shizuishan Iron Steel Plant, NX: locked coil wire rope
Pingdu Marble Factory, SD: sawing, cutting, drilling eqpt.
Pingguo Aluminum Factory, GX: aluminum
Pingyao Mining Locomotive Plant, SX: mining locomotives
Qingdao Chemical Plant, SD: barium
Qingdao General Stone Material Plant, SD: granite
Qingdao Granite Factory, SD: rock cutting/drilling eqpt.
Qingdao Magnetic Steel Factory, SD: furnace quick analyzer
Qingdao Masonry, SD: granite mining
Qinghai Mining Machinery Plant, QH: shaped coal production eqpt.
Qinghai Aluminum Plant, QH: aluminum
Qinzhou Gypsum Factory, GX: gypsum board
Qionghai County Granite Quarry, Hainan, GD: machinery & trucks
Renlou Coal Mine, AH: coal
Rushan County Building Material Company, SD: quarry eqpt.
Rushan Granite Quarry, SD: drilling machines & trucks
Santaizi Coal Mines, Kangping County, LN: expansion
Shaanxi Precision Alloy Factory, SN: roll millers
Shaanxi Shenmu Coal Field, SN: coal
Shandong Jining Coal Field, SD: coal
Shanggao Marble Mill, JX: granite & marble extraction
Shanghai Hujiang Copper Manufacturing Works, SH: copper alloy
Shanghai Nonferrous Forging Factory, SH: beryllium bronze
Shanghai No.2 Smeltery, SH: titanium sponge
Shanghai No.10 Iron & Steel Works, SH: hydraulic mill
Shangrao Magnetic Materials Factory, JX: magnetic materials
Shanxi Luan Coal Field, SX: coal
Shanxi Pingshuo Coal Field, SX: coal
Shanxi Xiangning Coal Field, SX: coal
Shenyang Air Compressor Plant, LN: mine compressor
Shenyang Cable Factory, LN: copper production line
Shenyang Foundry, LN: titanium
Shenyang Nonferrous Metals Processing Factory, LN: titanium
Shenyang Wire Rod Factory, LN: production eqpt.
Shijiazhuang No.1 Valve Plant, HEB: coal slurry valves
Southwest Aluminum Processing Plant, Chongqing, SC: aluminum
Suzhou Copper Product Factory, JS: rolling mills
Taian Nonferrous Metal Extruding Mill, SD: aluminum
Taian Steel Rolling Mill, SD: production eqpt.
Taiyuan Electrolytic Copper Plant, SX: rolling & casting line
Taiyuan Mining Machinery Plant, SX: mining machinery
Tangshan Metallurgical & Mining Machinery Plant, HEB: speed reducers
Tianjin Dongfeng Chemical Works, TJ: barium metaborate
Tianjin Jinxiang Machinery Plant, TJ: door/window frames
Tianjin Magnetic Material Factory, TJ: magnetic materials
Titanium Sponge Factory, GX: titanium
Tongchuan Aluminum Factory, SN: aluminum smelting
Tonggou County Mining Company, LN: kaolin mining
Vanning Sponge Titanium Plant, Hainan, GD: excavating eqpt.
Weifang Copper Wire Factory, SD: wire drawing machines
Weifang Metal Furniture Materials Factory, SD: aluminum alloy

Wendeng Granite Quarry, SD: extraction/processing eqpt.
Wuhan Duplicatory Plant, HB: selenium alloy duplicator drums
Wuhan Metal Calenders Factory, HB: aluminum
Wuxi Metallurgical Works, JS: copper strip rolling mill
Wuxi Smeltery, JS: copper strips
Xian Metallurgical, Mechanical & Electrical Products Bureau, SN: metallurgical products
Xiangning Mining Area, SX: coal
Xiangxiang Aluminum Factory, HN: aluminum fluoride
Xiangzhou Barites Mine, GX: barite
Xiaqiao Coal Mine, Huaibei, AH: coal
Xinfeng Coal Mine Administration, HEN: coal
Xinhua Molybdenum Mine, LN: molybdenum
Xinwen Coal Mining Administration, SD: coal
Xinxinag Gypsum Mine, SN: gypsum
Xuzhou Aluminum Plant, JS: aluminum processing eqpt.
Xuzhou Iron & Steel Plant, JS: zinc-plated welded pipes
Xuzhou Refractory Plant, JS: electric arc furnace
Yangquan Refractory Materials Plant, SX: bricks
Yangtang Graphite Mine, Hainan, GD: mining eqpt.
Yichang Graphite Mine, HB: mining eqpt.
Yichang Resin Factory, HB: calcium carbide kiln
Yinkou City Rural Enterprise Bureau, LN: magnesite crashers
Yingkou Electro-Fused Magnesium Brick Factory, LN: magnesium
Yingkou 501 Mine, LN: boron mine
Yingkou Nonferrous Metal Alloy Plant, LN: aluminum frames
Yixing Marble Company, JS: marble excavating & processing
Yongan Barite Mine, FJ: barite mining technology & eqpt.
Yuechan Marble Mine, AH: technology & eqpt.
Yulian County Granite Factory, SD: double direction cutters
Yunmeng County Gypsum Mine, HB: gypsum mining
Zhejiang Hengshan Iron & Steel Plant, ZJ: tungsten-molybdenum
Zhenchuan Marble Quarry, HEN: marble slab material
Zhijin Coal, GZ: coal mine improvement
Zhuoxian Aluminum Processing Experimental Factory, HEB: refining
Zuoyun Xiershan Coal Mine, SX: coal mining & processing

PACKAGING & EXTRUSION

Anhui Printing & Dyeing Mill, AH: screen printing machines
Baoding Canned Food Factory, HEB: can production eqpt.
Bespei Glassware Factory, SC: glass containers
Bengbu Glass Plant, AH: bottle making
Changzhi Forging Press Plant, SX: forging press
Chongqing Canned Food Factory, SC: welding eqpt.
Chongqing No.2 Printing House, SC: multicolor press
Chongqing No.3 Plastics Factory, SC: polypropylene film
Chongqing No.3 Printing House, SC: relief press
Datong No.2 Plastic Factory, SX: canvas & cement bags
Dongteng Plastic Factory, Shijiazhuang, HEB: mulching machines
Fujiang No.2 Plastic Factory, JX: color printing
Foshan No.1 Plastics Factory, GD: plastic film
Foshan Yuezhong Printing Factory, GD: printing machinery
Fuding Brewery, FJ: bottle tops
Fuqing Huaqiao Canned Food Factory, FJ: can production
Fuzhou Carton Factory, FJ: corrugated cartons
Fuzhou Glassware Works, FJ: bottles & jars
Fuzhou No.1 Plastics Factory, FJ: double axial drawing film
Fuzhou No.3 Plastic Factory, FJ: plastic film manufacturing
Fuzhou No.3 Printing House, FJ: plastic bags manufacturing
Fuzhou No.5 Plastic Factory, FJ: plastic film
Fuzhou Printing House, FJ: color printing eqpt.
Guangdong Can Factory, GD: high frequency-welded cans
Guangdong Dongguan Diesel Engine Factory, GD: cans
Guangzhou Dongfanghong Printing Factory, GD: eqpt.
Guangzhou Ferroalloy Plant, GD: cans with pop top lids
Guangdong Glass Factory, GD: glass bottles
Guangzhou People's Plastic Printing & Wooden Case Factory, GD: packing
Handan No.2 Plastic Factory, HEB: polyvinyl chloride
Hangzhou Instrument Label Factory, ZJ: label printing machine
Hangzhou Standard Fastener Works, ZJ: forging & rolling machines
Hangzhou No.2 Plastic & Chemicals Factory, ZJ: polyvinyl alcohol film
Hefei Daily-Use Chemicals Plant, AH: packaging
Hefei Electric Wire Factory, AH: extruders
Hefei Forging Press Plant, AH: hydraulic press
Hefei Plastics Corp., AH: bags & boxes
Heilongjiang No.1 Plastic Products Factory, HL: film printing
Hongyan Glass Factory, SC: bottle production
Huabei Pharmaceutical Factory, HEB: bottle shaping & packaging
Huangshi Forging Machine Tool Plant, HB: extruders
Hubei Steel Ball Plant, HB: cone dies
Hunan Printing Machinery Factory, HN: offset presses
Jinan City No.2 Printing & Dyeing Mill, SD: engraving eqpt.
Jinjiang Daily Use Plastics Factory, FJ: plastic woven bags
Jinan Knitting Mill, SD: transfer printing
Jinan Match Factory, SD: screen printing machines
Jinan No.5 Plastic Factory, SD: woven plastic bags
Jinan Printing House, SD: transfer printing
Jinan Toothpaste Factory, SD: tubes
Jining Synthetic Detergent Factory, Qingdao, SD: packaging
Kaifeng Combine Plant, HEN: aluminum cans
Kaifeng Glass Factory, HEN: bottling
Kaifeng Plastics Factory, HEN: food bags
Kaifeng Printing & Dyeing Machinery Plant, HEN: machines
Lanzhou Plastic Weaving Factory, GS: plastic bags
Leihe Tinned Food Factory, HEN: welding eqpt.
Liuzhou Bag Weaving Factory, GX: plastic bags
Longyan Cement Sack Factory, FJ: polypropylene sacks
Longyan Paper Mill, FJ: calender manufacturing eqpt.
Luohe Canning Plant, HEN: canning eqpt.
Luoyang Printing Factory, HEN: printing eqpt.
Luoyang United Paper Carton Factory, HEN: corrugated cartons
Nanchang No.7 Plastic Factory, JX: quick freezing film
Nanjing Organic Chemicals Plant, JS: drawing machines
Nanping No.1 Printing House, FJ: printing machine
Ningbo Tinned Food Factory, ZJ: canning machine
Ningguo County Plastics Plant, AH: bags
Pingxiang Plastic Chemical Factory, JX: printing on plastic
Plastic Products Experimental Factory, JX: multiple-layer complex boiling film
Putian Canned Food Factory, FJ: can production eqpt.
Qingdao Aluminum Rolling Mill, SD: beer cans
Qingdao Hongqi Printing House, SD: bag making machine
Qingzhou Paper Mill, FJ: paper bag machinery
Qinhuangdao Yanshan Glass Factory, HEB: glass bottle
Quanzhou Canned Food Factory, FJ: can production
Quxian Plastic Factory, ZJ: shrink film
Renmin Printing Factory, Hangzhou, ZJ: offset printing
Sanming Plastics Factory, FJ: plastic film
Shaanxi Calender Plant, SN: precision presses
Shaanxi Red Flag Wrist Watch Factory, SN: cold extrusion
Shandong Food Import & Export Branch Corp., SD: packing machine
Shanghai Chemical Plant, SH: micrometer polyester film
Shanghai Glassware Industrial Corp., SH: glassware
Shanghai Ma Ling Canned Food Factory, SH: cans
Shanghai No.2 Plastics Factory, SH: polypropylene film
Shanghai No.4 Glass Factory, SH: amber bottles
Shanghai Packaging & Decorating Industrial Corp., SH: boxes
Shanghai Yanan Machinery Plant, SH: offset presses
Shanghai Yimin No.1 Food Factory, SH: containers
Shanghaiguan Foodstuff Factory, HEB: can-sealing machine
Shashi No.2 Plastics Factory, HB: calendering film
Shantou Glass Factory, GD: glass
Shanxi Linfen Plastics Factory, SX: plastic film
Shaoyang Canned Food Plant, HN: canning
Shenyang Applique Printing Mill, LN: printing
Shenyang Bottle Factory, LN: glassware
Shijiazhuang No.2 Packaging Factory, HEB: extruding machine
Suqian Glasswords, JS: bottle-making
Suzhou No.2 Watchcase Factory, JS: extrusion eqpt.
Suzhou No.3 Plastics Factory, JS: wood grained film
Taian Cannery, SD: canning
Taiyuan No.1 Plastics Factory, SX: floor tile extrusion unit
Taiyuan No.4 Plastics Factory, SX: soft packing production
Taiyuan Printing Factory, SX: color printing
Tangshan No.6 Plastic Factory, HEB: plastic bags
Tianjin Jingjin Creased Carton Printing House, TJ: packaging
Tianjin No.2 Offset Printing House, TJ: printing
Tianjin No.2 Plastics Factory, TJ: contracting film
Tianjin No.24 Plastics Factory, TJ: meshed sacks
Tianjin People's Printing House, TJ: packaging
Tianjin Printing & Platemaking Mill, TJ: printing
Tianshui Plastic Factory, GS: plastic film
Tunxi Woven Bag Factory, AH: woven bags
Two-way Stretchable Plastic Film Factory, FJ: plastic film
Weifang Copper Material Plant, SD: cold treatment extruders
Weifang Steel Window Plant, SD: steel extruders
Wenzhou Printing Machinery Plant, ZJ: strapping machine
Wuhu Gardening Tools Factory, AH: extruders
Wuhu Guanghua Glass Works, AH: bottle-making
Wuzhou Daily-Use Metals Factory, GX: printing machine
Wuzhou Plastic Film Factory, GX: plastic packing film
Xiamen No.7 Plastics Factory, FJ: torn film bags
Xiamen Packing Factory, FJ: cardboard box manufacturing
Xian Aluminum Material Factory, SN: aluminum cans
Xian Forging Press Plant, SN: extruders
Xian Glassware Factory, SN: beer bottles
Xian No.1 Printing Works, SN: folio embossing presses
Xian Packaging Corp., SX: intaglio presses
Xianglan Glassware Plant, HN: beer bottles
Xiaoyi County Plastics Factory, SN: plastic woven sacks
Xibei No.1 Printing & Dyeing Factory, SN: printing & dyeing
Xining Package & Decorative Advertising Company, QH: printing
Xiongyue Printing & Dyeing Plant, Yingkou, LN: emery machine
Xuancheng Plastics Factory, AH: bags
Yantai Printing House, SD: printing machine
Yidu Aluminum Foil Paper Mill, SD: embossing machine
Yingkou Forging Press Factory, LN: precision presses
Yingkou Nonferrous Metals Plant, LN: extrusion
Yinkou Panshan County Plastics Plant, LN: plastic bags
Yingkou Plastics Plant, LN: film extruders
Yongan County Packaging Materials Factory, FJ: polyvinyl PVA
Yuhang Plastic Factory, ZJ: flexible packing material
Zhangye Plastic Weaving Factory, GS: plastic bags
Zhangzhou No.3 Plastics Works, FJ: molding & printing machinery
Zhenjang No.3 Plastics Factory, JS: bags
Zhoushang Aquatic Food Can Factory, ZJ: canning
Zibo No.2 Plastics Factory, SD: plastic bags
Zibo No.5 Plastic Factory, SD: cement bags
Zibo Printing House, SD: color printers

PAPER & LUMBER PRODUCTS

Anqiu Paper Mill, SD: tube-type rotary furnace
Beihai Cardboard Box Factory, GX: cardboard
Chongqing Paper Mill, SC: calendering machines
Dalian Furniture Factory, LN: plywood
Dalian Paper Mill, LN: paper clothing
Dandong Slice Wood Products Factory, LN: woodgrain boards
Datong Printed Board Factory, SX: printed boards
Dezhou Furniture Material Factory, SD: fiber boards
Dezhou Paper Mill, SD: paper processing
Dongfang Cardboard Factory, AH: kraft paper boards
Dongguan Sugar Factory, GD: fiber plates
Fuyang Paper Mill, ZJ: printing paper
Fuyue Pulp Mill, HL: paper
Fuzhou Fiberboard Factory, FJ: wood
Fuzhou Plywood Factory, FJ: plywood
Guangzhou Paper Mill, GD: screen paper, pulping machines
Hanzhong Prefecture Paper Mill, SN: stationary
Harbin Wooden Furniture Manufacturing Factory, HL: wood
Heilongjiang Provincial Administrative Bureau of Forestry, HL: wood
Heze Printing House, Qingdao, SD: paper cutting machines
Hongqi Carton Factory, SC: paperboard
Hongyan Carton Factory, SC: paperboard
Huanghe Furniture Plant, SH: particle board
Hubei Provincial Forestry Machinery Plant, HB: cork bricks
Jinan Paper Mill, SD: paper boards
Jinzhou Nuerhe Papermaking Factory, LN: toilet paper
Kaifeng Paper Screen Factory, HEN: paper screens
Lianyungang Paper-Making Factory, JS: tissues
Liaoyang Porcelain Printing Paper Factory, LN: color analyser
Linxi Paperboard Mill, SD: paperboard molders
Luoyang Paper Box Factory, HEN: corrugated paper
Nancha Medium-Density Fiberboard, HL: fiberboard
Nanjing Enamelware Plant, JS: annexing paper
Nanjing No.5 Furniture Factory, JS: plywood
Nanning Confectionary Wrapping Factory, GX: fiberboard
New China Paper Mill, ZJ: double swing fiber cutters
Putian Bagasse Fiberboard Plant, FJ: bagasse fiberboard
Putian Pulp Newsprint Plant, FJ: paper
Qingdao City Furniture Corp., SD: plywood
Qingdao Paper Mill, SD: mini-capsule machines
Qingdao Nenmin Paper Mill, SD: wallpaper eqpt.
Qingyuan Foreign Economic Relations Department, GD: plywood
Qiqihar Machine Tool Plant, HL: plywood
Sanming Plywood Factory, FJ: shaving board
Shandong General Paper Mill, SD: book page eqpt.
Shanghai Lixin Paper Mill, SH: kraft liner board
Shanghai Paper-Making Industrial Corp., SH: duplex board
Shanghai Phototype Print Paper Mill, SH: non-carbon paper
Shenyang Paper Making Factory, LN: scraper
Tianjin Cardboard Case Factory, TJ: cardboard
Tianjin No.5 Paper-Making Mill, TJ: toilet paper
Tongbei Forestry Bureau Shaving Board Factory, HL: processing eqpt.
Wuhu Timber Mill, AH: shaving board production line
Xiamen Woodwork Factory, FJ: pressing, cutting, drilling machinery
Xian Papermaking Screen Factory, SN: papermaking screens
Xiangfan Art Printing Paper Mill, HB: non-drying gluey paper
Xiangfan Wood Processing Factory, HL: processing eqpt.
Xuzhou Timber Corp., JS: plywood
Yantai Paper Mill, SD: sanitary towels
Yantai Timber Industry Company, SD: plywood
Yantai Wooden Case Clock Factory, SD: paperboard
Yidu Aluminum Foil Mill, SD: paper containers
Yingkou Dawa County Straw Paper Board Mill, LN: resin paper
Yingkou Paper Mill, LN: waste paper
Yufeng Company, Hainan, GD: rubber tree timber
Zhangye Paper Mill, GS: seedling-growing paper
Zhangzhou Bagasse Pulp Factory, FJ: bagasse pulp boards
Zhangzhou Paper Mill, FJ: paper
Zhanxian Plywood Plant, Hainan, GD: plywood
Zhenjang Paper Board Box Factory, JS: corrugated paper
Zhujiang Paper Mill, GD: multi-purpose coating machines

PHARMACEUTICAL PRODUCTS

Changzhou Biochemical Pharmaceutical Plant, JS: enzyme & peptide technology
Changzhou Pharmaceutical Factory, JS: tablet-making machine
Chongqing Biochemical Pharmaceutical Factory, SC: pharmacy project
Chongqing Hechuan Biochemical Factory, SC: comprehensive utilization of pancreas
Chongqing No.7 Pharmaceutical Factory, SC: capsules charging machine
Chongqing Tongjunge Pharmaceutical Factory, SC: analyzers & packaging
Fujian Lysine Factory, Quanzhou, FJ: lysine
Fuyang Pharmaceutical Plant, AH: vaccines
Hanzhong Prefectural Pharmaceutical Plant, SN: traditional medicine
Heilongjiang Alcohol Plant, HL: edible alcohol & vitamin C
Huabei Pharmaceutical Factory, HEB: vitamin B-12
Jinzhou No.2 Pharmaceutical Factory, LN: soft capsules
Nanjing No.2 Biochemical Pharmaceutical Plant, JS: technology
Nantong No.2 Pharmaceutical Factory, JS: lysozyme
Ningxia Pharmaceutical Corporation, NX: acetylspiramycin
Northeast General Pharmaceutical Factory, LN: pure water system eqpt.
No.4 Pharmaceutical Factory, Xian, SN: cholic acid
Qingdao Gelatin Factory, SD: capsules
Qiqihar Sugar Refinery, Lysine Workshop, HL: lysine
Shanghai Biochemical Pharmaceuticals Factory, SH: eqpt.
Shanghai Glass Factory, SH: molded vials
Shanghai No.2 Pharmaceutical Factory, SH: vitamin E
Shanghai No.3 Pharmaceutical Factory, SH: penicillin
Shanghai Pharmaceutical Corporation, SH: antibiotics
Shanghai Pharmaceutical Industrial Corp., SH: flexible ointment tubes
Shanghai Sanitary Material Factory, SH: wound plaster
Shanxi Provincial Traditional Chinese Medicine Factory, SX: traditional medicine
Shenyang Guan-Cheng Pharmaceutical Factory, LN: rubberized fabric
Southwest China No.1 Pharmaceutical Factory, SC: anti-bacterium
Southwest China No.3 Pharmaceutical Factory, SC: ampules
Taigu Medicine Glass Factory, SX: ampules
Taiyuan Pharmaceutical House, SX: ampicillin
Taizhou Biochemical Pharmaceutical Plant, JS: upgrade operation
Tianjin Central Pharmaceutical Factory, No.2, TJ: atomizers
Tianjin International Trust & Consultancy Corp., TJ: capsules
Tianjin Li Sheng Pharmaceutical Factory, TJ: hard gelatin capsule
Tianjin Pharmaceutical Company, TJ: ampicillin
Wuhan No.2 Pharmaceutical Factory, HB: sterilized cabinets
Wuhan No.3 Pharmaceutical Plant, HB: ointment tubes
Wuhan No.4 Pharmaceutical Plant, HB: capsule forming eqpt.
Wuhan Zhonglian Pharmaceutical Factory, HB: tablet coating & storage
Xian Pharmaceutical Factory, SN: cephalosporin
Xibei No.2 Synthetic Pharmaceutical Plant, SN: vitamin E
Yangzhou Biochemical Pharmaceutical Plant, JS: coenzyme Q10
Yangzhou Pharmaceutical Factory, JS: vitamin E
Yichang Sanxia Pharmaceutical Factory, HB: amino acid pharmaceuticals

PHOTOGRAPHY PRODUCTS

Beihai Printing Factory, GX: color printing eqpt.

Dalian No.13 Transistor Radio Factory, LN: camera & video recorder
Dalian Telecommunications Motors Factory, LN: VCR motors
Dandong Camera Factory, LN: cameras
Foshan Photo-Electric Spare Parts Factory, GD: parts
Fushun Yazhou Photo Studio, LN: photographic studio
Fuzhou Camera Plant, FJ: cameras
Linxia Gansu Optics Instrument Plant, GS: cameras
No.1 Xinhua Printing House Project, NX: film processing
Qingdao Camera Factory, SD: cameras
Shanghai General Camera Factory, SH: cameras
Shanghai No.1 Photo Sensitive Film Factory, SH: extrusion coating
Shanghai Photo Film Factory, SH: extrusion coating
Shantou Photosensitive Chemical Plant, GD: photographic chemicals
Shenyang Film Projector Reflectory Factory, LN: eqpt.
Sichuan Vinylon Mill, SC: pva film processing
Tianjin Camera Factory, TJ: cameras
Tianjin Municipal Camera Factory, TJ: photographic eqpt.
Tianjin No.2 Optical Insturment Factory, TJ: slide projectors
Tianjin Photographic Material Factory, TJ: flashbulbs
Wuhan Camera Factory, HB: cameras
Wuhan Camera Shutter Factory, HB: cameras
Wuhan General Camera Factory: HB: cameras
Wuhan Sensitive & Duplicating Materials Factory, HB: technology
Wuxi Cinefilm Plant, JS: color cinefilm
Xiamen Camera Factory, FJ: cameras
Xiamen Photographic Chemical Works, FJ: light sensitivity materials
Xinhua News, BJ: processing & transmission eqpt.

PLASTIC INDUSTRY

Changzhou Camera Plant, JS: plastic injection eqpt.
Changzhou Guangming Plastics Factory, JS: polypropylene & polyethylene
Changzhou Packing Materials Factory, JS: foaming eqpt.
Chongqing No.1 Plastics Factory, SC: extrusion machines
Chongqing No.4 Plastics Factory, SC: polyurethane foam
Chongqing No.7 Plastics Factory, SC: wallpaper & flooring
Chongqing No.10 Plastics Factory, SC: vacuum forming
Chongqing No.12 Plastics Factory, SC: extruding machines
Chongqing Synthetic Chemical Factory, SC: phenolic plastics
Dalian No.1 Plastic Factory, LN: polyurethane foam
Dalian No.2 Plastic Factory, LN: plastic tarpaulins
Dalian No.2 Radio Factory, LN: plastic molds
Dalian No.3 Plastic Factory, LN: PVC
Dalian No.9 Plastic Factory, LN: films
Dalian No.11 Plastic Factory, LN: evacuated containers
Dalian No.13 Plastic Factory, LN: new packaging films
Dalian Plastic Factory, LN: key production eqpt.
Dalian Plastic Packing Materials Factory, LN: film packing
Dalian Plastic Molds Factory, LN: molds
Dalian Recording Materials Factory, LN: plastic molds
Dandong Foamed Plastics Factory, LN: foamed mattresses
Dandong Yuanbao Plastic Foam Factory, LN: polyurethane foam
Dongfeng Plastics Plant, Hefei, AH: transparent sheets
Dongtai County Plastic Products Factory, JS: rotary shaping eqpt.
Fenyi Engineering Plastic Factory, JX: PVC materials
Fuzhou Chemical Fiber Factory, FJ: cellophane machine
Fuzhou No.1 Plastics Factory, FJ: PVC sheets
Fuzhou No.2 Plastics Factory, FJ: carpets
Fuzhou No.3 Plastics Factory, FJ: polypropylene bags
Fuzhou No.6 Plastics Factory, FJ: polyurethane foamed plastics
Fuzhou No.8 Plastics Factory, FJ: manufacturing eqpt.
Guangzhou Industrial Plastic Materials Factory, GD: plates
Haikou No.3 Rubber Factory, Hainan, GD: plastic tubes
Handan No.9 Plastic Factory, HEB: knitted plastic bags
Handan Resin Factory, HEB: carpet
Hangzhou No.1 Plastic Chemical Factory, ZJ: eqpt. & technology
Harbin Plastic Foam Products Factory, HL: plastic foam
Hebei Provincial Construction Corp., HEB: plastic building materials
Hefei No.2 Plastics Factory, AH: machinery
Hefei No.6 Plastic Plant, AH: synthetic leather
Hefei Plastic Company, AH: cellophane strips
Honghu County Plastics Factory, HB: plastic boats
Huanggang County Light Industrial Machinery Plant, HB: plastic rolls
Huangshi No.1 Plastic Factory, HB: plastic board
Hubei Motor Vehicle Steering Wheel Plant, HB: pressing & foaming eqpt.
Hubei Shashi Relay Factory, HB: plastic injection machines
Jiashan Plastic Factory, ZJ: plastic flexible pipe
Jinan Clock & Watch Factory, SD: injection machine
Jinan No.3 Plastic Factory, SD: plastic film making
Jinan No.4 Plastic Factory, SD: secondary foaming eqpt.
Jinan No.5 Plastic Mill, SD: wire drawing machines
Jinan No.6 Plastic Factory, SD: injection
Jinan No.9 Plastic Factory, SD: molding
Jinan No.11 Plastic Factory, SD: floor sheets
Jinzhou No.3 Plastic Factory, LN: plastic packing machine
Jinzhou Plastics Industrial Corp., LN: PVC leather cloth
Laiwu Light Industry Plastic Machinery Plant, SD: foaming machines
Lanzhou Plastic Box & Bag Factory, GS: plastic injecting machines
Lanzhou Plastic Packaging Material Factory, GS: polystyrene
Lanzhou Plastic Plant, GS: plastic building materials
Laohekou Plastic Products Factory, HB: bottle-making unit
Lianyungang No.1 Plastic Factory, JS: fishing net & thread
Lianyungang Water Meter Factory, JS: plastic injection machine
Liuzhou City Plastic Products Factory, GX: membranes
Liuzhou Rubber & Plastic Factory, GX: porous artificial leather
Luoyang Glass Fiber Reinforced Plastics Factory, HEN: vacuum machine
Nanjing No.2 Plastic Factory, JS: plastic film
Nanchang No.6 Plastic Factory, JX: bottles
Nanchang No.7 Plastic Factory, JX: corrugated pipes
Nanjing No.4 Plastic Factory, JS: artificial leather
Nanzhang Plastics Plant, HB: bottle-making
Ningbo Phonograph Factory, ZJ: phonograph records
Ningxia No.1 Plastics Plant, NX: plastic bags
Ningxia No.2 Plastics Factory, NX: calender system
Penglai Plastic Factory, SD: foaming injector
Pingxiang No.1 Plastic Factory, JX: molding
Pingxiang Plastic Products Factory, JX: molding eqpt.
Qingdao General Television Set Factory, SD: injection molding
Qingdao No.1 Plastics Factory, SD: injection molding machines
Qingdao No.2 Plastic Factory, SD: plastic pipe
Qingdao No.5 Plastic Factory, Sd: molding press
Qingdao No.7 Plastic Factory, SD: extruding unit
Qingdao No.10 Plastic Factory, SD: high pressure foamed casting
Qingdao No.12 Plastics Factory, SD: extrusion net machine
Qingdao No.13 Plastics Factory, SD: injection molding machines
Qingdao No.14 Plastic Factory, SD: plastic injector
Qingdao Plastic Mold Factory, SD: glazing machine
Qinghuangdao Yuehua Glass Company, HEB: reinforced plastics
Qiqihar No.2 Plastics Factory, HL: injection machine
Shacheng Pesticide Plant, HEB: PVC
Shanghai Architectural Coating Factory, SH: floor coverings
Shanghai Lighter Factory, SH: plastic multi-lighters
Shanghai No.1 Plastics Factory, SH: wallpaper printing
Shanghai Plastic Machine Works, SH: injection & molding machines
Shanghai Polypropylene Fiber Mill, SH: needle punching eqpt.
Shantou Farm Use Plastic Products Factory, GD: molding line
Shantou No.2 Plastics Factory, GD: plastic cloth
Shanxi Provincial Research Inst. of Chemical Industry, SX: injection machines
Shenyang No.2 Plastic Factory, LN: production eqpt.
Shenyang No.9 Plastic Factory, LN: PVC windows
Shenyang No.13 Plastic Factory, LN: adhesive tapes
Shenyang Petrochemical Plant, LN: polyethylene
Shijiazhuang Changzheng Shoe Factory, HEB: plastic injection
Shijiazhuang No.2 Plastic Mill, HEB: artificial leather
Shishou County Building Plastic Products Plant, HB: extrusion
Shiyan Plastic Factory, HB: injection machine
Shizuishan Plastics Plant, NX: plastic bags
Sichuan Vinylon Plant, SC: PVA membrane
Suzhou No.3 Plastic Factory, JS: PVC film
Suzhou No.4 Plastic Factory, JS: film & pipe sheet
Taiyuan No.5 Plastic Factory, SX: cable granulated material
Tianjin Gypsum Factory, TJ: polyester toilet materials
Tianjin No.13 Plastics Plant, TJ: vacuum shaping eqpt.
Tianshui Plastic Factory, GS: polyene hydrocarbon
Weifang No.1 Plastic Factory, SD: extrusion & molding machine
Weifang No.2 Plastic Factory, SD: corrugated pipes
Wuhan Changhong Mold Factory, HB: molding eqpt.
Wuhan No.7 Plastic Factory, HB: technology & eqpt.
Wuhan Pesticides Spraying Machinery Plant, HB: plastic bonding technology
Wujin Zhenxing Plastic Factory, JS: vacuum shaping machine
Wuxi Floor Covering Factory, JS: spinning machine
Wuxi Mold Plant, JS: plastic molding
Wuhan No.2 Plastics Factory, HB: PVC flakes
Wuxi Plastic Tarpaulin Factory, JS: water-proof cloth
Wuzhong Woven Plastic Bags Plant, NX: plastic bags
Wuzhou No.51 Plastics Factory, GX: injection machines
Xiamen No.2 Tannery, FJ: artificial leather
Xian Plastic Industrial Company, SN: plastic products
Xiangfan Municipality No.5710 Factory, HB: injection machines
Xianglan Television Set Factory, HB: plastic case production
Xiaoshan Plastic Factory, ZJ: atomizing eqpt.
Yantai No.1 Plastic Factory, SD: plastic pipe
Yantai No.4 Plastic Factory, SD: plastic bags
Yantai Wooden Case Clock Factory, SD: injection machines
Yichang No.4 Plastic Factory, HB: string bags
Yinchuan Tarpaulin & Sofa Factory, NX: polyurethane sponge
Yingtan Plastic Factory, JX: PVC cellophane
Yujao Forging Tool Plant, ZJ: plastic coated steel tapes
Zaoqiang County Chemical Plant, HEB: glass fiber & plastics
Zhangzhou Plastic Products Factory, FJ: molding eqpt.
Zhongxiang County Huji Plastic Products Factory, HB: production line
Zibo No.3 Plastic Factory, SD: high pressure grouter

SCIENTIFIC EQPT.

Anhui Electrical Instruments & Meters, AH: motor-drive timers
Anhui Provincial Machinery Research Inst., AH: spectrometers
Beijing Instrument Factory, BJ: measuring & control
Bengbu Electric Optical Materials Plant, AH: optical glass
Benxi Tungsten Molybdenum Products Factory, LN: microscope
Changzhou Electronic Apparatus Factory, JS: measuring instruments
Chongqing Optical Instruments, SC: microscopes
Chongqing Radio Testing Instrument Factory, SC: display instrument
Dalian Combination Inst., LN: cleaning & filtering eqpt.
Dalian Electric Porcelain Factory, LN: instruments & eqpt.
Dalian Inst. of Technology, LN: measuring & testing eqpt.
Dalian Instruments Factory, LN: dispersion control system
Dalian Measuring Testing Center, LN: testing instruments
Dalian Quality-Control Center, LN: eqpt. & instruments
Fuxin Sensor Factory, LN: capacity, displacement sensors
Guangzhou Electronic Instruments Factory, GD: surveying instrument
Hangzhou Optical Instrument Factory, ZJ: colorimeter
Hebi Instrument & Meter Plant, HEN: instruments & meters
Hefei No.3 Electronic Elements Factory, AH: potentiometers
Hengyang Optical Instrument Factory, HN: microscopes
Jiangxi Optical Instruments Factory, JX: optical instruments
Jinan Instrument & Meter Plant, SD: digital display regulators
Kaifeng No.4 Instrument & Meter Factory, HEN: instrument meters
Laiyang Biochemical Lab, SD: lab eqpt.
Liaoning No. 2 Radio Factory, LN: digital oscilloscope
Linxia Gansu Optics Instrument Plant, GS: laser recorders
Northwest Medical Appliances Factory, SN: dental drills
No.3 Instruments Factory, Dalian, LN: drive units
Qingdao No.1 Instrument Factory, SD: key eqpt.
Qingdao Potentiometer Factory, SD: potentiometers
Qingdao Pressure Gauge Factory, SD: standard analyzer
Qingdao Radio Factory, SD: digital instrumentation
Qingdao Watt-hour Meter Plant, SD: meters
Qinhuangdao Gongji Glass Works, HEB: measuring instruments
Sanmenxia Instrument & Meter Element Factory, HEN: production line
Shanghai Analytical Instrument Factory, SH: spectrophotometer
Shanghai Dianguang Device Works, SH: lamps
Shanghai Machine-tool Electrical Apparatus Works, SH: digit readout
Shanghai Measuring & Cutting Tool Plant, SH: measuring instruments
Shanghai No. 3 Analytical Instrument Factory, SH: spectrophotometers
Shanghai No. 21 Radio Factory, SH: logic analytical instruments
Shanghai Optical Instrument Factory, SH: measuring instruments
Shanghai Quartz Glass Factory, SH: optic fiber drawing
Shanghai Tape Measure Factory, SH: tape measures
Shantou Ultrasonic Electronic Instruments Factory, GD: scientific eqpt.
Shashi Machine Tool Electrical Appliances Factory, HB: test eqpt.
Shashi Optical Instruments Plant, HB: optical lenses
Shenyang Balance Instrument Factory, LN: electronic balance
Shenzhen Yuebao Electronics United Corp., GD: potentiometer
Shijiazhuang Kinescope Factory, HEB: projection color tubes
Tianjin Camera Plant, Tianjin Optical Instrument Plant, TJ: portrait lenses
Tianjin Drafting Instrument Factory, TJ: drafting instruments
Tianjin Metallurgical Experimental Plant, TJ: optical spectrometers
Tianjin No. 1 Radio Factory, TJ: meters
Tianjin No. 2 Optical Instruments Factory, TJ: leveling instruments
Tianjin No. 3 Instrument Factory, TJ: dry-type water meters
Tianshui Hongshan Experimental Machinery Works, GS: weighing eqpt.
Tieling Optical Instrument Factory, LN: optical instruments
Tongling City No. 2 Element Plant, AH: plating machines
Weifang No. 5 3 Factory, SD: digital signaling source
Wuhan Instruments & Meters Research Inst., HB: humidity sensors
Wuhan Optical Instruments Factory, HB: optical instruments
Wuhan Thermometer Plant, HB: radiating solid level meters
Wuxi No. 2 Electronic Elements Factory, JS: scientific eqpt.
Xiamen Digital Instrument Factory, FJ: scientific eqpt.
Xian Optical Surveying Instrument Factory, SN: optical glass
Xianglan Municipality Laser Eqpt. Plant, HB: technology
Yanzhou Biochemical Laboratory, SD: lab eqpt.
Yichang No. 2 Radio Factory, HB: test instruments
Yingkou No. 3 Instrument Factory, LN: electronic belt scales

TEXTILES

Administrative Commission On Import & Export Affairs, Shenyang, LN: silk decorating
Anhui Knitwear Mill, AH: knitting & dyeing machines
Anhui Printing & Dyeing Mill, AH: wool rolling eqpt.
Anqing Textile Mill, AH: open end spinning machines
Anqing Woolen Blanket Mill, AH: wool rolling eqpt.
Anshan Knitwear Mill, LN: weft knitting eqpt.
Anshan No.2 Knitwear Mill, LN: knitting machines
Anshan Printing & Dyeing Mill, LN: machine
Anshan Weaving Mill, LN: bleaching & dyeing
Anyang Artificial Fur Mill, HEN: machines
Anyang Underwear Factory, HEN: printing & dyeing
Beihai Knitting Mill, GX: warp & weft knitting machines
Beihai Spool Yarn Factory, GX: yarn production eqpt.
Beihai Woolen Mill, GX: production eqpt.
Bengbu No.3 Woolen Mill, AH: yarn evener tester
Bengbu Woolen Sweater Factory, AH: weaving & dyeing eqpt.
Bengbu Singuang Leather Products Factory, AH: down garments
Benxi Jacquard Warp Knitting Mill, LN: jacquard warp knitting
Benxi No.1 Cotton Textiles Mill, LN: whirling-spinning machines
Benxi No.3 Textile Mill, LN: spinning machines
Benxi Printing & Dyeing Silk Mill, LN: jet-loom & auxiliary eqpt.
Benxi Silk Fabrics Mill, LN: water spraying looms
Changyi Silk Printing & Dyeing Mill, Qingdao, SD: machines
Changying Knitting Mill, SX: finishing production line
Changzhi Children's Wear Factory, SX: children's wear
Changzhi Knitting Mill, SX: cotton & acrylic knitwear
Changzhou Embroideries Factory, JS: embroidery machines
Changzhou Garment Machinery Works, JS: rotating shuttle machines
Changzhou Knitwear Mill, JS: knitting, bleaching & dyeing
Changzhou No.4 Cotton Mill, JS: needle-punching carpet
Changzhou No.4 Printing & Dyeing Mill, JS: weight reduction
Changzhou No.5 Garment Factory, JS: silk clothing
China International Trust & Investment Corp., BJ: flux linen
China Textile Machinery Plant, SH: rapier weaving machine
Chongqing General Linen Mill, SC: linen manufacturing
Chongqing No.2 Printing & Dyeing Mill, SC: cotton prints
Chongqing Printing & Dyeing Mill, SC: printing & dyeing eqpt.
Chongqing Silk Industrial Co., SC: pongee finishing technology
Chongqing Silk Printing & Dyeing Mill, SC: expanding machines
Chunguang Silk Factory, ZJ: water jet looms
Dahe Cotton Mill, SD: sewing machines
Dalian Bleaching & Dyeing Factory, LN: key eqpt.
Dalian Flax Spinning Mill, LN spinning frames & looms
Dalian Garment Machinery Plant, LN: button holer
Dalian General Yarn-Dyed Fabric Mill, LN: embossing machines
Dalian Handicraft Embroidery Factory, LN: expansion
Dalian Knitwear Factory, LN: multi-function machines
Dalian Knitting Mill, LN: knitted coats
Dalian Linen Mill, LN: wide linen looms
Dalian No.2 Knitwear Mill, LN: wool jacquard machines
Dalian Printing & Dyeing Mill, LN: printing & dyeing machines
Dalian Textile Mill, LN: spindles
Dalian Yarn-Dyeing Mill, LN: production line
Dandong Printing & Dyeing Mill, LN: printing eqpt.
Danyang Cotton Mill, JS: jet spinning eqpt.
Dezhou Furniture Material Plant, SD: cotton-stalk chipboard
Foshan Weimin Silk-Weaving Factory, GD: broad-loom machine
Fuhua Silk Factory, ZJ: looms
Fujian Rayon Plant, FJ: rayon
Fuqing Cotton Mill, FJ: spindles
Fuxhun No.2 Knitwear Mill, LN: jacquard weft knitting eqpt.

Fushun No.2 Wool Spinning Mill, LN: scouring-milling machine
Fushun No.3 Woolen Mill, LN: machines
Fuxin Tricot Knitting Mill, LN: warp knitting machine
Fuyang Angora Knitting Mill, AH: weaving eqpt.
Fuyang Carpet Factory, AH: carpets
Fuyang City Flannel Cutting Factory, AH: production line
Fuyang Hemp Carpet Factory, AH: carpets
Fuyang Rabbit Hair Textile Mill, AH: rabbit hair blend fabrics
Fuzhou Children Wear Factory, FJ: production line
Fuzhou Gulou Non-Woven Fabric Mill, FJ: gummed floss production
Fuzhou Gulou Zipper Factory, FJ: nylon zipper production
Fuzhou Industrial Sewing Machine Plant, FJ: renovation
Fuzhou No.9 Plastic Factory, FJ: button-making eqpt.
Fuzhou Woolen Mill, FJ: NA
Fuzhou Worsted Spinning Mill, FJ: woolen looms
Gansu Knitting Wool Mill, GS: spindles & production eqpt.
Garment Factory, Hanzhong, SN: garments
Garment Industry Company, SC: sewing, hemming, buttoning
Guangdong Chaozhou Municipal Embroidery Industry Company, GD: dyeing technology
Guangzhou Flax Textile Mill, GD: spindles & looms
Guangzhou Gunny-Bag Factory, GD: spinning & weaving eqpt.
Guangzhou Silk Dyeing & Printing Factory, GD: printing eqpt.
Guiyang Xiangkang Woolen Clothing Factory, GZ: production line
Gushi Jute Mill, HEN: spinning frame & other eqpt.
Hailun Flax Textile Mill, HL: spindles
Hanchuan County Cotton Spinning Mill, HB: rapier looms
Hanzhong Knitwear Mill, SN: shawls
Hangzhou Chunguang Silk Weaving Factory, ZJ: jet looms
Hangzhou Embroidery Factory, ZJ: embroidery machine
Hangzhou Fuhua Silk Mill, ZJ: rapier looms
Hangzhou Handkerchief Factory, ZJ: flat-net printing machine
Hangzhou Knitting Mill, ZJ: jacquard circular knitting machine
Hangzhou No.1 Woolen Mill, ZJ: yarn-weaving machine
Hangzhou Silk Arts & Crafts Factory, ZJ: precise weaving machines
Hangzhou Silk Printing & Dyeing Factory, ZJ: color-analyzing eqpt.
Hangzhou Silk Refining & Dyeing Mill, ZJ: cotton gin
Hangzhou Socks Mill, ZJ: knitting machine
Hangzhou Towel & Sheet Factory, ZJ: flat-net printing machine
Hangzhou Woolen Sweater Mill, ZJ: wool-spinning eqpt.
Harbin Fur Factory, HL: comber
Harbin Nylon Zipper Factory, HJ: nylon zippers
Hefei Garment Corp., AH: advanced eqpt.
Hefei No.3 Textile Mill, AH: spindles
Hefei Nylon Zipper Factory, AH: zippers
Henan No.1 Woolen Mill, HEN: machines
Henan No.2 Printing & Dyeing Mill, HEN: eqpt.
Hongqi Cotton Mill, SC: jet spinning machines
Huaibei Knitwear Mill, AH: knitting machines
Huainan Flac Fabric Plant, AH: broad carpet cloth
Huainan Gunny Bag Mill, AH: jute carpets
Huainan Hemp Mill, AH: twisting wool eqpt.
Huainan Knitwear Mill, AH: warp knitting machines
Huangshi First Knitting Mill, HB: weft knitting machines
Hubei Chemical Fiber Plant, HB: disposal system for liquid base
Hubei Provincial Cotton Printing & Dyeing Corp., HB: color scanner
Hubei Shashi Fifth Plastics Plant, HB: warping machines
Hubei Zaoyang Hemp Weaving Mill, HB: rapier looms
Huiming Textile Mill, SD: jet loom
Hunan Provincial Clothing Industrial Corp., HN: garments
Jiamusi Flax Textile Mill, HL: flax cloth
Jiaxing Woolen Mill, AH: spinning & dyeing eqpt.
Jinan Canvas Mill, SD: spindles, looms, combers
Jinan Chemical Fiber Plant, SD: cotton polyester fibers
Jinan Children's Garment Factory, SD: clothing
Jinan Dyeing Textile Mill, SD: starching & dyeing unit
Jinan Garments Company, SD: production line
Jinan Knitting Mill, SD: dyeing & drying eqpt.
Jinan No.1 Printing & Dyeing Mill, SD: sandering products
Jinan No.2 Cotton Mill, SD: gripper looms
Jinan No.2 Printing & Dyeing Mill, SD: eqpt.
Jinan No.2 Woolen Sweater Mill, SD: glove-knitting machine
Jinan Silk Knitwear Mill, SD: silk fabrics
Jinan Silk Weaving Mill, SD: silk weaving eqpt.
Jinan Towel Factory, SD: pile-cutting & printing eqpt.
Jinan Woolen Mill, SD: eqpt.
Jinan Xiangyang No.1 Cotton Mill, SD: adhesive-bonded eqpt.
Jingan Knitwear Mill, JX: technology & production eqpt.
Jinghua Knitting Factory, ZJ: velvet production line
Jinjiang Lianxing Enterprise Corp., FJ: artificial wool knitwear
Jinzhou General Zipper Works, LN: plastic zippers
Jinzhou Printing & Dyeing Mill, LN: printing & dyeing eqpt.
Jinzhou Tricot Knitting Factory, LN: warp knitting eqpt.
Kaifeng Carpet Mill, HEN: carpets
Kaifeng Cotton Mill, HEN: cotton spinning eqpt.
Kaifeng General Woolen Mill, HEN: wool yarn twisting frames
Kaifeng Printing & Dyeing Mill, HEN: production line
Kaifeng Sewing Machine Plant, HEN: production lines
Kaifeng Standardized Parts Factory, HEN: knitting needles
Kaifeng Towel & Bed Sheet Mill, finishing eqpt.
Kaifeng Underwear Knitting Mill, HEN: multi-function sewing machine
Kaifeng Woolen Knitwear Factory, HEN: technology & eqpt.
Kaifeng Woolen Mill, HEN: production line
Keshan County Linen Mill, HL: spinning eqpt.
Kunshabn Textile Machinery Plant, JS: spinning machines
Laiwu Linen Mill, Qingdao, SD: production eqpt.
Laixi Jute Mill, SD: tufting machines & broad looms
Lanzhou Baiyin Knitting Mill, GS: wool knitting eqpt.
Lanzhou Cotton Mill, GS: printing & dyeing eqpt.
Lanzhou No.1 Woolen Mill, GS: wool spinning eqpt.
Lanzhou Vinylon Mill, GS: vinylon products
Lanzhou Wool & Polyester Factory, GS: carding & spinning machines
Lanzhou Woolen Knitting Mill, GS: cashmere sweaters
Liaoyang Hemp Mill, LN: carding machines
Linyi Woolen Mill, SD: spindles
Liuzhou City Dyeing & Weaving Factory, GX: production eqpt.
Liuzhou City Garment Factory, GX: sewing eqpt.
Liuzhou City Knitting Factory, GX: production eqpt.
Liuzhou City Wool Spinning Factory, GX: eqpt.
Liuzhou City Sheet Factory, GX: printing machine eqpt.
Longyan Printing & Weaving Factory, FJ: eqpt.
Luoyang Woolen Textile Mill, HEN: key machinery
Mudanjiang Woolen Blanket Factory, HL: jacquard loom
Nanchang Garments Factory, JX: production line
Nanjing Gold Thread & Goldleaf Factory, JS: eqpt.
Nanping Garment Factory, FJ: children's clothing
Nantong No.1 Cotton Mill, JS: multi-mixer & pattern twister
Nantong No.1 Dyed-Yarn Textile Mill, JS: water-jet looms
Nantong No.2 Printing & Dyeing Mill, JS: jet dyeing machines
Nantong Weft Knitting Factory, JS: warp & weft machines
Ningde Minority Nationality Knitting Mill, FJ: lace machine
Ningde Woolen Textile Mill, FJ: carding machines
No.1 Cloth Weaving Factory, Shantou, GD: shuttles & looms
No.1 Knitting Mill, Shantou, GD: cotton knitting eqpt.
No.1 Woolen Mill, SN: steam cans & eqpt.
No.2 Knitwear Mill, SC: knitting machines
No.3 Knitwear Mill, SC: silk fabrics
Pingdingshan Chemical Fiber Mill, HEN: blending & carding
Pingdingshan Nylon Cord Fabrics Plant, HEN: nylon cord
Pingyao No.1 Knitting Mill, SX: sportswear
Pingyao No.2 Knitting Mill, SX: dyeing & finishing eqpt.
Provincial Textile Industry Bureau, SN: textile processing
Provincial Textile Research Center, GS: air deformation detectors
Qingdao Chemical Fiber Mill, SD: technology & eqpt.
Qingdao Dongfanghong Printing & Dyeing Mill, SD: flat-screen printing
Qingdao Dyestuff Factory, SD: dye dispersing technology
Qingdao Fastener Factory, SD: polyester fastener
Qingdao Hardware & Zipper Factory, SD: zipper-making eqpt.
Qingdao Hongqi Printing & Dyeing Mill, SD: finishing
Qingdao Jute Mill, SD: rapier looms
Qingdao Lace Mill, SD: crochet lace-making machine
Qingdao Latex Plant, SD: gloves
Qingdao No.1 Knitting Mill, SD: cylindrical finishing machine
Qingdao No.2 Knitting Mill, SD: fine-stitch stocking knitters
Qingdao No.2 State Cotton Mill, SD: sewing machines
Qingdao No.3 Cotton Mill, SD: drawing frames & rapier looms
Qingdao No.3 Knitwear Mill, SD: knitting, dyeing, finishing
Qingdao No.4 Dyeing & Printing Mill, SD: dyeing machine
Qingdao No.4 Garment Factory, SD: western-style suits
Qingdao No.4 Weaving Mill, SD: eqpt. & technology
Qingdao No.5 Cotton Mill, SD: jet looms
Qingdao No.5 Knitwear Mill, SD: finishing eqpt.
Qingdao No.6 Cotton Mill, SD: combers, spinning frames, spindles
Qingdao No.6 Weaving Mill, SD: rapier looms
Qingdao No.7 Knitting Mill, SD: velvet processing eqpt.
Qingdao Sheeting Mill, SD: eqpt.
Qingdao Silk Weaving Mill, SD: hand-pull frame eqpt.
Qingdao Tufted Blanket Plant, SD: eqpt.
Qinggdao Weaving & Dyeing Mill, SD: sizing & dyeing
Qinghai Minority Nationality Speciality Products Factory, QH: eqpt.
Qinghai No.3 Woolen Mill, QH: spinning, weaving, dyeing
Qinghai Plush Mill, QH: rapier & jacquard looms
Qinghai Woolen Blanket Mills, QH: key machinery
Qingjiang No.3 Knitwear Mill, JS: weft knitting machines
Quanzhou Garment Factory, FJ: key eqpt.
Quanzhou Zipper Factory, FJ: plastic zipper manufacturing
Sanming Printing & Dyeing Mill, FJ: key eqpt.
Shaanxi No.1 Knitwear Mill, Xian, SN: knitting machines
Shaanxi No.1 Woolen Mill, SN: cage steam machine
Shaanxi No.2 Knitting Mill, SN: weft knitting machines
Shaanxi Provincial Textile Industrial Corp., SN: jet looms
Shancheng Knitwear Mill, SC: rib machines
Shandong Provincial Textile Machinery Industry Company, SD: cotton spinning ring combers
Shanghai Carbon Material Factory, SH: eqpt. & technology
Shanghai Chuang Xin Textile Machinery Plant, SH: winding machines
Shanghai Cotton Industrial Corporation, SH: cleaning & carding
Shanghai Dyeing & Printing Machinery Manufacturing Works, SH: advanced designs
Shanghai Jingfu Knitting Mill, SH: finishing eqpt.
Shanghai Knitting Underwear Factory, SH: knitting eqpt.
Shanghai No.1 Knitting Hosiery Factory, SH: knitting machines
Shanghai No.1 Textile Bearing Factory, SH: spindle manufacturing
Shanghai No.2 Textile Machinery Plant, SH: dyeing machines
Shanghai No.3 Textile Machinery Plant, SH: weighing arm
Shanghai No.4 Textile Machinery Parts Works, SH: air jet looms
Shanghai No.7 Textile Machinery Works, SH: knitting machines
Shanghai Synthetic Fiber Research Inst., SH: spun-bonding process
Shanghai Textile Eqpt. Plant, SH: advanced technology
Shanghai Textile Rubber Manufacturing Works, SH: belts
Shanghai Three Star Zipper Factory, SH: non-metallic zippers
Shanghai Yongxin Raincoat Weaving & Dyeing Works, SH: coating finished goods
Shanghai Zipper Tape Factory, SH: looms
Shanhaiguan Chemical Fiber Mill, HEB: spinning machines
Shantou Cotton Mill, GD: yarn spinning eqpt.
Shantou Municipal Xinli Synthetic Fiber Plant, GD: nylon
Shantou Dyeing & Finishing Plant, GD: eqpt. & technology
Shantou Flax Textile Mill, GD: expansion
Shantou Knitwear Mill, GD: expansion
Shantou Municipal Dyeing & Fixing Plant, GD: cloth dyeing
Shantou Towel Factory, GD: expansion
Shanxi Chemical Fiber Research Inst., SX: air jet texturing
Shanxi Knitting Mill, SX: knitting machines
Shanxi Nylon Plant, SX: technology & eqpt.
Shanxi Printing & Dyeing Mill, SX: rotary screen printing line
Shanxi Printing Works, SX: production line
Shashi Cotton Textile Mill, HB: refrigeration eqpt.
Shashi Dongfeng Dyeing & Printing Mill, HB: after-treatment
Shashi Dyeing & Printing Mill, HB: after-treatment eqpt.
Shashi No1 Knitting Mill, HB: knitting, printing eqpt.
Shashi No.1 Textile Eqpt. Factory, HB: production eqpt.
Shashi Weaving Mill, HB: dyeing, drying, twisting machines
Shazhou Knitting Machinery Plant, JS: horizontal looms
Shenzhen City Textile & Light Industries Co., GD: new mills
Shenyang Copper Wire Weaving Cloth Plant, LN: weaving eqpt.
Shenyang Knitting Yarn Mill, LN: sweater processing line
Shenyang No.1 Knitwear Mill, LN: looms & eqpt.
Shenyang No.1 Printing & Dyeing Mill, LN: printing & dyeing
Shenyang No.2 Knitwear Mill, LN: jacquard circular loom
Shenyang No.2 Printing & Dyeing Mill, LN: velveteen processing line
Shenyang No.2 Sweater Factory, LN: jacquard knitting machine
Shenyang No.6 Wool Spinning Mill, LN: fly frame
Shenyang Silk Mill, LN: technology & eqpt.
Shenyang Towel Factory, LN: embroidery machine
Shenyang Tricot Knitting Factory, LN: eqpt.
Shenyang Woolen Textile Mill, LN: dyeing & finishing machines
Shijiazhuang Chemical Textiles Mill, HEB: jacquard knitting
Shijiazhuang Non-Woven Fabric Mill, HEB: plant & technology
Shijiazhuang No.1 Printing & Dyeing Mill, HEB: eqpt.
Shijiazhuang No.1 Rubber Plant, HEB: shaping machines
Shijiazhuang No.2 Cotton Textile Mill, HEB: spinning machines
Shijiazhuang No.3 Printing & Dyeing Mill, HEB: technology & eqpt.
Shijiazhuang Wool, Linen & Silk Company, HEB: production line
Shucheng Hemp Mill, AH: eqpt.
Sichuan No.1 Cotton Textile Printing & Dyeing Mill, SC: printing machinery
Sichuan Vinylon Mill, SC: polyester filament production
Silk Cloth Factory, Hanzhong, SN: silk goods
Silk Spinning Mill, Tongling, AH: fly frame, combers
Sulun Textile Mill, JS: jet spinning eqpt.
Suzhou Cotton Printing & Dyeing Mill, JS: screen printing
Suzhou Xinsu Silk Mill, JS: water jet looms
Taian Silk Mill, SD: cocoon boiling eqpt.
Taiyuan Electronic Instrument Company, SX: nylon zippers
Taiyuan Knitting Mill, SX: jacquard weft knitting machines
Tianjin Arts & Crafts Factory, TJ: production line
Tianjin Card Clothing Mill, TJ: hot-forming gears
Tianjin Chemical Fiber Research Inst., TJ: spinning eqpt.
Tianjin General Fiberglass Mill, TJ: crucible drawing technology
Tianjin Industrial Sewing Machines Factory, TJ: sewing machines
Tianjin Industrial Woolen Mill, TJ: carding, fleecing, lapping machines
Tianjin Knitting Research Institute, TJ: silk knitted fabrics
Tianjin Mufflet Factory, TJ: laced window blinds
Tianjin No.1 Canvas Mill, TS: water jet looms
Tianjin No.1 Cotton Mill, TJ: spinning eqpt.
Tianjin No.1 Knitwear Mill, TJ: lapping, weft knitting machines
Tianjin No.3 Cotton Mill, TJ: twisting frames
Tianjin No.7 Yarn-dyed Fabric Mill, TJ: dyeing machine
Tianjin Petrochemical Fiber Plant, TJ: key eqpt.
Tianjin Sewing Machine Factory, TJ: sewing machines
Tianjin Silk Belt Dyeing & Finishing Mill, TJ: mercerizing machine
Tianjin Silk Test Sample Factory, TJ: water jet loom
Tianjin Textile Eqpt. Plant, TJ: assembly line
Tongling Linen Mill, AH: spindles & looms
Tongling Polyester Plant, AH: eqpt.
Tongling Ramie Textile Mill, AH: ramie fabrics
Tongling Silk Spinning Mill, AH: fly & ring frame, chain machine
Wafangdian Textile Plant, LN: jet looms
Weifang Printing & Dyeing Mill, SD: printing machine
Weifang Towel Plant, SD: angora processing
Weifang Weaving & Dyeing Mill, SD: screen printing machines
Weihai Woolen Mill, SD: rapier looms & raising machines
Wool Layering Production Facilities, Hainan, GD: plastic gloves
Wuhan Baiyun Beaving Mill, HB: bonded-fiber fabric production
Wuhan Cotton Textile Mill, HB: eqpt.
Wuhan No.1 Knitting Mill, HB: assembly line
Wuhan No.4 Cotton Mill, HB: spindles
Wuhan Synthetic Fiber Plant, HB: spinning/winding machine
Wuhan Woolen Blanket Mill, HB: sewing machines
Wuhu Hongguang Knitwear Mill, AH: jacquard knitting
Wuhu Printing & Dyeing Mill, AH: after-treatment eqpt.
Wuhu Textile Mill, AH: model uster 13 eqpt.
Wuhu Wire Plant, AH: polyester drying fabric
Wujiang Knitting Needle Factory, JS: knitting needles
Wujiang Printing & Dyeing Mill, JS: cloth printing machine
Wujiang Xinmin Silk Weaving Mill, JS: jet looms
Wujiang Zhenhua Woolen Textile Mill, JS: spinning-walking spindles
Wushan Woolen Mill, GS: eqpt. & technology
Wuwei Flax Spinning & Weaving Mill, GS: flax fabrics
Wuxi Card Clothing Mill, JS: technology for heat treatment
Wuxi Cotton Jute Mill, JS: rapier looms
Wuxi Flax & Cotton Textile Mill, JS: spinning frame, rapier looms
Wuxi Guangming Underwear Factory, JS: resin collar lining
Wuxi No.1 Dyed Yarn Textile Mill, JS: flannel twisting machine
Wuxi No.1 Silk Filature Factory, JS: looms, knitting machines
Wuxi No.1 Silk Mill, JS: jet looms
Wuxi No.2 Cotton Textile Mill, JS: jet looms
Wuxi No.2 Reeling Factory, JS: reeling machine
Wuxi No.2 Woolen Mill, JS: shearing machine
Wuxi Silk Printing & Dyeing Mill, JS: coating machine & calender
Wuxi Silk Spinning Mill, JS: spindles & machines
Wuxi Textile Machinery Plant, JS: technology & eqpt.
Wuxi Textile Research Inst., JS: spinning techniques
Wuxi Underwear Knitting Mill, JS: weft knitting machines
Wuxi Xiexin Woolen Textile Mill, JS: spindles & looms
Wuzhong Knitted-Belt Factory, NX: nylon zipper production line
Xiamen Synthetic Fiber Weaving Mill, FJ: warping & wefting machines
Xiamen Woolen Mill, FJ: wool production eqpt.
Xian Carpet Mill, SN: wool carpets
Xian Fenghuang Embroidery Factory, SN: embroidery
Xian No.1 Silk Mill, SN: printed silk
Xian Woolen Mill, SN: wool processing
Xian Zip-Fastener Factory, SN: zippers

Xian Zipper Factory, SN: nylon zipper eqpt.
Xiangfan Artificial Wool Factory, HB: rotary knitting machine
Xiangfan Cotton Mill, HB: corduroy finishing eqpt.
Xiangfan Cotton Printing & Dyeing Mill, HB: calenders
Xiangfan Dyeing Mill, HB: rotary screen printing machine
Xiangfan Municipality Wool Spinning Eqpt.
Xiangfan Second Knitting Mill, HB: knitting machine
Xianning Ramie Textile Mill, HB: processing machines
Xiangtan Woolen Textile Mill, HB: rapier jacquard machine
Xiaogan County Grey Fabrics Mill, HB: rapier looms
Xiaoshan Xinwei Knitting Mill, ZJ: flat knitting machines
Xiongyue Printing & Dyeing Plant, Yingkou, LN: eqpt.
Xining City Garment Factory, QH: garments
Xining City No.1 Clothing Factory, QH: garments
Xining City No.2 Garment Factory, QH: jeans
Xining Woolen Textile Mill, QH: wool sweaters
Xintai Woolen Mill, SD: fancy twisting machines
Xinxiang Chemical Fiber Mill, HEN: finishing & flash steaming
Xinxiang Knitwear Factory, HEN: spindle knitting facilities
Xinxiang Printing & Dyeing Mill, HEN: eqpt.
Xinxiang Zhenxin Knitwear Factory, HEN: air textile machines
Xinyang Gushi Gunnysack Factory, HEN: manufacturing eqpt.
Xixia Knitting Mill, SD: ironing & shearing machine
Xuchang No. 1 Knitwear Factory, HEN: sewing machines
Xuzhou Chemical Works, JS: eqpt.
Xuzhou Textile Factory, JS: air-flow yarn
Xuzhou Towel Factory, JS: looms
Yantai Arts & Crafts Factory, SD: technology & eqpt.
Yantai Garment Company, SD: embroidered clothing
Yantai Woolen Mill, SD: wool combing machines
Yantai Woolen Sweater General Mill, SD: knitting machine
Yangzhou Dahua Cotton Textile Mill, JS: arrow shaft looms
Yanzhou Friendship Garment Factory, JS: sewing machines
Yichang Prefectual Knitting Mill, HB: flocking machine
Yichun Ramie Textile & Printing & Dyeing Mill, JX: construction
Yichuan Dacron Filament Plant, NX: technology & eqpt.
Yinchuan Flax Textile Mill, NX: eqpt.
Yinchuan Knitting Mill, NX: double circular knitting machines
Yinchuan Woolen Mill, NX: wool-spinning eqpt.
Yinchuan Wool Top Mill, NX: cashmere jackets
Yingcheng County Knitting Mill, HB: electronic jacquards
Yingkou Lunan Electric Motor Plant, LN: nylon zippers
Yingkou No.1 Weaving Mill, LN: looms
Yingkou No.2 Knitwear Mill, LN: cropping machines
Yingkou No.3 Textile Mill, LN: sizing machine & warper
Yingkou Textile Mill, LN: spinning machine
Yingkou Tricot Knitting Factory, LN: wool milling machine
Yingkou Warp Knitting Factory, LN: warp knitting machines
Yizheng Plastic Factory, JS: bags
Yonganxian No.2 Garment Factory, FJ: weaving & knitting machine
Yuhang Shuanggong Silk Factory, ZJ: silk reeling machine
Zaozhuang Linen Mill, SD: carpets
Zaozhuang Xinxing Knitting Mill, SD: cylinder drying machines
Zhaodong Artificial Fur Plant, HL: jacquard weaving machines
Zhedong Knitting Factory, Ningbo, ZJ: dyeing & finishing machines
Zhejiang Jute Mill, ZJ: carpet production line
Zhenjiang Woolen Mill, JS: technology & eqpt.
Zhenjiang Woolen Textile Mill, JS: spinning eqpt.
Zhenjiang Zipper Factory, JS: plastic zippers
Zhengzhou Zipper Factory, HEN: zippers
Zhongxiang County Paper Mill, HB: non-woven fabric
Zhou Kou Fur Handicraft Mill, HEN: fine sewing machines
Zhumadian Underwear Factory, HEN: tubular knitting machines
Zibo Knitting & Dyeing Mill, SD: winding machine & twisting frames
Zibo No.1 Cotton Mill, SD: spinning frame
Zibo No.1 Silk Mill, SD: looms
Zibo No.1 Textile Mill, SD: spinning machine
Zibo No.1 Woolen Mill, SD: eqpt.
Zibo No.2 Knitting Mill, SD: wadding eqpt.
Zibo No.3 Silk Mill, SD: looms
Zibo Silk Printing & Dyeing Mill, SD: printing machines
Zibo Silk Spinning Mill, SD: spindles
Zibo Synthetic Fiber Mill, SD: combing machines
Zibo Towel Mill, SD: eqpt.
Zibo Weaving & Dyeing Mill, SD: rapier looms

TOURISM

Bai Yun Shan Mountain Tourist Resort, GD: tourist facilities
China International Travel Service, Chongqing, SD: hotel
Chongqing Tourist Hotel, SD: hotel
Foreign Economic Relations Department, Qingyuan County, GD: tourist facilities
Fuzhou Hot Spring Hotel, FJ: construction & eqpt.
Guangzhou Municipal Bureau of Parks & Woods, GD: tourist facilities
Guangzhou Municipal Farm Bureau, GD: tourist facilities
Guangzhou Municipal Nationalities Affairs Commission, GD: tourist facilities
Guangzhou Overseas Chinese Affairs Office, GD: facilities
Gulangyu Hotel, Xiamen, FJ: renovation
Hangzhou Travel Service Corporation, ZJ: helicopters & airport
Hebei Provincial Sports Service Corp., HEB: golf course
Hefei Hotel, AH: hotel construction
Huaqiao Hotel, Qingdao, SD: tourist facilities
Jiuhua Mountain Tourist Hotel, AH: hotel
Liaoning Friendship Hotel, Shenyang, LN: new building
Liwan District Commission of Foreign Economic Relations, GD: tourist facility
Longmen County Tourist Company, GD: tourist facilities
Luoyang Hotel, HEN: air conditioners & freezers
Panyu County Tourist Company, GD: tourist facilities
Qingdao Overseas Chinese Restaurant, SD: tourist hotel
Quiongzhou Hotel, Hainan, GD: tourist hotel
Taiyuan Binzhou Hotel, SX: hotel facilities
Yinchuan Photographic Center, NX: photographic eqpt.
Yingkou City, LN: restaurant
Yintzan Hot Spring Holiday Village, GD: tourist facilities

TRANSPORTATION EQPT.

Chaoyang Chanzheng Rubber Tire Plant, LN: tires
Chongqing Tire Plant, SC: eqpt. & technology
Dalian Forklift Factory, LN: key eqpt.
Dongfang Tire Plant, HB: technology & eqpt.
Fuding Auto Fittings Factory, FJ: stretching machine
Fujian Machinery Plant, FJ: trucks
Guangzhou Automobile Plant, GD: production eqpt.
Guilin Tire Factory, GX: eqpt.
Haikou Tire Manufacturing Plant, Hainan, GD: production eqpt.
Hainan Machinery Plant, GD: motorcycles
Hangzhou Forklift Truck Factory, ZJ: testing eqpt.
Hangzhou General Chains Works, ZJ: technology & eqpt.
Hangzhou Rubber Factory, ZJ: vehicle tires
Hanyang Motor Car Manufacture & Assembly Plant, HB: parts
Henan Tire Plant, HEN: four-roller fiber calender
Hubei No.2 Motor Vehicle Electrical Apparatus Plant, HB: ignition control systems
Jinan Moped Plant, SD: testing eqpt.
Liuzhou City Bicycle Factory, GX: technology & eqpt.
Qingdao Automobile Factory, SD: key eqpt.
Qingdao No.2 Rubber Factory, SD: technology & eqpt.
Qingdao Tongtai Rubber Factory, SD: technology & eqpt.
Shanghai Aircrafts Industrial Corp., SH: aircraft & cars
Shanghai Automobile Electric Apparatus Plant, SH: auto parts
Shanghai Steel Wire Factory, SH: technology & eqpt.
Shenyang Automobile Shock Absorber Works, LN: production line
Shenyang Mechnical & Electrical Machinery, LN: car servicing center
Sichuan Gear Factory, SC: production technology & eqpt.
Sichuan Mining Machinery Plant, SC: overhead cables
Tianjin No.2 Wire Rope Plant, TJ: tire wire production
Wuhan Auto Lock Factory, HB: auto lock technology & eqpt.
Wuhan Motor Car Accessories Plant, HB: piston rings
Wuhan Motor Vehicle Standard Parts Factory, HB: connectors
Wuhu Instrument & Meter Plant, AH: technology
Wuhu Minimotor Plant, AH: motors & clutches
Wuzhou No.2 Transportation Factory, GX: group vehicles
Xian Electrical Machinery Manufacturing Company, SN: transmission
Xian No.1 Motor Vehicle Accessories Factory, SN: jacks
Xining Transportation Bureau, QH: taxicabs
Xuzhou Rubber Products Factory, JS: radial tires
Xuzhou Tire Fabric Factory, JS: tire fabric looms

China's Export Production Bases

These key players in the national export drive are expected to feel the effects of new trade reforms

Tom Engle

Among the many tools China has used to expand its exports, the Export Commodity Production Bases are perhaps the least understood by foreign observers. This is hardly surprising. The bases, or ECPBs as they have inevitably come to be called, number in the hundreds, come in all different sizes and varieties, and produce and export goods ranging from fine silks to live hogs. One can imagine other organizational arrangements for exporting such products and, in fact, China has others. But ECPBs serve a variety of functions well enough that, for the time being at least, they are likely to remain an important feature of the Chinese export economy.

Most ECPBs are made, not born. That is, existing enterprises or farms are granted the status of an export base and subsequently reorient their activities according to the particular duties required of them.

In the early 1960s, Premier Zhou Enlai supported the establishment of export bases. The first one, set up on Hainan Island, produces tea, citronella grass, cashew nuts, and other cash crops. ECPBs languished during the Cultural Revolution, when the leaders in Beijing minimized the importance of foreign trade to the Chinese economy. Export bases appear to have regained status in 1973, when a pilot ECPB was set up in Foshan, Guangdong Province. It remains a model base, producing vegetables, fruits, meats, and fish for nearby Hong Kong and Macao. Momentum to set up more ECPBs languished again in the mid-1970s but increased sharply with the consolidation of the current Chinese leadership in 1978.

A diverse inventory

China classifies its ECPBs into at least five different categories. An examination of these shows why one Chinese businessman described ECPBs as "a loosely defined concept."

Almost 100 *single-commodity agricultural bases*, scattered over 11 provinces, produce farm or sideline goods including many native and luxury products special to China. Many of these agricultural ECPBs specialize in one type of fresh or live produce for a particular export market. For example, the agricultural ECPBs in Guangdong Province sell their goods mainly to Hong Kong and Macao while those in Shandong, Jiangsu, and Liaoning provinces focus on Japan.

By March 1984, Chinese officials had designated 94 factories and mines as *specialized industrial export bases*. Fully 48 of these are in Shanghai. Examples include porcelain factories in Hunan Province, mercury factories in Guizhou Province, and textile mills in Shanghai.

Comprehensive production bases produce a variety of agricultural, sideline, and industrial products and are by far the most important kind of ECPB. Sometimes called multiple-production bases, these number at least 29, and by one account 33, located in 14 provinces nationwide (*see* chart). Most are concentrated along the coast and produce commodities exported in large quantity. The distinctions between ECPBs and other exporting entities become especially blurred when discussing these comprehensive bases, which are often spoken of virtually synonymously with entire cities or prefectures. Such larger geographic units apparently become comprehensive ECPBs because they contain a large number of specialized ECPBs, although all enterprises within the designated area obviously do not produce for export markets.

Processing bases run by China's foreign trade corporations make up the fourth category of ECPB. The most numerous of any type of ECPB, numbering 821 as of March 1984, these bases process imported raw materials and other inputs into finished goods for export.

Joint enterprises number about 130 and are a cooperative effort between a government industrial (or agricultural) department and a foreign trade corporation. Chinese sources claim that the few ECPBs that involve joint ventures with foreign companies fall into this final category, but no specific cases are cited.

Reforms may lift ban on direct foreign contacts

Pinpointing the unique nature of ECPBs is difficult inasmuch as many other Chinese prefectures and enterprises also produce goods for export. Organizationally, ECPBs' distinctiveness lies in the fact that most take their orders from China's specialized foreign trade corporations, which work under the Ministry of Foreign Economic Relations and Trade (MOFERT). In contrast, most other exporting enterprises take orders from their respective production ministries. The foreign trade corporations (FTCs) find overseas markets for export bases' output, and import equipment and know-how needed by the ECPBs. The export bases generally have not been allowed to establish direct links with foreign buyers and suppliers.

All this could change, however, with the reform of China's foreign trade system due to take effect in the new year. According to a top official of a Chinese FTC in New York, indi-

vidual enterprises within an ECPB will be allowed to negotiate directly with foreign firms after the reforms take effect. Alternatively, such export-oriented farms and factories could hire FTCs as agents to negotiate deals with foreign companies and pay the FTCs a commission for their service. The official said that MOFERT's role under the new reform will be to exercise administrative control and set overall trade policy. As such, it will not involve itself in an ECPB's day-to-day business operations or negotiations between an export enterprise and foreign companies. But MOFERT will retain the authority to approve any deals struck in such talks.

State support favors export bases

Will the trade reforms then further erode the differences between ECPBs and other exporting entities? Perhaps, but ECPBs are expected to continue to enjoy another characteristic that sets them apart: a high degree of state support. The Chinese government's foreign trade departments give preference to export bases in making short-term foreign exchange loans so the bases can upgrade their facilities with imported equipment and technology. Foreign companies interested in dealing with ECPBs will probably find their most lucrative opportunities in this area of direct sales, rather than in investment.

In 1982, for example, the Zhanjiang comprehensive ECPB in Guangdong Province reportedly signed 52 contracts with foreign businesses, totaling $200 million. The Qingdao export base has reportedly signed some 30 contracts with foreigners. Still, the average foreign company probably will not find a bonanza in ECPBs, as many have rather specialized import needs. The Xuzhou export base in Jiangsu Province has imported martens from Denmark, "wild cats" from Holland, and sloth rabbits from the United States.

Under the current trade system, a MOFERT bureau has doled out foreign exchange loans to ECPBs. But the FTC official in New York says that under the new reforms this function will devolve to the China Export Commodities Bases Construction Corp., an organization created in 1981 to provide technical guidance

Comprehensive Export Commodity Production Bases

Province	Location (Date formed if known)	Main Export Products (Export value if known)
Shandong	Weifang Prefecture	frozen meats, cured tobacco
	Yantai Prefecture (1976)	peanuts, apples, prawns, red wine, liquor (¥900 million in 1982)
	Linyi Prefecture	meats and other food products, hides, jute
	Heze Prefecture	hogs, goatskins, crude drugs
	Qingdao City	textiles, arts and crafts, foods, beer, mineral water
Jiangsu	Nantong City	natural and synthetic textiles, cotton, seafood
	Suzhou Prefecture (1976)	mushrooms, meats, traditional artwork, tea, silk (¥417 million in 1981)
	Yangzhou Prefecture (1976)	poultry and eggs, processed foods, feather products, arts and crafts
	Xuzhou Prefecture	meats, seafood, textiles, arts and crafts
Guangdong	Zhanjiang Prefecture	fruit, canned foods, fresh water and ocean seafood, bamboo products
	Huiyang Prefecture (1976)	fruit, vegetables, meats, tea (¥252 million in 1981)
	Shantou City	sea products, fruit, vegetables, processing imported materials
	Foshan City (1973)	hogs, fish, vegetables, textiles, furniture (¥1.6 billion in 1981)
Liaoning	Dandong City (1983)	meats and hides, vegetables, furs, machine tools, carpets, furniture, chinaware (¥139 million in 1982)*
	Yingkou City (1981)	seafood and other aquatic products, textiles, minerals (¥250 million in 1982)
	Dalian/Lushun	apples, vegetable oil, steel, textiles, glassware, mink fur
Hebei	Zhangjiakou Prefecture	vegetables, grape wine, meats, furs
	Shijiazhuang Prefecture	190 (including 120 industrial) products: textiles, chemicals, rabbit meat, pears and other foods (¥104 million)
Zhejiang	Jiaxing Prefecture	hogs, cereals, tea, mushrooms, skins and furs, textiles, silk, arts and crafts (¥350 million in 1983)
	Taizhou Prefecture	tangerines, tea, arts and crafts
Shanxi	Yanbei Prefecture (1977)	rabbit meat and furs, mink furs, coal, chinaware (¥46 million in 1981)
Heilongjiang	Suihua Prefecture (1980)	rare animals, furs, canned and frozen meats, milk products, soybeans (¥55 million in 1981)
Xinjiang	Turpan Prefecture	grapes and raisins, other fruits, furs, carpets, textiles
Shanghai	Chongming Island (1982)	fresh and processed foods, steel reclamation, paper, textiles
Hubei	Jingzhou Prefecture (1978)	hogs, fish, mushrooms, eggs, feathers, cereals, cotton, textiles, arts and crafts (¥106 million in 1983)
Hunan	Xiangtan Prefecture	porcelain, pottery, fireworks
Henan	Nanyang Prefecture	hogs and other foods, cured tobacco, jute
Guangxi	Yulin Prefecture (1983)	hogs, fish, chicken, canned foods, rice (¥172 million in 1982)*
Jilin	Jilin City	

*Value of exports given for year prior to the area's incorporation as an ECPB.
SOURCE: S.Y. Ma of Hong Kong University and National Council files

to the ECPBs. The corporation, which also has authority to form joint ventures with foreign companies, now has offices in the municipalities of Beijing, Shanghai, and Tianjin, and the provinces of Liaoning, Heilongjiang, and Shandong.

The Chinese government also favors ECPBs in granting RMB investment loans. ECPBs have priority in the allocation of raw materials and other inputs such as electricity, labor, improved seed strains, advanced animal breeds, fertilizer, fodder, and transport. According to the incentive policy, the state pays higher prices for higher quality goods.

ECPBs grow despite controversy

Supporters of ECPBs point with pride to the growing volume of foreign exchange the export bases have earned for the motherland. Chinese publications claim the ECPBs earned about ¥9.3 billion in 1981, accounting for 22 percent of China's total export earnings. The 30-some comprehensive ECPBs earned about 75 percent of this. In 1982, ECPBs' earnings reportedly rose to ¥13 billion, accounting for 30 percent of total Chinese exports. The increase is explained partly by growth in the volume of exports and partly by the fact that a greater number of exporting enterprises were designated as ECPBs in 1982. In either case, the importance of ECPBs is growing.

This growth has not been achieved with the unanimous support of Chinese leaders and planners. Indeed, ECPBs are controversial in a number of respects. The concentration of export bases in coastal areas may be rational in terms of proximity to markets, but it inevitably exacerbates traditional Chinese regional imbalances and irks those who would strive for more balanced, even if slower, growth. Some Chinese planners feel the nation should not invest great resources in developing enterprises that produce luxury goods for foreigners and have limited linkages to indigenous industrial development. Bureaucratically, the leaders of industrial and agricultural production ministries are bound to oppose the proliferation of MOFERT-regulated ECPBs. And there are of course some Chinese officials who oppose the expansion of the responsibility system which ECPBs, whether by design or not, seem destined to foster.

Unfortunately for the proponents of these views, other leaders firmly committed to an open door policy seem solidly in control of Chinese foreign economic policy. Because ECPBs help these leaders achieve their domestic reform goals and help the country pay for the imports it needs, export bases are likely to remain an important manifestation of the open door policy.

China wants to improve industrial product quality throughout the country, but cannot wait for this general trend to increase foreign exchange earnings through exports. Solution: set up export commodity production bases to produce goods that meet world quality, design, and packaging standards, to monitor world market trends, and to be sufficiently specialized to respond quickly to changes in the market.

Packaging liberal reforms as well as exports

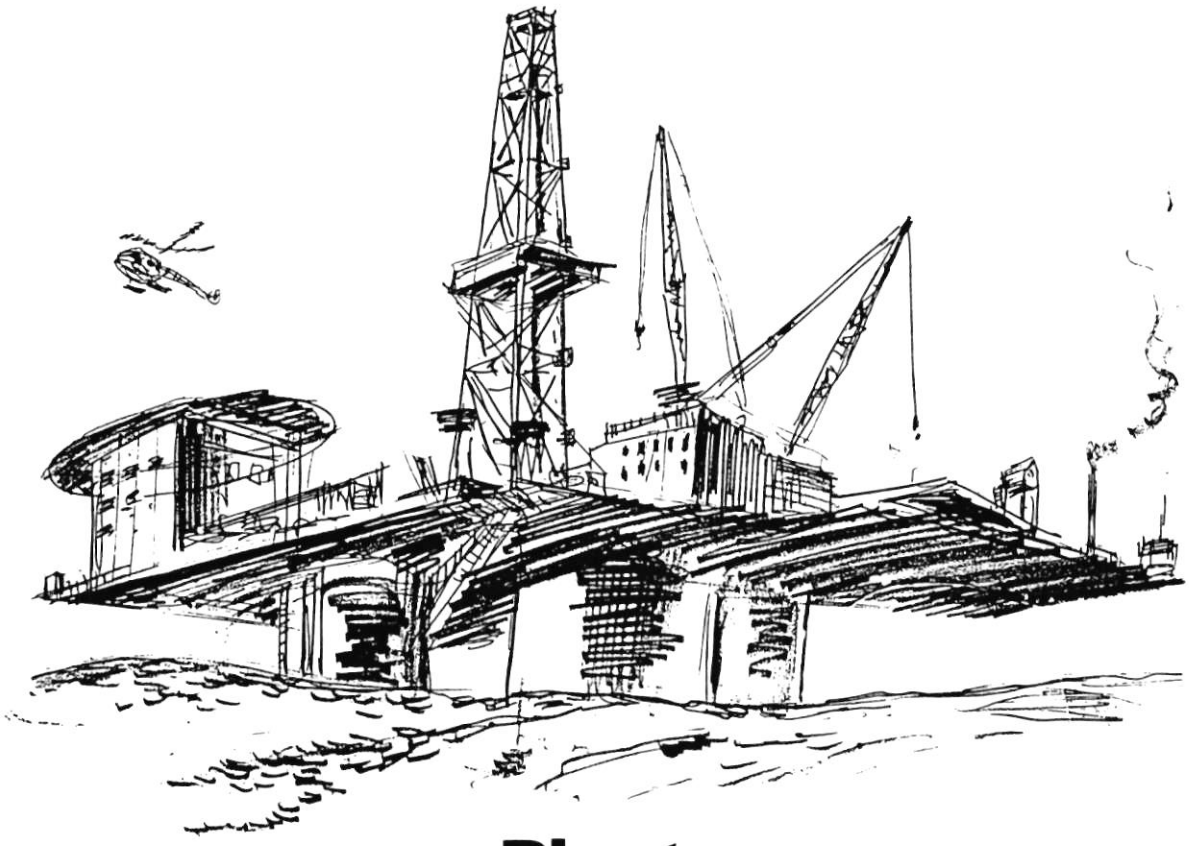
The official Chinese rationale for the establishment of ECPBs stresses their special role in raising the quality of goods to meet the demands of the international market. Although an export potential exists for many Chinese goods whose domestic supply exceeds effective domestic demand, the potential is often not realized due to poor quality.

China wants to improve industrial product quality throughout the country, but cannot wait for this general trend to increase foreign exchange earnings through exports. Solution: set up export commodity production bases to produce goods that meet world quality, design, and packaging standards, to monitor world market trends, and to be sufficiently specialized to respond quickly to changes in the market. In this light, the distinctiveness of ECPBs lies in their exclusively outward focus. They are not drastically different from other exporting entities; rather ECPBs are old enterprises in effect repackaged to emphasize the new mission and concentrate minds on it.

ECPBs serve a number of other functions, some of which Chinese officials would be less likely to admit. ECPBs promote diversification of China's rural economy and help alleviate rural unemployment. As China's farms become more mechanized, the country faces a serious long-term unemployment problem in the countryside. Yet the leadership is keen to avoid the uncontrolled urban migration that has wrought havoc in so many other developing countries. Leaders hope to institute a policy of "out of the fields, but not out of the villages," in which labor freed from primary agricultural production will remain in the countryside employed in "specialized commodity production." ECPBs provide one means to reduce rural unemployment, increase rural incomes, and prevent urbanization, all while earning China foreign exchange.

Yet the supporters of ECPBs are not just worried about overcrowding in Chinese cities. They are generally the same leaders trying to effect far-reaching reforms throughout the Chinese economy. The fact that ECPBs practice the contract responsibility system illustrates the linkage between China's internal economic reform movement and the country's open door to economic cooperation with foreigners. The responsibility system introduces incentives to increase production and, in the case of ECPBs, also achieves the ends of raising product quality, increasing economic efficiency, and earning more foreign exchange. Foreign trade officials who support ECPBs and the general expansion of trade probably also view the introduction of the responsibility system as an important end in itself, a significant step toward spreading the reforms they seek through the entire Chinese economy. 完

What's China Consultants International doing about energy business in China?



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会员动态

KODAK'S GREEN FIELDS

Eastman Kodak Co. is expanding its business in China through a variety of techniques. The firm's latest success is a technology transfer agreement with the China National Technical Import Corp. to help produce photographic film and paper at a Chinese-owned plant in Xiamen, Fujian Province. Under the contract signed last July, Kodak will sell emulsion-making and coating technology and manufacturing equipment worth $100 million to the Xiamen Photographic Materials Co. Ltd. This is the first time Kodak has agreed to transfer its film making technology to a foreign-owned company. The Rochester-based firm will also train Chinese personnel to operate the plant. The new facility is to begin production in 1988; the film and paper will be sold in China under Chinese brand names.

Kodak calls the new Xiamen deal Greenfield No. 2. Greenfield No. 1 is a contract with the Shanghai Film and Photographic Equipment Industrial Corp. to assemble Kodak 4401 slide projectors. Production began in June 1983 and Kodak will provide assembly techniques, blueprints, and parts to produce 10,000 projectors over three years. Unlike the Xiamen deal, Kodak is responsible for finding export markets for more than half of the Shanghai plant's output. It markets these under the Kodak name in Africa and Asia. China markets the remainder under its own brand names, mostly domestically.

Kodak products first became available in China in the early 1900s. Sales increased with the improvement in US–Chinese relations in the 1970s. Kodak films were first sold in China in 1979, but only to foreigners in Friendship Stores. Today, many of the films are also available to Chinese consumers, who can buy them at select department stores, photo studios, and tourist sites. In recent years, Kodak has also sold photofinishing equipment, color papers, motion picture and X-ray films, and micrographics equipment. A National Council member since 1973, Kodak has also assisted the Chinese in setting up film processing laboratories throughout the country.

CLIPPER DEVELOPS DURABLE FRIENDSHIPS

In 1973, Clipper Industries, Inc. of Ridgefield, New Jersey, became one of the first American companies to import baskets from China. Early cultivation of business relations has paid off: the value of the baskets, giftware, and rattan and wicker furniture Clipper imported from China this year was 18 times greater than the 1973 level, according to Vice-President Neil Eisenberg. "Clipper imports from countries all around the world, but China is one of our principal sources," says Eisenberg.

Over the years Clipper has developed numerous valuable friendships in two Chinese national import–export corporations, those dealing with arts and crafts and with native products. The years have not seen dramatic announcements of basket sales, just the steady expansion of a profitable business. Numerous new product lines have been developed based on designs provided by Clipper. Eisenberg says this usually involves a lengthy but ultimately worthwhile process of sample production, testing, and renegotiation before a Clipper design eventually goes into volume production.

The Clipper executive mentioned "occasional frustrations" in dealing with China. But Eisenberg said his firm had been in the China trade long enough to gain perspective on that country's policies on foreign trade. "China's whole attitude toward trade is improving. Clipper Industries intends to continue to expand its long-term relationship with China."

Clipper joined the National Council in 1975. The customers of the goods it imports from China include the largest retailers in the United States: J.C. Penney Company, Inc., Sears, and Montgomery Ward. —Tom Engle

LINDBLAD CRUISES TO TOUR SUCCESS

Lindblad Travel, one of the major US operators of China tours, has had a number of "firsts" since entering the cruise business with the PRC: It was the first tour operator to charter a cruise ship on the Yangzi River, the regal *Kun Lun*, which has served as a floating guest house to the likes of Mao Zedong, Zhou Enlai, and numerous foreign heads of state. It was the first to station its own permanent cruise director and lecturer on board to develop programs for Lindblad tourists. And now, it has become the first US operator to enter into a type of floating compensation trade arrangement.

Lindblad has signed a five-year exclusive contract with the Changjiang Ship Corp. to charter the new *Bashan*, a luxury cruise ship that Lindblad—as part of the deal—is helping to design and furnish. The firm has stationed a designer and a construction expert in Chongqing for six months to consult with the Chinese, and has ordered special furniture, carpeting, curtains, and fixtures from Hong Kong to decorate the ship."Part of the contract," says Lindblad Vice-President Bill Bikales, "is that we help the Chinese produce a cruise ship that is finer than any ever built in that country." In return, the Chinese are giving Lindblad reduced charter rates and the longest such contract ever offered, from 1985–89.

Next year, when the *Bashan* goes into service, Lindblad will have chartered half the vessels cruising the Yangzi. More than 3,000 American tourists are expected to board these vessels next year—roughly half of Lindblad's tourist traffic to China. —Carol Goldsmith

The Chinese Business Review welcomes suggestions for member company profiles for this column. If interested, please send a draft of 200–400 words detailing an aspect of your company's China activities to: Associate Editor, The China Business Review, 1050 17th Street, N.W., Washington, D.C. 20036.

商业旅行

Visas: Business or Pleasure?

Few things unnerve a business executive preparing to go to China like a last-minute hassle over visas. Imagine this scenario unfolding two weeks before your departure: The invitation your Chinese business partner, or "host" organization, promised to send you by telex has not yet arrived. You need that authorization from a ministry or FTC (foreign trade corporation) to get your visa. Officially, China's embassy and consulates require 10 working days to process your visa once they receive your passport. To make matters worse, you need that passport next week to make a quick trip to your London office.

What *will* you do?

China's cumbersome system for authorizing business visas has forestalled many an important trip. Bottlenecks at the ministerial or FTC level can delay an invitation for weeks. Unless you have a representative in China working on your behalf, your desperate telexes too often are answered by silence.

More and more business people are getting around these problems by going to China as FITs—foreign independent (or individual) travelers. China for more than a year has encouraged individual tourists to visit selected cities on their own. These include such business centers as Beijing, Tianjin, Shanghai, Qingdao, Wuhan, and Chongqing. (*See* July–August 1983 *CBR*, p. 40).

Business travelers find many of the more flexible FIT options ideal: Most cities can be visited for any length of time. Travelers can arrange for a private guide, car, meals, and sightseeing, or simply book a hotel room and airport transfers (an option called "mini-package"). FIT visas allow travelers to conduct business with their Chinese partners without waiting for an official invitation from higher authorities. Provided that hotel space is available, FIT visas can be processed in a week or even less.

There are some catches, however. Only a few US travel companies handle FITs to China, since they generally mean more work and less money than tour groups. Applying for an individual tourist visa—like a business visa—still means surrendering your passport for a time. US tour operators hope the Chinese will some day accept photocopies of the passport data.

FIT visas may be difficult to obtain during China's peak tourist months of May, June, and September, when hotel rooms are scarce. (The Chinese think the situation will be remedied by 1986.) You may hear that FITs are not encouraged during those months. But be persistent; if your travel consultant can find you a room, your visa will follow.

The China National Tourist Office in New York maintains a list of US operators authorized to handle FITs. (Address: 60 East 42nd Street, Suite 465, New York, New York 10165. Telephone: 212-867-0271.)

In the past, a few unwary individuals have managed to secure FIT visas simply by booking a hotel room. (Ten hotels in China now accept direct reservations via telex.) But the Chinese warn that the practice may end up causing more delays and a great deal more confusion. Says Liu Zihan, deputy director of the China National Tourist Office in New York, "Getting a hotel reservation does not mean that the visa will be granted, or that everything in China—transportation, interpreters, and so on—can be arranged. It is difficult for an individual to make arrangements on his or her own, because the person does not know procedures in China or the language. There are bound to be many questions, and it can be a time-consuming process."

There are several advantages to working with an authorized US tour operator, says Liu. "The greatest advantage is that the operator can issue a voucher before getting the visa," he says. This offers tangible evidence that your trip will take place as scheduled. Also, tour operators authorized to handle FITs can speed the process along by maintaining a Bank of China account, from which the tour deposit is deducted. (Otherwise, individuals would have to pay the full amount of a FIT booking before their visa could be authorized, says Liu.) And just as important, by using an operator with a representative in China, you have an English-speaking person to call on in time of need.

—Carol S. Goldsmith

Editor's note: A recent readership survey conducted by The CBR *asked our readers to list the articles or columns they would most like to see become a regular feature of the magazine. Their overwhelming response: a column on business travel to China.*

This issue marks the debut of The Business Traveler, a combination news column and practical guide to getting to and around the People's Republic. We are pleased to welcome back to our pages Carol S. Goldsmith, the National Council's former director of publications and The CBR's *tourism specialist, as our regular columnist. Ms. Goldsmith recently joined member firm First Family of Travel as managing director of its China Travel Bureau.*

The CBR *welcomes your input to this column. Please direct your correspondence concerning The Business Traveler to The Editor,* The China Business Review, *1050 17th St. NW, Washington, DC 20036.*

书刊介绍

China's Open Door Policy: Quest for Foreign Technology and Capital, by Samuel P. S. Ho and Ralph W. Huenemann. Vancouver: University of British Columbia Press, 1984. 285 pages. $24.50.

Simply stated, this is an important book that should be read by anyone interested in China's rapidly evolving foreign trade practices. The historical origins of the open door policy, its initial results, and China's changing institutional setting are dealt with at the outset. The book then focuses on aspects of the open door policy: equity joint ventures, innovative forms of trade, and China's special relations with foreign energy companies.

The authors critically evaluate the open door policy and conclude that the economic results to date have been disappointing. Investment has been small (both in aggregate total and for the average project), generally short in duration, predominantly located in a few coastal regions, and aimed at relatively few industrial sectors, such as property development, tourism, and offshore oil exploration. In addition, technology transfer has made only a minimal impact on China's backward manufacturing sector, although the authors argue that industrial modernization was the primary motivation for the open door policy.

Nevertheless, the authors believe that both Chinese and foreign enterprises have much to gain in the long run from closer commercial relationships. Thus, they accept official statements that the Chinese government has a long-term commitment to the open door policy. In fact, an important theme of this book is that Chinese leaders have pragmatically reviewed the reasons foreign investors have declined to take advantage of opportunities in China, and have slowly but systematically liberalized their policies in response. This responsiveness to investors' needs is evident even in such sensitive areas as labor relations and access to the domestic market.

While the authors cover many important and diverse subjects, their treatment of three topics is particularly useful. First, they emphasize that the most important motive for China's open door policies is to acquire foreign technology, a key element in China's new "intensive" economic development strategy. While access to foreign markets and capital for China's domestic development are also factors, the acquisition of modern industrial and managerial technology is at the heart of the new strategy. The authors conclude that the new policies will not be successful if they are restricted to the rather narrow sectors and regions involved so far.

Second, the authors' remarks on the institutional setting are very useful. The book discusses three categories of foreign trade products and their corresponding methods of obtaining appropriate licensing approval. A useful description of the approval process for foreign investment projects reveals the important roles played by feasibility studies. For instance, these studies are often used to determine which high level body must approve a given joint venture.

Third, the authors attempt a preliminary but very ambitious assessment of the economic success of the open door policies. Particularly interesting from a business viewpoint is their assessment of the rate of return both to China and to foreign business of new investment policies in the coal and petroleum sectors.

Despite the generally excellent analysis of the basic underlying economic rationale for China's open door policies, some aspects of these policies are not covered or are only touched upon. For example, one key departure from China's traditional foreign trade practice is the new eagerness to accept foreign economic assistance. Unfortunately, the activities of such organizations as UNDP, the World Bank, and Japan's OECF in China are treated very sketchily. A fuller discussion of these programs would reveal that China's open door has actually reached a far greater portion of China, both sectorally and geographically, than usually realized. Similarly, the book's failure to focus on efforts to license foreign technology is a surprising omission given the authors' emphasis on China's paramount goal of absorbing modern technology. —DD

Books and business guides submitted for possible review in The China Business Review *should be sent to the National Council's book editor, Marianna Graham.*

Guide to China's Foreign Economic Relations and Trade: Import–Export Special, edited by Policy Research Department, Ministry of Foreign Economic Relations and Trade. Hong Kong: Economic Information & Agency (342 Hennessy Road), 1984. 655 pages, bilingual; 295 pages in English; includes advertising. $58 airmail.

This book is the second in a series, *Guide to China's Foreign Economic Relations and Trade*, edited by China's MOFERT. The series, originally planned as three volumes, has been expanded to five, with forthcoming volumes dealing with international economic cooperation, export commodities fairs, and cities newly opened to foreign investors. The first in the series, *Investment Special*, was published in 1983.

Import–Export Special is a general introduction to China's foreign trade and foreign trade organizations; it is not a guide to doing business with China. China's current economic reforms will undoubtedly lead to changes in the trading system described in this book. Articles cover

the general structure of the foreign trade system, China's imports and exports and technology trade, and economic and trade relations with the countries and regions of the world. Foreign trade officials in advertising, export commodity fairs, customs, commodity inspection, insurance, and banking organizations discuss their agencies' functions; and foreign trade corporations report on their business status.

A second part of the book presents texts of laws and regulations that affect foreign trade. Topics covered include foreign trade law; resident offices; inspection; arbitration; taxes; foreign exchange control; insurance; communications and transportation; and trademarks, advertising, and exhibitions. Unfortunately, in many cases the reader is referred to the first volume of the series for the text of the regulations.

A third section of the book is a directory of foreign trade organizations; import–export corporations, including those not under MOFERT; and consulting and service organizations. Listings contain addresses; telex and telephone numbers; and, for import–export corporations, products handled. Products of corporation branches are not listed. The directory is not in alphabetical order, and the volume has no index, so the reader must rely on the table of contents to find a listing. The book concludes with five pages of aggregate foreign trade statistics.

The Bad Earth: Environmental Degradation in China, by Vaclav Smil. Armonk, NY: M.E. Sharpe, 1984. 245 pages. $25.

The book contains the most thorough analysis available of the staggering environmental problems facing the world's most populous nation. Deforestation, erosion, desertification, and air and water pollution have taken their toll on China's productive capacity and the health of her citizens. According to the author, much, if not most, of this environmental degradation has occurred since the establishment of the People's Republic. Ill-planned and executed campaigns to increase agricultural and industrial production with no thought to the ultimate environmental consequences have caused immense damage. Although recognition that something must be done has now penetrated high levels of government and has resulted in a spate of environmental legislation, neither incentives nor effective enforcement appear to exist at the working level. Smil, who has published widely on China's energy, land use, and environmental problems and needs, is pessimistic about China's ability to reverse the course of events before it overwhelms the country's economic growth potential.

This book should be of interest not only to those following events in China, but to all who have an interest in the interaction between population growth, food production, industrial development, and the environment in Third World nations. —WFG

Leadership, Legitimacy and Conflict in China: From a Charismatic Mao to the Politics of Succession, by Frederick C. Teiwes. Armonk, NY: M.E. Sharpe, 1984. 184 pages. $22.50; $12.95 softcover.

Three essays on elite politics in China comprise this book by Frederick Teiwes, an Australian political scientist who has contributed to the understanding of China's political system for more than 20 years.

In his first essay, "A Changing Mao," Teiwes argues that Mao remained the linchpin of Chinese elite politics until his death in 1976. He derived great political power and claim to charismatic leadership from his 60-year role as "the father of the Chinese revolution." It was only when Mao became old and infirm that right- and left- wing factions of the CCP formed to carry out a "two-line struggle" on the question of China's future development. For Teiwes, the traditional "two-line struggle" analysis (i.e., socialism or capitalism) misses the point that, until the early 1970s, the ultimate goal of all Chinese leaders was to figure out what the Chairman wanted and how to "deliver his goods."

The second essay deals with political legitimacy. Teiwes notes that all forms of Weberian political legitimacy (formal rules, traditions, and charisma) are important in China. However, China's traditional reverence for the aged, and the recentness of the Chinese revolution have made formal rules relatively unimportant. This theme is supported by the inability of all Communist systems to establish a formal method of transferring political legitimacy from one leader to the next. Teiwes argues that an unfortunate legacy of Mao is his personal attempt to undermine many of the formal rules that had previously permitted a fair degree of inner-party democracy during the first two decades of the PRC. As a result of Mao's efforts, the CCP became dependent on highly personalized and informal relations among Chinese senior leaders. One interesting implication of Teiwes' analysis is that, just as in the mid-1970s, China's leadership succession may well be determined by the order of death of China's senior leaders. For instance, if Mao had died before Zhou Enlai, it is unlikely that Deng would have been thrown from power for the second time, or that China would have had to endure the turmoil of the 1974–78 period. Similarly, if Deng outlives other senior officials, the present leadership will smoothly inherit Deng's political legitimacy. If other leaders of Deng's generation survive him, a much more unstable political future could lie ahead.

The third essay concerns "normative and prudential" (formal and informal) rules of Chinese elite politics. Once again Teiwes argues that the Party's tradition of reliance on formal rules of decision-making was never strong (one of the key rules of Chinese elite politics was "don't cross the Chairman"), and was almost completely ruptured during the Cultural Revolution. Thus, Deng and other members of the Chinese elite feel a strong need to restore predictability to decision-making and have introduced an impressive array of new rules and regulations. Nevertheless, in Teiwes' view, a primary rule for present-day Chinese politicians is to maintain the good graces of the supreme leader, Deng Xiaoping.

Finally, Teiwes' emphasis on the power of the older generation may well be exaggerated. In recent interviews with Chinese senior leaders, including Zhao Ziyang, Professor A. Doak Barnett concluded that China's octogenarians are already participating in policy decision-making to a much lesser degree than is commonly thought. Deng may already have won a long-term victory by effectively placing power in the hands of a much broader-based, younger, and more pragmatic group of Chinese leaders. —DD

中外贸易

Jennifer Little
Research Assistant

The following tables contain recent press reports of business contracts and negotiations exclusive of those listed in previous issues. Joint ventures, licensing arrangements, and other forms of business arrangements are included if classified as such in Chinese and foreign media reports. For the most part, the accuracy of these reports is not independently confirmed by *The CBR*.

National Council members can contact the library to obtain a copy of news sources and other available background information concerning the business arrangements appearing below. Moreover, member firms whose sales and other business arrangements with China do not normally appear in press reports may have them published in *The CBR* by sending the information to the attention of Jennifer Little.

中外贸易 CHINA'S IMPORTS THROUGH SEPTEMBER 30

Foreign Party/ Chinese Party	Product/Value/ Date Reported
Agricultural Commodities	
Weyerhauser (US)	Signed agreement for pulp, linerboard, and logs. $100 minimum. 6/27/84.
(Pakistan)/Guangxi Livestock Research Institute	Gift of 5 Sahiwal cattle. 7/5/84.
Western Australia/Ministry of Agriculture, Animal Husbandry and Fisheries	Gift of 20 merino rams. 7/24/84.
St. Regis Corp. and M-D Trading (US)/CITIC	Timber from Washington state. 8/2/84.
(Australia)	1.5m tons of wheat through the year ending June 30, 1984. $207.2 million (Aus. $244.9 million). 8/16/84.
(Guinea-Bissau)	Signed a cooperation agreement on fishing. 8/30/84.
Chesapeake Genetics Inc. (US)	Breeding stock and embryos for beef and dairy cattle and swine, as well as performance of embryo transfers and artificial insemination. 9/28/84.
Agricultural Technology	
Fiat Trattori SpA (Italy)/ Ministry of Machine Building	Signed letter of intent to renovate two tractor plants at Shanghai and Luoyang, Henan. Will later produce tractors under Fiat license. $29.1 million (54 billion lira). 9/17/84.
Chemicals and Chemical and Petrochemical Plants and Equipment	
Engineering Science, Inc., subsidiary of Parsons Corp. (US)/Yanshan United Foreign Trade Co. and Yanshan Petrochemical Corp.	Will design pollution control facilities for the Yanshan complex. $15 million. 7/9/84.
Flick Pest Control (HK)/ Shenzhen and Shenzhen Catering Services Co.	Will set up a pest control center in Shenzhen to hire and train local staff. 7/21/84.
(Trinidad)	40,000 tons of urea. 8/6/84.
(Peru)	200 tons of bismuth. 8/27/84.
Union Pump Co. (US)	24 centrifugal process pumps for three refineries in Shanghai. $700,000-$1 million. 9/3/84.
Mitsubishi Petrochemical Co. (Japan)	Is negotiating the sale of Saudi polyethylene. 9/18/84.
Construction and Construction Materials and Equipment	
S. Marco International Trade (Italy)	Marble production equipment for a quarry in Guiyang, Guizhou. $500,000. 7/18/84.
Wing On Investment Co. (HK)/Shanghai Commercial Development Corp.	Will construct two high-rise commercial buildings. 8/2/84.
Asian Development Co. Ltd. (US)	Signed contract to build a 240-suite apartment building in Shanghai. 8/27/84.
Wing On Investment Co. (HK)/Shanghai No. 10 Department Store	Signed an agreement to renovate store's facilities. 8/2/84.
Shimizu Construction Co. (Japan)/CITIC	Signed a contract to design a 50-story office and residential block in Beijing. 9/18/84.
Consumer Goods	
Matsushita Electric Industrial Co. (Japan)	Signed contract to set up a refrigerator compressor production line in Guangzhou. Contract signed 8/31/84.
IRE Co. (Italy)	Signed an agreement for equipment to produce refrigerator compressors. Contract signed 9/6/84.
Electronics and Electrical Equipment	
Telefunken (W. Germany)	A complete semiconductor plant. 6/13/84.
Tokyo Toshiba Co. Ltd. (Japan)/Wuhan Duplicator Factory	Production line, parts, and technical data for desk-type copying machines. 7/84.
Bailey Controls (US), div. of Babcock & Wilcox/ Beijing Chemical Industries	Signed a letter of intent to provide microprocessor controls for a vinylchloride plant. $18.2 million. 7/16/84.
Hitachi Ltd. (Japan)	Received order for 12 small- and medium-sized computers for civil engineering, construction, and universities use. 7/26/84.
General Electric Corp. (US)/China Industrial & Commercial Economy Service Center	Signed a consultancy cooperation agreement. 7/30/84.
Computer Data Sciences (US)/Amalgamated Computer Co., Guangdong	Signed two letters of agreement for computer equipment, technology, and peripherals. $45 and $16 million. 7/30/84.
Total Technical Services Inc. (US)	Computer equipment, training, and service for six PRC companies. $3 million. 7/30/84.

NA = Not available.

NOTES: Contracts denominated in foreign currencies are converted into US dollars at the most recent monthly average rate quoted in *International Financial Statistics (IMF)*. Contracts concluded over two months ago are also included if they were not reported in the last issue of *The CBR*.

Toshiba Corp. (Japan)	Received orders for production equipment for seven plants to make light bulbs, fluorescent lamps, and end caps for lighting fixtures. $12.4 million (J¥3 billion). 8/84.
Kaypro Computers/Xian Medical College	Six microcomputers donated to develop hospital administration systems. 8/84.
Wogen Engineering (UK)/ Northeast Technical College	Received an order for 600 48kb Spectrum computers. 8/4/84.
Dorniver (UK)	Sold four Micromat drill-routers for printed circuit board manufacture. $105,080 (£80,000). 8/6/84.
Labtam International (Australia)/Anhui	Won contract to supply Labtam 3000 computers to be built into conveyor belt systems. $1.42 million (Aus$1.68 million). 8/10/84.
BSR (UK)/Shanghai Instrumentation and Electronics Import-Export Corp.	Signed a letter of intent to modernize Shanghai electronics factories. 8/15/84.
Denno Co. (Japan)	Will open a computer school in China. 8/14/84.
Altos Computer Systems (US)/Ministry of Electronics Industry	Signed a purchase agreement for 16-bit multiuser microcomputers. 8/17/84.
Wang Laboratories (US)/ Shanghai Computer Corp.	Will import complete sets of components and equipment for trial production of computers. 8/20/84.
Gerber Systems Technology Inc. (US)/Shanghai Metallurgical & Mining Machine Manufacturing Corp.	Received a contract for six Autograph CAD/CAM systems. $500,000. 9/3/84.
Gould Inc. (US)	Received an order for 11 computer systems, related software, spare parts, and training for use at 11 universities. $5.8 million. 9/10/84.
Mitsuta Industrial Co. and Comei Trading Corp. (Japan)/Fujian Photoelectric Equipment Factory	An assembly line to manufacture electrostatic duplicators. 9/19/84.

Electronics (Consumer)

Matsuki Seisakusho (Japan)/TECHIMPORT and Jinhua Radio Factory, Tianjin	Technology for tape recorder parts production. $1.2 million (J¥280 million). 2/84.
Kloss Video (US)	Will sell a production line for projection televisions. 7/10/84.
Sharp Corp. (Japan)/San Lian Electronic Technology Corp., Guangzhou	Radio-cassette tape recorder production technology. 7/28/84.
Asahi Optical Industry Co. and Tokyo Maruichi Shoji Co. (Japan)/China North Industries Corp.	Concluded a contract for single lens reflex camera-making equipment and related know-how. $7 million (J¥1,676 million). 8/28/84.
Victor Co. and Nissho-Iwai (Japan)	Concluded an agreement to build an integrated color television plant in Shenyang. ($3 million). Will also renovate three other television plants in Hubei and Anhui. 9/8/84.

Food Processing

Neumunz, Inc. (US)/ Shanghai Foreign Trade Corp.	Awarded a contract for the design, supply, and set-up installation of a peanut processing plant. 6/84.
Cleanup Corp. (Japan)/ Kunlun Hotel, Beijing	Won contract to provide kitchen units. 7/10/84.
APV International Ltd. (UK)	Gelatine production equipment. $656,750 (£500,000). 8/3/84.
Baele Gangloff (France)/ CITIC and Anshan Brewery, Liaoning	Signed contract to supply a bottling line. $1.1 million. 8/10/84.
FMC Corp. (US)	Three citrus juice extractors. 8/20/84.
DTD Co. (Denmark)/ Anda Dairy Products Plant, Heilongjiang	Milk production equipment. 8/22/84.
Ideal Timber Products (UK)/Royal Garden Hotel, Guangzhou	Kitchen units. $66,000 (£50,000). 8/31/84.
Tokyo Sangyo (Japan) and Regent Shipping (HK)/Zhejiang Provincial Food Corp.	Received a provisional order for a noodle-making plant. 9/4/84.
McDonald's Corp. (US)	Signed a preliminary agreement to open an outlet in Guangzhou. 9/10/84.
Shaw Feng Zheng Trading Co. Ltd. (HK)/Qinghai Provincial Animal Husbandry-Industry-Trade Joint Enterprises Corp.	Initialled a contract to set up a lamb and veal processing plant. 9/13/84.
Freezing Systems Inc. (US)	Received an order for a freezer and refrigeration plant to be shipped to Shanghai. 9/30/84.

Machinery and Machine Tools

Toyoda Machine Works, Ltd. (Japan)/MACHIMPEX and Beijing Second Machine Tool Factory	Concluded an agreement to provide know-how on the production of numerically controlled machine tools. 7/31/84.
Giddings & Lewis (US)/ Xi'an Mining Machine Co.	Machining centers. $1.4 million. 9/84.
Elof Hansson (Sweden)/ Everbright Industrial Corp. and Yibin Paper Mill, Sichuan	Will install a printing and writing paper machine. $2.7 million (SwKr20 million). 9/84.
Kemp Manufacturing Co. (US)	Signed letter of intent to sell gas generators for use in food processing and general manufacturing. $500,000. 9/28/84.

Minerals and Metals

F. H. Lloyd Holdings (UK)	Reached an agreement to sell its idle mini-steelworks. Approx. $6 million (£4.6 million). 6/26/84.
Nihon Spindle Mfg. (Japan)/Anshan Industrial Co. for Dust Removing Equipment	Dust collector for steel. 7/84.
Mitsubishi Light Metal Industries and Bishika Light Metal Industries (Japan)/ Qingtongxia Refinery Center, Ningxia	Aluminum refinery technology. $1.2 million (J¥300 million). 7/84.
BHP (Australia)	Signed deal for additional sales of steel to bring total sales to 300,000 tons. $17 million (Aus$20 million). 7/31/84.
(US)	100,000 tons of ferrous scrap for delivery in August. 8/1/84.
Bechtel Petroleum Inc. (US) and Bechtel China Inc./TECHIMPORT	Signed a contract to provide consulting services for a coal gasification project at the Lunan Ammonia Complex, Tengxian, Shandong. 8/6/84.
Drever Co. (US)/Shanghai Iron and Steel Research Institute	Awarded a contract for a continuous-strip bright annealing line. $1.5 million. 8/9/84.
Siebec (France)	Sold filters and pumps for electroplating. $113,000 (1 million francs). 8/9/84.
Nippon Steel Corp., Nippon Kokan KK, Sumitomo Metal Industries, Kawasaki Steel Corp., Kobe Steel, Mitsubishi Corp., Mitsui & Co., C. Itoh & Co., Marubeni Corp., Sumitomo Corp., Nissho Iwai Corp., and Nichimen Corp. (Japan)/ TECHIMPORT	Won an order for rails and other steel products. $30.5 million (J¥7.4 billion). 8/14/84.

Burwill International Ltd. (HK)	Plans to ship Australian iron ore. 8/27/84.
Mitsui & Co. and Tokyo Steel Mfg. Co. (Japan)	30,000 tons of electric furnace steel to Shanghai and 6,000 tons to Tianjin. 8/28/84.
British Petroleum Co. (Australia)	Signed a contract for 250,000 metric tons of steaming coal. $36.80/ton (Aus$43.40/ton). 9/11/84.
Fluor Great Britain Ltd. (UK)/Jinging No. Coal Mine (a joint venture between Shell Coal and China National Coal Development Corp.)	Appointed managing contractor for development of a drilling program to determine coal deposit quality, as well as planning the mine and associated facilities. 9/19/84.

Mining Equipment

Westar Mining (Canada)	Will supply large-scale shovels for mining operations. 7/84.
Marathon Letourneau Co. (US)/TECHIMPORT	Signed contract for three front loaders for the Huolinhe open pit coal mine, as well as two spare buckets (one to be produced jointly with the Shenyang Mining Machinery Plant). 9/4/84.

Packaging

Metal Box Engineering (UK)	Signed three contracts: 1) to provide a welded can-making line for a Maling factory, $2 million (£1.5 million); 2) an extension to the Yimen No. 1 Food Plant, $1.6 million (£1.2 million); 3) to update a soldered can making line in Fujian, $105,000 (£80,000). 7/30/84.
Agnati SpA (Italy)	Will construct a corrugated paper carton factory in Xiamen. $1.16 million. 8/31/84.
Koppers Co. Inc. (US)	Signed a memorandum of understanding to supply equipment to make corrugated-board boxes. $3 million. 9/28/84.

Petroleum

PN Training, div. of Petroleum News Southeast Asia Ltd. (HK)/China Nanhai Oil Joint Service Corp.	Signed contract for training in business management, oilfield interpretation and office skills. 7/84.
Robert Gordon Institute of Technology (UK)	Conducted a technical content course for Chinese offshore oil industry interpreters. 7/19/84.
Parker Drilling Co. (US)/China National Oil & Gas Exploration & Development Corp.	Signed a second contract to provide equipment and technical services for a drilling and development program planned for the Shengli oil field. 8/6/84.
C-E Natco Singapore/China National Offshore Oil Corp.	Received contract for a three phase, horizontal test separator for an offshore oil platform. 8/6/84.
Versatex (US)/TECHIMPORT	Printers and plotters for seismic exploration in the South China Sea. $700,000. 9/3/84.
Fluor Corp. (US)/TECHIMPORT	Received a contract to renovate the Tieling-Dalian segment of a crude oil pipeline in Liaoning. 9/6/84.

Pharmaceuticals

(Sweden)/State Pharmaceutical Administration	Signed a protocol to cooperate in making new medicines based on Chinese medicinal herbs. Signed 9/3/84.

Power

Kyoto Ceramic Co. Ltd. (Japan)	Will donate a solar power plant to a Chinese village. 7/24/84.
Combustion Engineering Simcon Corp. (US)/MOFERT and Thermal Power Plant Operator Training Center of the North China Institute of Electric Power	Thermal power simulators provided under a UNDP project. 8/9/84.
Kraftwerke Union (W. Germany)/China Nuclear Energy Industry Corp.	Signed a contract to buy equipment for nuclear plants using pressurized water reactors. 8/18/84.

Scientific Instruments

Tintometer (UK)	Color measuring equipment for use in quality control of vegetable oils. $328,000 (£250,000). 7/6/84.
Immunex Inc. (US)	Signed contract to provide instrumentation and reagents related to bioluminescence. 8/14/84.

Shipping

Marconi Command and Control Systems (UK)/China Resources Machinery Co. (HK) for China Communications Import and Export Service Corp.	Won an order for radar responder beacons and visibility equipment for the ports of Tianjin, Shanghai and Guangzhou. $144,500 (£110,000). 6/84.
Parley Augustsson (Norway)	Three anchor handling tug-supply ships. 7/30/84.
Bay Shipbuilding Corp. (US)	Signed a letter of agreement to transfer technology and shipbuilding expertise and provide US specialty systems and components. 8/84.
Port of San Francisco (US)/China Ocean Shipping Co.	Signed a port agreement for regularly scheduled service. 8/6/84.
Enterprise Shipping Corp. (US)	Has established direct ocean freight forwarding between the US and China. 8/15/84.
Hitachi Zosen Co. (Japan)/Dalian Shipyard	Concluded an agreement to expand a 35,000 ton capacity building berth. 8/16/84.
Ishikawajima-Harima Heavy Industries (Japan)/Guangzhou Shipyard	Has agreed to provide drafts for a 15,000 ton freighter and improve production design of the ship. 8/16/84.
Illinois Institute of Technology Research Institute (US)	Agreed to provide technological assistance for China's shipbuilding and machine tool industries. 8/20/84.
(Poland)	Is discussing sale of oceangoing fishing vessels. 9/11/84.

Telecommunications

Nippon Telegraph and Telephone Public Corp. (Japan)	Used crossbar telephone switching systems. 7/17/84.
Kokusai Denshin Denwa Co. (Japan)/Ministry of Posts and Telecommunications	Received approval to extend its facsimile telegram service to China. 8/10/84.
Philips (Australia)/Nanjing Radio Factory	Technology for engineering and manufacturing mobile automatic telephone systems. 8/28/84.
Comsat General Corp. (US)/China Broadcasting Satellite Corp.	Signed a consulting contract to assist China's plans for construction of a satellite television system. 8/29/84.
Fujitsu Ltd. (Japan)	Received an order for a digital electronic switching system. 9/4/84.

Textiles and Textile Plants and Equipment

Oscar de la Renta (US)	Is manufacturing mens suits. 7/23/84.
Bemrose Transfer Prints (UK)	Heat transfer textile designs. 8/7/84.
Stock Brabant BV (Netherlands)/MACHIMPEX	15 rotary screen printing machines. Agreement signed 9/1/84.
Sumitomo Corp., C. Itoh & Co., and Chori Co. (Japan)	Will deliver 4–5 million square meters of filament-based textiles in the fourth quarter of 1984. 9/4/84.

Tourism

(Thailand)	Will cooperate to boost tourism. 8/17/84.
Associated Architects (HK)/Beijing Overseas Hotel	Will cooperate to rebuild the Beijing hotel. 9/17/84.

Transportation

Suzuki Motor Co. and Okaya & Co. (Japan)/ China National Aero-Technology Import and Export Corp.	Signed a contract to cooperate on the production of mini cars. 7/25/84.
Mitsubishi Motors Corp. (Japan)/MACHIMPEX	Reached an agreement to open a service center in Guangzhou. 7/31/84.
Gates Learjet (US)	Delivered a Learjet 36A equipped with geological survey equipment. 8/84.
Motokov Foreign Trade Corp. (Czechoslovakia)	700 trucks. 9/84.
Mazda Motor Corp. (Japan)/Hainan Administrative Office	309 four wheel trucks. 9/18/84.

Miscellaneous

C. Itoh & Co. (Japan)/ China Central Symphony Orchestra	Musical instruments. 8/2/84.
(Denmark)	Will set up a postgraduate biomedical training center in Beijing. 8/20/84.
University of Texas (Dallas) School of Management (US)/Qinghua School of Economic Management, Beijing	Have set up a management exchange program and a joint center for US-China management studies. 9/84.

中外贸易 CHINA'S EXPORTS THROUGH SEPTEMBER 30

Foreign Party/ Chinese Party	Product/Value/ Date Reported
Agriculture	
Pelican Seafoods Inc. (US)	Has begun US distribution of white shrimp raised near Qingdao. 7/84.
(Egypt)/China National Construction Engineering Corp.	Signed a contract to build 214 apartment buildings in Alexandria. $55.7 million (39 million Egyptian pounds). 9/3/84.
Electronics	
Software AG of Far East, Inc. (Japan)/Shanghai Computer Technology Institute	Is negotiating to entrust software development to the Chinese institute. 7/31/84.
Foreign Aid	
(Gabon)	A medical center. 8/16/84.
(Gambia)	A health center. 8/17/84.
(Madagascar)	Medicine and medical instruments. $62,500. 9/3/84.
Minerals and Metals	
(Belgium)	Anthracite coal from Nei Monggol. 7/20/84.
(Japan)	2.3 million tons of steam coal during the fiscal year ending 3/85. $40.44 fob/ton. 8/21/84.
Petroleum	
Bangladesh Petroleum Corp./SINOCHEM	Signed an agreement for 40,000 tons of high speed diesel and 10,000 tons of lubricating base oils. 7/84.
Phillips Petroleum and Pearl River Oil Operating Co. (a JNOC and Getty Oil partnership)/Chiwan Oil Base (jointly developed by Offshore Joint Services Co. of Singapore and China Nanshan Development Corp.)	Have signed up to use the Chiwan support base. 7/84.
Ceylon Petroleum Corp. (Sri Lanka)/SINOCHEM	Signed a contract for 20,000 metric tons of base oil per year for three years. $10 million+. 8/15/84.
Power	
Cameroonian National Power Co./China National Complete Plant Export Corp.	Signed a contract to provide technical assistance and develop a maintenance program for the Lagdo Hydroelectric Power Station. 8/14/84.
Agricultural Development Bank of Nepal/China National Complete Plant Export Corp.	Signed an agreement for a water turbine pumping station to be set up in Nepal. 8/14/84.
Verbundkonzern (Austria)/China Nuclear Energy Industry Corp.	Signed a letter of intent to recycle Austrian recovered uranium. 8/16/84.
(Turkey)	Two 31,000 kw generators and a complete set of generating equipment for the Adiguzel power station. $5.3 million. 8/17/84.
Shipping	
Schulz and Clemmesen Shipping Co. (W. Germany)/Zhonghua Shipyard, Shanghai	A 6,400 ton cargo carrier. 8/28/84.
Horn Linie (W. Germany)/Wuchang Shipyard, Hubei	A 6,130 ton cargo carrier. 9/1/84.
Trade Agreements	
(Pakistan), (Nepal), (Trinidad and Tobago), (Turkey), and (Ghana)	Signed trade agreements during July and August.
(Mozambique) and (Sri Lanka)	Signed economic and technical cooperation pacts during July and August.
(Hungary)	Signed a scientific and technical cooperation protocol. 8/23/84.
Transportation	
Short Brothers (UK)	Is buying components for wide-bodied aircraft. 7/9/84.

中外贸易 DIRECT INVESTMENT/PROCESSING/ COUNTERTRADE THROUGH SEPTEMBER 30

Foreign Party/ Chinese Party	Arrangement/Value/ Date Reported
JOINT VENTURES	
Agriculture	
Interferon Sciences Inc. (US)/Fudan University, Shanghai	Signed a joint genetic engineering research and development agreement to develop new strains of rice and other cereal crops. 7/24/84.
Thai International Investment Co. Ltd. (Thailand)/ Beijing Feedmill Co.	Signed a contract to jointly manage the Beijing China Thai Feedmill Ltd. company. 7/27/84.
Chia Tai International Investment Co. Ltd. (Thailand)/Jilin Provincial Animal Feed Co.	Are building a chicken feed plant at Datun, and will later build a chicken farm and incubation facilities. 8/17/84.
NA (Thailand)/NA	Will cooperate to produce rice cutters and small thrashing machines in Thailand. Investment: $870,000 (20 million baht). (PRC:49%–Thai:51%). 8/27/84.
Poon Wynne International Ltd. (HK)/Yueyang Grains, Oils & Industrial Fodder Co. and Hunan International Trust & Investment Corp.	Will construct the Yueyang Fodder Co. Ltd. Investment: $1.8 million. (PRC:70%–HK:30%). 9/17/84.

Atlantic Trading Co. (US)/ NA	Will supply a poultry production system. $45 million. 9/28/84.

Chemical and Petrochemical Plants and Equipment

Sun Refining and Marketing Co. (US)/China National Petrochemical Corp.	Signed a 15-year agreement to build a lubricant blending and packaging plant in Shekou. $6.5 million. (PRC:55%–US:45%). 8/8/84.

Construction

Hopewell China Development Co. (HK)/ Shenzhen SEZ Development Co.	Signed an agreement to build a six-lane 30km expressway linking Shenzhen with Hong Kong. 7/26/84.

Electronics and Electrical Products

Sanyo Electronics Co. (Japan)	Signed a contract to establish the Changchun–Sanyo Electronics General Corp. and the Changchun–Sanyo Shekou Electronics Corp. The former company will produce electronic watches and other products. Signed 7/12/84.
K.C. Ltd. (Japan)/China Computer Technical Service Corp.	Signed a contract to form the International Computer Software Co. to develop Chinese character software and other application software for mini- and microcomputers. (50–50). 7/31/84.
Compac (US)/Beijing Electronic Display Unit Factory	Have started a computer production operation. 8/6/84.
Dipix Systems Ltd. (Canada)/China Computer Technical Service Corp.	Opened a joint service center in Beijing. 8/14/84.
Kewan Electronics Co. Ltd. (HK)/Guangzhou Digital Watch Plant	Signed a 10-year contract to establish the Guangzhou (Kewan) Electronics Co. Ltd. to produce watch-type calculators. 9/84.
NA (HK)/Tianjin Tourist Photo Co.	Signed contract to establish the Tianjin Beautiful Color Printing Co. Ltd. to provide commercial filmmaking, photo print, and reverse film developing services. 9/3/84.
Solid Trading Ltd. (HK)/ Jiangxi Electronic Import and Export Corp. and Jiangxi TV Factory	Established the Gansin TV Co. Ltd. in Nanchang to manufacture and market color televisions and other products. 9/10/84.
NA (HK)/Tangshan City Service Corp., Hebei	Signed a contract to establish the Huashan Photo Co. Ltd. to provide photographic services and sell photographic equipment. (50-50). 9/10/84.
Eastern Computers Inc. (US)/China Henan International Economic–Technical Cooperation Corp.	Has agreed to supply technology, circuit boards and software to implement a Chinese character input coding method. 9/25/85.

Food Processing

Niko Co. (Japan)/Xinqiao Hotel, Beijing	Began operating the Xinqiao Niko Coffee Shop. 8/4/84.
H. J. Heinz Co. (US)/ United Food Enterprise Inc. and the General Corporation of Agriculture, Industry and Commerce	Will build a baby food factory in Guangzhou. $10 million. 9/1/84.
Nan Tung Investment Co. Ltd., Nanguang Trading Co., and Beijing Macao Ltd. (Macao)/Beijing Pastry & Food Industrial Co. and BOC, Beijing Trust & Investment Corp.	Opened the Beijing Food & Beverage Development Co. to produce and market foodstuffs, import packaging machines and materials, export local fruit beverages, and develop other related business. Registered capital: $3 million. (50–50). 9/17/84.

Minerals and Metals

Fikong World Aluminum Groups (HK)/Industrial Materials Co., Kaiping, Guangdong	Has signed a 15-year contract to begin construction of the International Aluminum Products Manufacturers to produce aluminum alloy products. 9/7/84.
Kanthal Corp. (Sweden)/ Capital Iron and Steel Co.	Will produce electrothermal alloy wire. Investment: $5.5 million (¥13 million). (50–50). 9/10/84.
Kanthal Corp. (Sweden)/ Shenyang Nonferrous Metal Processing Factory	Will produce thermal bi-metal strip products. Investment: $3.4 million (¥8 million). (50–50). 9/10/84.

Petroleum

GF International Services (HK)/Daily Living Services Co., subsidiary of China Nanhai Oil Joint Service Corp.	Have set up a venture to provide catering services to offshore oil rigs. 7/84.
Japan Drilling Co. and Itochu Commercial Co. Ltd. (Japan)/China National Offshore Oil Corp.	Signed a ten-year contract to set up the China Bohai-Japan Offshore Drilling Co. Ltd. based in Tanggu to provide offshore drilling services inside and outside China. Registered capital: $1 million. (PRC:50–Japan:50). Announced 8/15/84.

Shipping

Ocean Supply Co. (HK)/ Dalian Foreign Supply Corp.	Set up the Lianda Shipping Supply Co. Ltd. to provide ocean-going ships with technical supplies and repairs. 7/26/84.

Telecommunications

NA (US)/Xiamen SEZ Construction and Development Co. and Xiamen SEZ United Development Co.	Signed a contract to establish the Xiamei Microwave Co. Ltd. to manufacture equipment for TV transmission satellite ground stations and microwave electronic products. 8/27/84.
China Telecom (HK)/ Shenzhen	Are forming the Shenzhen Mobile Radio Co. to develop a cellular radio mobile telephone system for Shenzhen. 9/8/84.

Textile Plants and Equipment

Lummus Industries Inc. (US)/Hubei General Cotton Machinery Plant	Set up the Hubei–Lummus Machinery Co. Ltd. in Wuhan to produce cotton processing equipment. Investment: $2.25 million (¥5 million). 7/26/84.

Tourism

Shangri-la International Hotel (Beijing) Co. Ltd. (HK)/Black Bamboo Hotel, Beijing	Signed a contract to construct the 700-room Beijing Shangri-la Hotel. Investment: $40 million. 7/26/84.
NA (HK)/Tianjin General Travel Corp.	Signed a contract to set up the 320-room Crystal Palace Hotel in Tianjin. 8/20/84.
John Portman Assoc. (US)	Will construct a 700-room hotel and exhibition building in Shanghai. 8/27/84.
Juliford Ltd. (HK)/CITS, Yueyang Branch	Signed a contract to build and manage the Yueyang Hotel. Investment: $7 million (HK$55 million). 9/3/84.
Javelin Transportation and Construction Co. Ltd. and Javelin Construction Co. Ltd. (HK)/ Dalian Foreign Business Consultancy Service Corp. and BOC Dalian Trust and Consultancy Co.	Signed an 18-year contract to build the 250-room Dalian International Hotel. Investment: $12 million. 9/3/84.
CHK Consultants Development Ltd. (HK)/ Qianmen Hotel	Will revamp the Beijing Hotel. 9/10/84.
Viobright International Investments Ltd. (PRC co. in Hong Kong)/Beijing Hotels General Co.	Will expand the Heping (Peace) Guesthouse in Beijing. 9/10/84.
China Shenzhen Grand Hotel Co. Ltd. (HK)/ Lianhua Enterprises Corp., Shenzhen	Signed an agreement to set up the Shenzhen Grand Hotel. Investment: $31 million (HK$240 million). 9/17/84.

Transportation

Thompson Co. (US)/ China No. 2 Automobile Plant	Signed a tentative agreement to produce thermostats. 8/31/84.
Peugeot Co. (France)/ Guangzhou Motor Co.	Negotiating an agreement to jointly produce pickup trucks. 8/31/84.
Kanematsu-Gosho Ltd. (Japan)	Will start a taxi company in cooperation with Tianjin authorities. 9/18/84.

Miscellaneous

NA (HK)/Guoji Shudian	Opened the Peace Book Co. Ltd. in Hong Kong to jointly publish and distribute books. 7/30/84.

International Textile Co. Ltd. (HK)/Changjiang Industrial Co., Sichuan	Will run the Jialing Co. located in Hong Kong to promote Sichuan's foreign trade. 8/15/84.
Overseas Associates Ltd. (HK)/Jinjiang Hotel, Shanghai	Opened the Jijia Supermarket. 8/6/84.
A.S. Watson & Co. (HK)/ China Merchants Steam Navigation Co.	Will establish a Park-n-Shop supermarket chain in Shekou. (50–50). 8/6/84.
China Communications Co. (a joint venture between Las Palmas Productions, Videocom, and I. T. & Co.)/China Television Service	Have formed China/USA Communications & TV Commercial Co. to jointly make commercials and sell air time on Chinese television. 8/25/84.
Hwa Yiu Enterprises Ltd. (HK)/Shanxi International Economic and Technical Cooperation Corp.	Signed a contract to establish Jinhua Enterprises Ltd. located in Taiyuan to undertake construction projects overseas and in the SEZs, as well as assist on offshore oil drilling projects. Registered capital: $1 million. 9/3/84.
Royal Bank of Canada and Royeast Investments Ltd. (HK)/CITIC	Signed an agreement to establish a joint merchant bank, China Investment and Finance Ltd. Equity: $4.1 million. 9/5/84.
Manpower Inc. (US)/ China Economic & Trade Consultants Corp.	Agreed to set up the Manpower China Joint-Venture Co. Ltd. in Beijing to operate a temporary work services firm for foreign businesses and capital construction corporations working in China. 9/6/84.
Georgia Institute of Technology (US)/China Assoc. for Science and Technology	Will enter into joint ventures to help develop China's high technology industries. 9/23/84.

Licensing

Kloeckner-Humboldt-Deutz (W. Germany)	Has an agreement for production of its 413 and 912 series engines primarily for construction plant applications. 8/84.
Wormald International Ltd. (Australia/China Shipbuilding Trading Co. Ltd., Shanghai Fire Equipment Factory, and Zhendan Fire Machinery Factory	Entered into a 10-year agreement to provide fire protection technology and engineering know how for devices and industrial systems for ships and offshore oil rigs. 8/15/84.
Sharp (Japan)	Technology to produce electronic calculators to be used at 11 Chinese plants. 8/15/84.
Okura & Co. and Sunflame Accumulator Co. (Japan)/Heilongjiang International Economic & Technical Cooperative Co. and Harbin Boiler Factory	Designs, parts, and know-how for the production of heat accumulating machines. 8/21/84.
Phillips Petroleum Co. (US)	Negotiating for license of hydrofluoric acid alkylation process for Shanghai refineries. 9/3/84.
Asahi Chemical Industry Co. and Chori Co. (Japan)/China National Chemical Construction Corp. and Beijing Chemical Machinery Factory	Technology and equipment for production of bipolar electrolyzers for chlor-alkali production through ion-exchange membranes. 9/4/84.

Compensation Trade

Philips (Sweden)/Shanghai Communications Equipment Plant	Technology and equipment to produce electronic teleprinters. 7/28/84.

Coproduction

STAMA Machine Building Corp. (W. Germany)/ Changzhou Machine Tool Works and EQUIMPEX, Jiangsu Branch	Signed a 7-year agreement to produce machine tools. 8/15/84.
Ferd Lentjes Dampfkessei-und Maschinebau (W. Germany)/Shenyang Boiler Co.	Signed an agreement to jointly produce industrial boilers. 9/2/84.
ATE-Klimatechnik (W. Germany)/Shenyang Air-Conditioner Factory	Signed an agreement for joint production of window-type air conditioners, 9/2/84.
National Corp. Ltd. (Japan)/Yingkou Washing Machine Plant, Liaoning	Are jointly producing washing machines. 9/10/84.

Leasing

Intercontinental Resources Co. Ltd. (HK) and Ransburg Co. (Japan)/ China Leasing Co. Ltd. and Beijing General Bicycle Plant	Electrostatic coating equipment. 8/21/84.
NA (Japan)/Jiangsu Provincial No. 1 Truck Transportation Dept. and BOC, Nanjing Branch	40 8-ton tip trucks for the Nanjing Iron & Steel Plant and the Meishan Ironworks. 6/25/84.

Assembly

Terex Co. (US)/China North Industries Co. and Nei Monggol No. 2 Machine Building Plant	Assembled two mining tippers. 5/18/84.
Plasmatherm (US) and (Sweden)	Received an order for semiconductor etching equipment kits. 5/25/84.
Keithley Instruments (US)/Fuzhou Electronic Instrument Factory, Fujian	Signed an agreement to assemble and calibrate digital multimeters. 6/4/84.
Intel Corp. (US)/China Aeronautics Import-Export Corp.	Signed an agreement for microprocessor and microcomputer kits and components $11 million. 6/11/84.
Sony Corp. (Japan)/Xiaxin Electronic Co., Xiamen	Will assemble videotape recorders. 7/3/84.
Volkswagenverk AG (W. Germany)	Signed an agreement to deliver 2,000 more Santana automobile kits for assembly in Shanghai. 7/14/84.
Squibb Medical Systems International (US)/Shanghai Medical Electronics Instrument Factory	Signed an agreement to assemble ultrasound systems. 7/23/84.
Toyoda Machine Works Ltd. (Japan)/EQUIMPEX	Concluded a five-year agreement to help assemble its machining centers in Beijing. 7/25/84.
John Fluke Mfg. Co. (US)/ Qian Feng Radio Instrument Factory, Sichuan	Will produce two models of synthesized signal generators. $2.5 million. 8/3/84.
Hewlett Packard (US)/ Shanghai Analytical Instrument Co.	Signed an agreement to assemble gas chromatographs. 8/13/84.
Hewlett Packard (US)	Will assemble hand-held calculators in Harbin. 8/13/84.
Ono Sokki Co. (Japan)/ Beijing Electronic Technology Import and Export Corp. and Beijing Instrumentation Corp.	Know-how and parts for the production of fast fourier transform analysis systems. 8/21/84.
Mitel Corp. (Canada)/ Ministry of Electronics Industry, Ai Hua Electronics Co., Shenzhen, and Beijing Wire Communication Co.	Entered into an agreement to produce SX-200 PABX systems. $1.8 million. 8/23/84.
Hitachi Ltd. (Japan)/ Dalian Instrument Factory and EQUIMPEX, Dalian Branch	Know-how and parts to manufacture industrial measuring instruments. Parts will later be manufactured by the Chinese. 9/18/84.

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Development and Government Relations: SCOTT D. SELIGMAN
Liaison and Language Services: I-CHUAN CHEN
Librarian: MARIANNA GRAHAM
Publications and Research: JOAN LIPMAN

Address
1050 17th Street, NW, Suite 350
Washington, DC 20036 USA
(202) 429–0340
Telex: 64517 NCUSCTUW
Cable: USCHINTRAD WSH

BEIJING OFFICE
Vice-President for China Operations: WILLIAM W. CLARKE
Deputy Director: CHRIS BROWN
Advisor: LI WENDA
Assistant Advisor: CHENG LILI
Suite 1136, Beijing Hotel
Telephone: 507766, ext. 1136, 551361
Cable: USCHINTRAD
Telex: 22637 NCPEKCN

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Economic Counselor: ARTHUR KOBLER
Economic Officers: WILLIAM ABNETT, MARSHALL ADAIR, WILLIAM FLEMING, JAMES HEALY, ROSS QUAN, DOUGLAS SPELMAN
3 Xiushui Bei Jie
Jianguomenwai, Beijing
Telephone: 52–3831
Telex: 22701 AMEMB CN

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Consul General: WEVER GIM
Deputy Principal Officer/Economic Section Chief: HARLOW CARPENTER
Commercial Officer: YING PRICE
Economic Officer: BRIAN FAIRCHILD
Dongfang Hotel
Telephone: 69–900
Telex: 44139 GZDFH CN

SHANGHAI CONSULATE
Consul General: THOMAS STANLEY BROOKS
Deputy Principal Officer/Economic Section Chief: RICHARD BOUCHER
Commercial Officer: GENEVIEVE DEAN
1469 Huai Hai Zhong Lu
Telephone: 379–880
Telex: c/o Shanghai Industrial Consultants
33148 SICIS CN and 33102 SICFU CN, Attn: USFCS

SHENYANG CONSULATE
Consul General: JAMES H. HALL
Economic/Consular Officer: JOHN PARKER
Liaoning Daxia
No. 1, Sector 6, Huanghe Da Jie
Shenyang, Liaoning
Telephone: 66489
Telex: 80011 AMCS CN

HONG KONG CONSULATE
Consul General: BURTON LEVIN
Senior Commercial Officer: PAUL WALTERS
Commercial Officers: LYN EDINGER, WILLIAM DAWKINS, JR., HELEN PETERSON
Economic Section:
Chief: RICHARD MUELLER
Economic Officers: EUGENE DORRIS, GEORGE LEE, JOHN MEDEIROS, SOCHING TSAI
26 Garden Rd.
Telephone: 5–239011

PRC GOVERNMENT OFFICES IN THE US

EMBASSY
Ambassador: ZHANG WENJIN
Commercial Counselor: AN DONG
2300 Connecticut Avenue, N.W.
Washington, D.C. 20008
Telephone numbers (202):
Reception: 328–2500
Commercial: 328–2520 thru 2527
Visas: 328–2517
Telex: 440038 PRC UI
Commercial: 440673 PRCC UI

HOUSTON CONSULATE GENERAL
Consul General: TANG XINGBO
Commercial Consul: WU MINXIAN
3417 Montrose Blvd.
Houston, Texas 77006
Telephone numbers (713):
Commercial: 524–4064
Visas: 524–4311
Telex: 762173 CHINCONSUL HOU

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Consul General: CAO GUISHENG
Deputy Consul General: JI LIDE
Commercial Consul: SONG GUIBAO
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New York, New York 10036
Telephone numbers (212):
Commercial: 564–1139 & 2541
Visas: 279–0885 & 1127
Telex: 429134 CGCNY

SAN FRANCISCO CONSULATE GENERAL
Consul General: TANG SHUBEI
Commercial Consul: WANG BAORON
1450 Laguna Street
San Francisco, CA 94115
Telephone numbers (415):
Commercial: 563–4858
Visas: 563–4857
Telex: 340515 CHIMISSION SFO

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piń·děng hù·li

"Pingdeng huli" is Chinese for "equality and mutual benefit." It's a watchword in China, and a principle so important that it's been codified in the country's joint venture law. Joint equity ventures in the PRC should be beneficial to *both* partners if they're constructed properly.

But it's no simple task to structure an agreement that addresses all potential problems and ensures risks are kept to a minimum. Dozens of business decisions go into making an investment in China that go beyond the usual assessment of tax incentives or customs and labor regulations. For example, you need to know:

- How much authority your Chinese partner really has
- Who needs to be on board for the venture to succeed
- What incentives different cities and special economic zones offer
- How your profits can be repatriated
- Whether an equity joint venture is the best way of achieving your goals
- How much access to the domestic market you will be permitted
- What protection the Chinese will offer for your proprietary technology
- How regulations are actually carried out in practice

We at the National Council specialize in helping get answers to these questions, so you can make informed business decisions before signing an agreement. If your company is considering a joint venture in the PRC, let us structure a briefing for you at your home office or in Washington.

"Pingdeng huli" means "equality and *mutual* benefit." Call us at (202) 429-0340 and we'll help you achieve it.

The National Council
for US-China Trade

1050 17th Street, N.W., Washington, D.C. 20036

CHINA NATIONAL CEREALS, OILS & FOODSTUFFS IMPORT & EXPORT CORPORATION
SHANGHAI FOODSTUFFS BRANCH
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