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CHINA'S TEN-YEAR INDUSTRIAL PROGRAM

The Chinese Economic Bulletin of June 27 furnishes the following information on this subject:

"The Ministry of Industries has submitted to the Government a program of 14 points which aims within a period of ten years at the conversion of China into one of the great industrial Powers of the world. The scheme which has been drawn up is of unprecedented magnitude and importance. If accepted by the Government in the form proposed, and if successfully carried out, the economic position of China will undergo a tremendous change, and the industrial revolution which is contemplated will have reactions throughout the world, if executed along the lines planned. The scheme as presented to the Government by the Ministry of Industries is worked out into great detail, and an extended summary will appear in an early issue of the Chinese Economic Journal. The following is a very condensed account of the principal points in the scheme, and will suffice to show the general policy which the Government is being recommended to follow by the Ministry of Industries. That the scheme is ambitious is admitted; that it will encounter many difficulties is fully realized; but that the Government can carry this plan through is confidently believed, if it can win and hold the people's confidence in the scheme, and enjoy the full benefit of their co-operation. First of all, it is necessary to enumerate the 14 points of this great plan, as follows:-

1 - To build harbours, canals, railroads, etc.
2 - To open up the vast area of undeveloped land in the North-West and generally improve the agricultural and pastoral industries.
3 - To develop mines and quarries.
4 - To erect smelting-works and mills for metallurgical industries.
5 - To produce iron and steel
6 - To manufacture bricks, cement, and other building materials.
7 - To build locomotives and other rolling-stock.
8 - To build merchant ships and fishing-vessels.
9 - To manufacture vehicles of all types.
10 - To promote the coal-tar industry.

11 - To establish works for making basic chemicals.
12 - To develop hydro-electric schemes and establish central power-stations.
13 - To manufacture electrical machinery.
14 - To establish municipal waterworks undertakings.

"All these enterprises being national in scope and character, it is advisable that they should be undertaken by the Government direct, or alternatively carried out under the direct supervision of the Government. Thus, Nos. 4, 6, 9 and 13 could be undertaken by private enterprise under close Government control whereas Nos. 7, 8, 12 and 14 could be taken up by the Ministries of the Navy, Railways, Communications, and the Interior, while Nos. 2, 3, 5, 10 and 11 could be undertaken by the Ministry of Industries.

"It is obvious that the execution of such a tremendous program will call for an enormous supply of machinery and appliances without which any increased production is impossible. A fundamental problem, therefore, is to provide the mechanical means by which the ten-year program can be carried out. To start with, there is the question of providing prime movers - mostly marine and stationary engines. China's merchant fleet at present amounts only to 300,000 tons of small ships, mostly river steamers. The ten-year plan indicates that she needs a fleet of at least 8,000,000 tons, with engines generating 5,000,000 horsepower. Another 20,000,000 horsepower will be required for industrial undertakings. At present China has about 1½ million horsepower in her factories, and about one-third of this is concentrated in Shanghai. Putting marine and industrial requirements together, China will need nearly 23,000,000 horsepower in the form of marine and stationary engines. Taking the cost of these at an average of $100 per horsepower, there would be an expenditure upon these prime movers of about $230,000,000 every year for ten years.

"The consumption of iron and steel in China is absurdly low when compared with the quantities used in other countries. The average for a year stands at 4.3 lbs. per capita, compared with over 1,000 lbs. for the United States and 562 for Great Britain. In the ten-year plan it is assumed that the consumption of iron and steel in China will increase to 60 lbs. per capita per annum, or 12,000,000 tons. One hundred blast furnaces of 300 tons capacity would be needed to meet this demand, costing $240,000,000, and steel-mills would cost another $665,000,000, making a total expenditure of $905,000,000 on developing the iron and steel industries. The mining and smelting of copper, lead, zinc, tin and aluminium would call for machinery and plant costing $226,000,000.

"Where the United States uses 4.69 tons of coal annually per capita and Great Britain uses 4.55 tons, China's consumption is only 0.06 of a ton. The ten-year plan looks to an increase to 1,000 lbs.

per capita per annum, equal to 200,000,000 tons, as compared with China's present output of 30,000,000 tons, which would necessitate the purchase of machinery and plant costing $301,000,000. The annual expenditure on mechanical equipment in connection with the coal and metallurgical industries is estimated in the plan at $150,000,000 for ten years.

"Of the 700,000,000 acres of arable land in China, only about one-quarter is actually under cultivation. After opening-up the sparsely-populated territory in the north-west, and re-establishing prosperity in those provinces which have been stricken with famine, it is estimated that the area of arable land can be increased to 500,000,000 acres. Wide stretches of country in North China are suitable for the introduction of modern mechanical methods as employed in large-scale farming abroad. On the assumption that the annual expenditure under this head would be no more than $2 per capita, this would amount to the purchase of $100,000,000 worth of agricultural machinery and appliances every year for ten years.

"Next comes the machinery and plant necessary for milling and other manufacturing processes, which it is estimated would total $254,000,000, distributed as follows:- Rice, 20 millions; wheat, 100 millions; beans, 20 millions; peanuts, three millions; wood-oil, three millions; tobacco, 50 millions; various other crops, 58 millions. Assuming that there is already in operation in China machinery equivalent to one-fifth of this total, additional plant costing $203,000,000 would be needed, representing an annual expenditure of $20,300,000 for ten years. Thus on raising crops and treating them industrially there would be an annual expenditure upon machinery and mechanical appliances of $120,320,000 for ten years.

"Chemical industry in China is in a very backward state, and its development is most necessary both for the extension of industrial enterprises and national defence. The plan estimates that on machinery alone an annual expenditure of $150,000,000 is necessary for ten years. Of machine-tools a billion dollars' worth will be needed, which means an expenditure of $100,000,000 every year for ten years.

"The textile industry in China is fairly well developed, compared with other branches of manufacturing activity, though more than half the mills are foreign-owned and there is an annual import of piece-goods amounting to $400,000,000 in value. There are in the cotton industry 4,000,000 spindles in operation, but China needs 40,000,000, and the cost of the additional 36,000,000 spindles would be $1,800,000,000 at $50 per spindle. In regard to other textile enterprises, it is estimated that an annual expenditure of $270,000,000 for ten years would meet requirements.

"Finally, an annual expenditure of $100,000,000 for ten years is allowed for in connection with purchases of other descriptions of machinery, including road-making plant and domestic appliances, such as sewing-machines and refrigerators.

"Those various items, when totalled up, give an annual expenditure on machinery for the ten-year period of $1,120,000,000, - a figure which seems enormous, but is only one-seventh of the machinery production of the United States, and is therefore considered to be a conservative estimate.

"The next question is how to meet this tremendous demand for machinery, and to this end the establishment of machine-shops is urgently necessary. There are many such shops already established in China, but they are small in size and poorly equipped, and unable to expand and improve along modern lines. If a billion dollars is to be spent annually upon machinery, the plant must be provided capable of supplying that demand, therefore, the Ministry of Industries suggests the establishment in Nanking of a central works for machine construction - a model plant where mechanics could be trained under foreign supervision. In course of time men so trained in the Government workshops would become available to carry on the subsequent expansion of China's engineering industries, and take the lead in organising and conducting new enterprises of this character. The Government workshops would establish a standard of efficiency for other plants to follow, and would also carry on experimental and research work for the benefit of the industry as a whole. The products which appear to be most needed and offer the best prospects of profitable development are steam-engines, boilers, and accessories, Diesel units for ships, merchant-ships and fishing-craft, refrigerators, machine-tools, machinery and plant for road-making and constructional work, commercial castings, tools and gauges.

"The plan drawn up by the Ministry of Industries also provides for the despatch to England of a number of experts, whose duty it will be to study methods of factory organisation in order that they may be able to plan the most effective methods for application to the Nanking project. These Chinese experts will be also required to supervise the construction of the machinery and plant which will be ordered from British manufacturers, and to engage experienced foremen in England to be sent out to China to take charge of such workshops and departments for which expert Chinese supervision is not yet available - such as foundries. Machine-shops, Diesel-engine construction, and the making of refrigerators.

"A site covering 250 acres has been already chosen in Nanking, situated just outside the city wall and about one mile from the track

of the Shanghai-Nanking Railway. The site has a navigable creek on one side and the river on the other, so that ocean-going ships will be able to come right alongside the wharf. Just across the river is Pukow, the terminus of the Tientsin-Pukow Railway, by which route supplies of coal, coke, and iron-ore can be made available. Estimates have been prepared of the cost of establishing the Government's model workshop at Nanking, and the principal details are as follows: - Land, $100,000; buildings, $815,000, machinery and plant, $1,103,000; foundations and shafting, $48,000; working capital, $810,000. These items, with various incidentals not here mentioned, make a total estimated cost of $3,108,900 for the whole scheme.

"It is planned to spend about $2,500,000 of the Boxer Indemnity Fund to be returned by Great Britain on the purchase of structural steel, machinery, etc., leaving a balance of only about $600,000 to be provided by the Government. The Ministry of Industries, therefore, urges that immediate provision be made for earmarking this small sum in order to allow its scheme to be carried out at an early date."

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