

## **PERSPECTIVES OF INDUSTRIAL DEVELOPMENT IN CHINA**

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Before the foundation of People's Republic of China, after revolution in 1949, it was considered to be a country dominated by agriculture and light industrial sectors. Economic lifelines of the country were possessed by business tycoons, whose fortunes valued at 20 billion U.S. dollars. Monopolised capitalism closely linked with foreign imperialism was the economic order of the day. Modern industry hardly accounted for 10% of the gross industrial-agricultural output. Resistance against Japan (1937- 1945) had further dwindled the industrial production of China. Production in light industry dropped by 30% and heavy industry by 70%, pig iron by 86%, steel by 83%, coal by 48%, electricity 28%, textiles 32%, and cigarettes by 33% This decreasingly lowered the percentage of Chinese industrial output in the world's total production. In steel Chinese share reduced to 158000 tons, 4300 million KWH in electricity and 32 million tons in coal, reflecting less than 0.1%, 0.5% and 1.9% respectively, in total industrial production of the world. Machine building shops, employed with 15 labourers, carried on repair works only. Hardly 1600 metal cutting lathes was the annual turn out. Workers employed in industry totaled to 3 million reflecting 0.6% of the total population.

Railways had a workable mileage of 11000 Kilometers from the total of 22000 kilometers, whereas roads totaled to 80000 kilometers only. The country had to depend on imports for the required spare parts meant for repairs. The freight volume by all means of transport, such as trucks, trains, steamships, barges and other means totaled to 67130000 tons in 1949.<sup>1</sup> Capitalistic-cum-bureaucratic aristocracy had hegemonised the industry and all other sectors of the economy.

The People's Republic had not only transformed and changed the political, social, agricultural, economic, industrial fields etc. but revolutionized all the relevant sectors of the Chinese economy, with the purpose to diversify industrial production according to the requirements of common public benefit and

progress of the country. After passing through transition period (1949-52) for rehabilitating the economy and completely transferring the private ownership of the means of production in 1956, economic construction and industrial progress of China was integrated with socialist transformation, which remarkably and rapidly pushed-up the industrial development of China. With the introduction of coordination, between different branches of industry, political stability, flourishing markets, sophistication and durability of products, competitively at low priced-level structures, improvement of means of transport and communication, adjustment of the rules and regulation of trade and commerce, diversification of industrial establishments and geographical distribution of industrial bases, assured supply of raw materials, collective ownership of the means of production etc. Chinese manufacturers, were able to meet domestic requirements with zealous attraction of customers and won orders for exports.

### ACHIEVEMENTS<sup>1</sup>

#### 1. COAL:

China is one of the oldest coal producing and using country in the world. China began mining coal with modern industrial methods in 1876 AD, and till 1949 it had opened 20 such mines with an annual output of 32.43 million tons and it ranked as number ten producer in the world. Since 1949- 1980, state invested more than 45.4 billion yuan in coal industry. New mines with mechanized extractive methods were commissioned. As a result in 1957, coal output reached 130.73 million tons, when in 1977, it was 500 million tons, in 1987 it was 0.928 billion tons and in 1993 it rose to 1.41 billion tons of production.<sup>2</sup> By now China is ranked as number three highest coal producing country in the world. Chinese coal industry has experienced great technical advancement and expansion in production. Presently there are more than 3000 coal mines in China. In China coal production increased by 13.7% as compared to 2.7%, in India during the period of 1950-1979, superseding India, which was higher than China in 1950.



## 2. OIL AND GAS:

Chinese oil exploration dates back to 1861 when it drilled first oil well with low yield. In the span of 42 years i.e. 1907 to 1949, drilling footage totaled to 67000 meters with production of 2.95 million tons, annually averaging 165000 tons of oil. In 1957, the oil production rose to 1.46 million tons reflecting an annual increase of 21.7%. There are more than 150 oil fields in China, with more than 50 oil refineries and each have a annual processing capacity of more than 500,000 tons. In 1977, total production touched the ceiling of 104.05 million tons and in 1987, it was 134.14 million tons and in 1993, it was 144.92 million tons, reflecting continuous expansion in this field.<sup>3</sup>

Its natural gas exploration went up from 7 million cubic meters in 1949 to 70 million cubic meters in 1957, and 13.73 billion cubic meters in 1977, and 13.89 billion cubic meters in 1987 and 16.56 billion cubic meters in 1993.

## 3. POWER

Power production in China started in 1882 with low production. In the span of sixty seven years (1882-1949) hardly small and medium level 30 power stations with total installed capacity of 1.85 million to 4.31 billion kilowatts in 1949, could be developed, ranking China as 25th number in the world. Since then great number of hydropower and thermal power plants have been built. Presently China has more than 90 major power plants and 4000 power stations. Its generating capacity rose to 19.3 billion kilowatts including 4.8 billion Kwh- as hydropower, in 1977. It was 300 billion Kwh including 44.6 billion Kwh hydropower, in 1987 and it was 597.3 billion Kwh including 100 billion Kwh hydropower, whereas in 1993 it was 916 billion Kwh, including 146 billion Kwh as hydropower. Presently, China can be ranked as number fifth largest producer in the field of power. It reflects an increase of 70% more than 1949, with an annual output increase of 17% percapita use of the electricity has risen from 8Kwh in 1949 to 395 Kwh in 1993. Electric production processed through water resources are 30.9%, through coal 53%, through oil 15.9% and through gas 0.2% only. The same is being expanded and

specific stress is being laid on production from coal.<sup>4</sup>

#### 4. METALLURGICAL

Chinese metallurgical industry was initially established in 1880, but upto 1949, its progress was slow with annual steel output of 158000 tons only. Non-ferrous metal industry such as aluminum or nickel was non-existent. In 1957 production of rolled steel touched 4150000 tons, steel 5350000 tons and, pig iron 5940000 tons, as compared to 130000 tons, 158000 tons and 250000 tons in 1949, respectively. The same rose to 22.08 million tons, 31.78 million tons and 34.79 million tons in 1977, whereas in 1987 it was 43.86 million tons, 56.28 million tons and 55.03 million tons, respectively. Comparatively, it touched the higher limits of 75.90 million tons, 88.68 million tons and 87.30 million tons in 1993, reflecting a progress by 2.79 times more in this field, rendering China as second largest steel producer position in the world.<sup>5</sup>

Presently, China produces more than 1400 varieties of steel and 20000 specifications of rolled steel as compared to 100 and 400 in 1950's respectively. More than 60% rolled steel is produced according to the international standard. It is planned that by the end of century, China may cross more than 100 million tons mark in annual production of steel. There are more than 21 iron and steel enterprises in China, whereas more than 100 large and medium sized non-ferrous metals enterprises produce copper, aluminum, lead, nickel. Annual production of these commodities rose by 10.36% in 1980 as compared to 1952.

#### 5. MACHINE BUILDING INDUSTRY

In China machine building industry plays pivotal role in the build-up of the national economy. It is the very industry which supply all the required machinery and equipment in the desired quantity for agriculture, industry, national defence, science and technology. Its production equip all the sectors of industry such as heavy, medium, small, light and handicraft sector of production. Metallurgical, mining, electricity, petroleum, chemical, light and textile, automotive, tractor, machine tool, instrumental and meter, locomotive and rolling stock, aeroplane, shipbuilding,



electronics etc. have been progressed, developed and put into production because of this industry.

Initially, machine building industry was started in China in 1863. Upto 1949, few medium sized and small machine works could be established in the few coastal cities with limited equipment and repairing facilities. At that time China had only 95,000 machine tools and from this 41,000 belonged to machine building plants as compared to 26,000 kinds of machinery and electrical appliances valued at 35.24 billion yuan in 1980 i.e. 50 times more than 1952 figures, whereas in 1993, its value amounted to more than 190 billion yuan. In 1993, China produced 37,000 tractors, 2,62,000 metal cutting machine tools and 1.31 million automobiles.<sup>6</sup>

Machine building industry provides the country with complete sets of large sized advanced equipment including blast furnaces, slab-casters, power generating units, whole plants for coal mining and working, oil prospecting equipments, oil drills, oil refining machinery, petrochemical plants, float glass plants, radar, telecommunications, navigation, radio and TV equipment, electronic computer, softwares and basic electronic equipment etc. These and other products are exported to more than 100 countries:

## 6. ELECTRONICS INDUSTRY

Before revolution this industry could not be developed well. In 1949, there were only a dozen small wired and wireless communication appliances and repair shops. Their output Valued at 4.95 million yuan or 0.5% of the GNP output value. In 1981, more than 3,000 electronic factories with 100 research institutes were established and their production valued at 20.1 billion yuan, reflecting 4% of the GNP output value whereas in 1993, it valued at more than 175 billion yuan. This may be seen as 500 times more than the production of 1949, for it shows an annual rise of 43.8%. Electronics industry products include means of production, consumer goods, scientific equipment, educational and cultural equipment, goods demanded by civilian and military use etc. It produces all types of radar equipment directors, electronic equipment for missiles, aircraft, naval vessels, all types of

weapons, communication equipment including cable, short wave, relay, diffusion, satellite and radio trans-receivers, communication electronic computers, broadcasting and television products etc. More than 900 electric products are produced for use in different branches of national economy. Electron tubes, semi-conductor discrete components integrated circuits, electronic surveying instruments, wireless equipment and special electronic materials are also produced.

China annually produces more than three million TV sets, but in the year 1993, total production touched the ceiling of 28.8478 million, and 138.7 million colour TV sets. Radio set production was 22.552 million pieces and one million recorders.<sup>7</sup>

## 7. CHEMICAL INDUSTRY

This industry was weakly developed in China and its production in 1949 could only touch the ceiling of 40000 tons of sulphuric acid, 88000 tons of soda ash, 15000 tons of caustic soda and 6000 tons of chemical fertilizer. Organic chemical industry was non-existent.

In the year 1957 the production of sulphuric acid was 632000 tons, soda ash 506000 tons, caustic soda 198000 tons, synthetic ammonia 153000 tons, chemical fertilizer 15000 tons, Nitrogenous fertilizer 129000 tons, phosphate fertilizer 22000 tons, plastics 13000 tons, rubber tyres 880000, which in all rose to 13.139 million tons, 5.266 million tons, 3.892 million tons, 22.010 million tons, 20.160 million tons, 15.467 million tons. 4.514 million tons, 3.360 million tons, 63.95 million pieces, in 1993, showing a remarkable progress achieved by China in this industrial sphere also.<sup>8</sup>

Besides, China also produces Farm chemicals 0.533 million tons in 1977 and 0.249 million tons in 1993, polyethylene 0.380 million tons in 1977 and 2.039 million tons in 1993, calcium carbide 1.238 million tons in 1977 and 2.604 million tons in 1993 and other required chemical products including pharmaceuticals of various brands for various diseases. In this way a service towards agricultural improvement has also been rendered,



continuously. China has achieved self-sufficiency in the production of organic chemical, ethylene, plastic and petrochemical etc.

## **8. BUILDING MATERIALS INDUSTRY**

This industry was also poorly established till 1949, as its production of 660000 tons of cement could not meet the local requirements. The deficit had to be met through imports. Production of cement and plate glass rose to 65.24 million tons and 17.84 million crates in 1977, and 166.06 million tons and 58.03 million crates in 1987 and totaled to 356.74 million tons and 108.93 million crates in 1993.<sup>9</sup>

In addition to this China's building materials industry also produces sanitary equipment, glazed bricks, wall and floor tiles, hollow concrete blocks, aerocrete, paper based-gypsum boards and hollow gypsum stripanels, asphalt ceramics wood and glass fibre and plastics, cast stone, cement pipes, cement boats, plaster, boards, asbestos cement board and wired cement boards, wall cloth, mica and quartz glass etc.

To meet the demand in full, scientific cum technical approach is being made to expand the production.

## **9. AERONAUTICS AND ASTRONAUTICS INDUSTRY**

This industry started in 1952 and manufactures military and civil aircraft cargo carriers and helicopters. Since 1979, Chinese civil aircraft gained international markets for exports. Agreements for transfer of technology between China and Boeing and MD Company of U.S., Air Canada Company of Canada, Lufthansa Company of Germany, European Airlines and Space Navigation Company of France, have been concluded, which may enable China to manufacture the planes of same standard and quality.

In the field of space, China has made a tremendous progress. A comprehensive system, including research, design, testing and production has been established for manufacturing carrier rockets to launch man made satellites. China has joined the team of top world producers of satellites retrieval, multiple

satellite launch with a single carrier rocket, satellite survey and control technology, high energy and low temperature fuel rocket technology, static earth satellite launching technology and trussing technology for strong propulsive carrier rockets. In 1992 China had successively launched two Australian American-made satellites into pre-determined orbits using a Chinese manufactured trussed carrier rocket, the long march 2-E. China has provided such services for France, Germany, Sweden and Pakistan.

## 10. TEXTILE INDUSTRY

Chinese weaving industry dates back to 4000 years ago. They are ancestral silk exporters. It includes cotton goods, woollen goods, linen, silk chemical fibres, knitting, ready made clothings, printing and dyeing, gunnysacks, ramie-textiles, flax fabrics, textile machinery and equipment. The production of cotton yarn was 3,27,000 tons in 1949, 8,44,000 tons in 1957, which went upto 4.871 million tons in 1993 as compared to 4.3683 million tons in 1987 and 2.382 million tons in 1977. The cotton cloth production in 1949 was 1890 million meters. In 1957 it was 5050 million meters, in 1977 it was 11.03 billion meters. In 1993 it was 18.18 billion meters against 17.30 billion meters in 1987. The production of silk went upto from 1,800 tons in 1949 to 9,900 tons in 1957 and 0.0297 million tons in 1977. In 1993 it was 0.0917 million tons against 0.0519 million tons in 1987, whereas silk products rose from 50 million meters in 1949 to 145 million meters in 1957, and 0.611 billion meters in 1977. It rose to 2.844 billion meters in 1993 against 1.602 billion meters in 1987. China also produced 22,15,000 tons of chemical fibres in 1993, in contrast of 32,600 tons in 1979. In 1993 earning from exports of China textile industry, amounted to more than 22 U.S.\$ billion.<sup>10</sup>

Besides, China's light industry comprise commodities of daily use, such as paper machinery, salt, food, silicate, electric usages, chemical products, leather and furs, stationary, arts and crafts, household appliances and pottery wares, clocks and watches, cases and boxes, shoes, toys, hardwares, spectacles, sugar, bicycles, sewing and washing machines, matches, detergents, soaps etc. These and other products are exported to more than 100 countries of the world and China earns about U.S.\$



30 billion annually from light industrial products.

## CONCLUSION

While concluding it may be observed that China had made a tremendous progress in the field of industry. It is on the path to successfully fulfill its 8th five year plan of economic development in 1995 and steadily launch the 9th five year plan to move into 21st century as a country with solid, prospective and stimulating industrial field. It may achieve its goal to quadruple the gross annual value of industrial production This may enable China to further improve the standard of living of its people.

Chinese industrial structure has been continuously contributing its stimulated share towards the GNP and GDP. In the year 1979 China's GNP and GDP was 358.81 billion Yuan which rose to 3138.03 billion yuan in 1993. In the same year the contribution of primary industry towards GNP was 101.84 billion yuan, of secondary industry 174.52 billion yuan and of tertiary industry to 82.45 billion yuan, as compared to 665.00 billion yuan, 1624.49, billion yuan and 848.54 billion yuan, respectively.

The index number of GNP/GDP rose from 107.6, in 1979 to 379.0 in 1993, whereas of primary industry rose from 106.1 to 212.6, of secondary from 108.2 to 505.4 and of tertiary from 107.8 to 405.6, during the same years, respectively.

Industrial reforms and their vigorous but rational and stable implementation helped the tertiary industry to contribute its climbing proportion towards GNP from 23% in 1979 to 27% in 1993 while that of secondary rose from 48.6% to 51.8% because of primary which dropped from 28.4% to 21.2% respectively.

It reflects that the industrial structure in China has been optimized. Presently it has also been liberalized and is no more fettered by the injunctions of planned proportional development. Therefore, the vigor of enterprises, expedited industrial production, expanded exports, gradual rise in the technological level of industry etc. have pushed up the industrial sector and

its development has touched new heights. In 1992, China's total industrial output value amounted to 3706.6 billion yuan, reflecting 5.7% increase over 1978, with an average annual growth of 13.2%. The same rose to 4047.2 billion yuan in 1993, representing a rise of 23.6%.

Further in 1993, overall industrial strength of China increased significantly and its industrial fixed assets valued at 1996.3 billion yuan i.e. 1656.3 billion yuan more than 1978, reflecting an increase of 4.9 times. China's manufacturing industry accounts for 5% of the added value of international manufacturing industry, ranking China as the number fifth industrial giant of the world. China is rapidly introducing advanced foreign technology to accelerate the technical revolution of its enterprises.

Industries like micro-electronics, electronics, electronic information processing, aeronautics and astronautics, optical electronics, mechatronics and biomedical, nuclear power; energy and materials, ecological and environmental protection, precision and meters have been developed in China, as they occupy significant position in the entire industrial system.

China's exports have been rising steadily. Its export went up from U.S.\$ 9 billion in 1980 to 75 billion dollars in 1993, reflecting an increase of 8.3%. During the last decade, export of various light and heavy industrial products are increasing day by day, consolidating the position of China as an industrial giant of 21st century.