UNIT 10 INDUSTRIALIZATION 1851-1914

Structure

10.0 OBJECTIVES

After reading this Unit, you should be able to learn about how:

- industrial capitalism developed after mid-nineteenth century in countries like France, Germany and Russia,
- the state played a major role in industrialization compared to earlier industrialization in England,
- in spite of limitations Russian industry did manage spurts of high growth, and
- a limited market for consumer goods led to a focus on industrial growth mainly in heavy industry.

10.1 INTRODUCTION

In the previous Unit we have discussed the progress of industrialization in Europe between mid-eighteenth to mid-nineteenth century. This Unit will focus on the

growth of industrial capitalism from mid-nineteenth century. The manner in which industrialization progressed in England was not repeated in countries like France, Germany and Russia. It is important to understand how these countries progressed towards industrialization after 1850s. A number of features, which contrast with the conditions in eighteenth and nineteenth century England, have been attributed to late development of industrial capitalism outside England. In this Unit our focus will be on how France, Germany and Russia tried to negotiate with the problems on the way to industrial development and the development of industrial capitalism in these countries since mid-nineteenth century.

10.2 FRANCE: INDUSTRIAL CAPITALISM 1848-1870

After the deep depression of 1847-51there was visible growth in French industry. Therefore many believe that industrialization started in France after 1850s. It was a consequence of the availability of gold throughout Europe during the period following the revolutions of 1848, and a continuation of the railway boom until c.1860, that extensive investment in the standard areas of growth at this time – textiles, coal iron and railways – became possible in France. And this in turn stimulated the changeover from water-power to steam power in large sections of French industry, and a general move away from charcoal centred iron production to coal based production. The period witnessed the extensive exploitation of the coal deposits of the Nord and the Pas de Calais, which now became the country's prime source of fuel, although much of it was not suitable for smelting since it could not produce coke. In 1852, of a total national coal output of 5,000,000 metric tons, the North basin produced 1,000,000 metric tons compared with 1,640,000 in the upper Loire (Le Creusot and Blanzy produced 400,000 and smaller deposits the rest). Whereas, in 1869, of a national production of 13, 000,000 metric tons, the North produced 4,300,000 compared with 3,100,000 in the upper Loire. Elsewhere, output of pig iron increased dramatically (1,400,000 tons in 1869 compared with 600,000 tons in 1853), steel production increased substantially to 1,000,000 tons in 1869, incorporating Bessemer techniques and ranking second to international production to that of Britain. In the latter case, the main production was at St. Etienne (the Terre Noire company and the enterprise of PetinGaudet), at Le Creusot (in the Schneider enterprise), in Lorraine (in the various enterprises of the de Wendels) and in Niederbronn in Alsace (in the Dietrich enterprise). Established companies at Commentary and Fourchambault (on the Belgian border) and Anzin and Denain in the north, continued to concentrate on iron production.

In the case of the cotton industry, while the conditions of enterprise remained static in the area of Normandy and the Lille district (where hand weaving predominated into the 1860s and beyond), production in Alsace reached the same level of mechanization and sophistication as Lancashire by 1870. Alsace produced improvised power machinery, which could compete with England; and what held good for cotton also held good for wool, where expansion was based in this period on imports of Australian clip.

Beyond international circumstances, though, much of the increase in production here was because of the interventionism of the Bonapartist state under the Second Empire. Here, government encouragement of growth, prompted by Napoleon III's Saint Simonian principles, was evident in the official assistance to the creation

of the Credit Foncier (a national mortgage bank) and the Credit Mobilier (a joint-stock bank dominated primarily by the Pereire brothers). Both were set up shortly after Napoleon became President, and the latter speculated extensively on the bourse and invested its profits handsomely in industry. Following their example, a number of credit institutions were born during 1850-57, of which the Credit Lyonnais was the most famous. As Gerschenkron points out, the activities of these state-sponsored or state-encouraged banks brought more "conservative" banking houses, such as the Rothschilds, which had hitherto dealt in government bonds and land mortgages, to take an interest in industrial banking. This great period of economic growth, therefore, came through active interest of the state, even if it witnessed minor acts of free trade, in the Cobden Treaty, which relaxed various duties on imports from England. The interest cannot be compared with that of the British government of the end of the 18th century: for it was more forcible and well-directed. While hardly "managerial" such interest was substantial and significant in extreme.

10.3 FURTHER DEVELOPMENT OF INDUSTRIAL CAPITALISM 1871-1914

Following the defeat of France in the Franco-Prussian War (1870-71), a general impression prevailed for several decades that the country experienced a decline. However, the impression always bore reference to comparisons with Germany and the United States (where productivity rates grew more quickly and population increased more rapidly). Or it bore reference to rates of growth of the past, when combined rates of growth for industry and agriculture were higher for 1815-1870 than for 1870-1914. At the time and thereafter, commentators understated the importance of changes in the French economy and the strengthening of industrial and finance capitalism in the country. The proportion of the labour force employed in agriculture and forestry fell from 53% in 1870 to 37.4% in 1913. The productivity of labour continued to rise and the national product increased (after sluggishness until 1895, by 1.8% per annum during 1896-1913). Per capita, the value of exports and imports increased two-fold. Savings in the country increased, while the volume and investment of capital in enterprise outside the country grew considerably. Much of this change integrated economic activity in Africa and South East Asia where France had colonies in West Africa and Indo-China.

General indicators of industrial growth are provided by the following figures:

Average annual rate of growth of output of specific industries in France (%)

Period	Iron and Steel	Coal	Cotton
1860-1892	2.58	3.24	1.52
1892-1913	4.01	2.04	1.92

(Source S.B Saul and A. Milward, *The Development of the Economies of Continental Europe* (1977).

In addition, it is worth mentioning that the country showed substantial headway in research and development in the field of chemical production and electrical

industries, which were prominent areas of growth at this time in Germany and USA. For soda and sulphuric acid production, introduction of important innovation (e.g. the Solvay process for soda manufacture) was standard, and the St. Denis Company made significant strides in dyestuffs research and manufacture. In electrical, American and German companies such as Thomas-Houston and Siemens undertook production in France, while the French firm of Breguet undertook telegraph and telephone equipment manufacture. Herault's use of electrolysis for the manufacture of aluminum was one of the many innovations of the time. A proportion of electricals' production was used for motor car production, where the French firms of Panhardand Peugeot competed with the German firms of Otto and Benz, and even withstood competition from Ford until 1900s.

In general, the loss of Alsace and Larraine in 1871 (to Germany) was more significant for French industrial capitalism than may initially appear to the case. True, the textile innovation of Alsace was now within the German tariff and territorial area. The spin-off effects in the region were taken up mainly by Germany. But firm links between erstwhile French manufacturers in Lorraine, and other French companies, survived the integration of the area into Germany. Hence, co-operation between the great steel and iron producers of Lorraine, the de Wendels, and the Le Creusot Company of Schneider, led to use of the Thomas-Gilchrist process of steel manufacture on both sides of the border, despite de Wendels' possession of the rights of the process from 1878 to 1895.

Check Your Progress I

1) Write in brief about the progress in industrialization in France between 1848-1870.

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2) What was the impact of the loss of Alsace and Lorraine on Germany in 1871?

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10.4 GERMANY: SOURCES OF CHANGE

The German states until 1871, and thereafter the German Empire, also witnessed considerable growth of industrial capital in the nineteenth century. The character of capitalism in Germany was decisively influenced by official measures that

were taken during the period 1789-1815. These measures took the form of copying of French legislation, in areas which were under the direct administration of France's revolutionary or satellite governments-such as the Rhineland, and, later the Kingdom of Westphalia. Or there were attempts to alter the nature of social relations in order to withstand Napoleonic onslaught. Almost all areas also benefited from the exclusion of British goods from the Continent during the time of the Continental System and the British Blockade of Continental ports (1806-1813).

10.4.1 Legislation of the Napoleonic Period

In the first case, the industrial settlements of Rhineland saw the dismantling of guilds, and abolition of their privileges-which improved the status of competitors in a number of industries and gave greater scope to innovation. The Continental system increased demand for the products of this region, and despite French exactions, the towns of Julich, Krefeld, Aachen, the Wupper Valley and the Duchy of Berg, witnessed a boom in the 1800s. Trebilcock points out, that between 1800 and 1807, the number of Aachen's woolen factories increased by a factor of five, and exported extensively to Russia and Spain.

Emulation of Revolutionary practice in order to rescue the Ancien Regime, occurred in Prussia, where serf emancipation was clearly designed to alter relations between lord and peasant, and peasant and state. Despite their immediate impact, the institutional configuration in Rhineland would ultimately be forced to coexist with guilds elsewhere in Prussia after the territory was restored to the kingdom in 1815. The impact of serf emancipation, in Prussia was limited but decisive and ubiquitous.

Here, the Emancipation Edicts of 1807-1808 (inspired by the minister von Stein) established the serf as free, but gave him no rights to land. Further measures, taken under the supervision of minster Hardenburg, in 1811, provided that serfs who had rights of inheritance on Junker property would lose only one third of their holdings, while those who did not have such rights would cede one half of their holdings; possessors of very little land were to pay rent. A settlement process of several years was established for fixing serf rights of property, permitting the old dispensation to continue until such fixation should occur. The Declaration of 1816, limited the rights of peasant proprietors to the lucky ones who possessed cattle, the rest left to the whims of fate became landless labourers; further no compulsion to regulate property arrangements was envisaged until 1850.

Legislative measures, however, coincided with the creation of Rentenbanken which provided landowners with redemption payments and peasants with arrangements to pay over a tolerably long period. Depression in agriculture, moreover, accompanied the fall off in demand all round after 1816, and, hence, a certain amount of land changed hands. The Emancipation decrees extended the impact of earlier measurers to make an extended land market possible, since their terms allowed rich tenants and others (hitherto "serfs" and precluded from land purchase), to buy land. This in turn allowed greater commercialization of agriculture than had been possible in the past. That commercialization in turn assisted the improvement of agriculture in the eastern lands once the depression was over.

10.4.2 The Zollverein

Crucial also to economic growth after 1815 was the gradual development of large regional markets in the 1820s, before the formation of the Prussia centred Zollverein (Customs Union) in 1834. This development removed hurdles facing distribution of manufactured goods in the area of the German states – a phenomenon which dampened the growth of industrial capitalism in the area since the only alternatives for producers was protected French market or the excessively competitive English market. The regional units created in the circumstances were:

a) the Prussian market, under the tariff of 1818, which established low duties on raw materials, heavy duties on "colonial goods" such as coffee or tea (of 20%), a low duty on manufactured goods (10%) and high duties on goods in transit,

b) the South German League (formed 1928) of Bavaria and Wurtemmberg,

c) the Central League (Saxony, Hanover, the Thuringian states, Coburg and the Hanse), and

d) From 1834, Prussia, basing her initiative on a powerful geographic position (her territories stood astride the highways into Poland and Russia and divided the towns of Frankfurt and Leipzig, while she controlled both banks of the lower Rhine), persuaded other states to form a larger market through customs agreements with her. All states, with the exception of the Hanse towns, Hanover, Holstein, Mecklenburg and Oldenburg joined this "Zollverein", which extended the terms of the Prussian tariff of 1818 (with minor amendments) to all member states.

10.4.3 The Railways

Within such a system of trade agreements, the development of railways in the German states acted as a major stimulus to production and innovation in the enclaves of iron and coal production in Silesia and in the Rhineland. Railway lines allowed the extension of a home market which was reasonably well-knit around the internal river system based around the Rhine, the Elbe and the Oder, all of which had canal networks working off them. Railway construction began in the 1830s, following extensive discussion of the subject in Prussia and Saxony, with protagonists of railway construction ranged around Friedrich List and Friedrich Harkort of Wetter and antagonists supporting the advisor to the Prussian King, Christian von Rother. Private lines dominated the development in Prussia (with lines built in 1838, 1840, 1841, 1843 and 1848), while state construction of the railways was the rule in Bavaria and Baden. By 1850, 3660 miles of track were in operation, and the expansion continued exponentially thereafter.

In such circumstances, growth with foreign assistance in the iron and coal industries now moved ahead. The main centre of increased coal production was Upper Silesia, although the state-managed fields in Ruhr and Saar were also important. Iron ore output increased during the period 1838-1850 from 266,000 tons to 545,000 tons.

10.4.4 The Growth of Joint-Stock Banks

Much of this expansion was possible because of the development of joint stock banks in the German states on the model of the Credit Mobilier in Paris and the Societe Generale in Belgium. Hitherto, industry had to rely on plough back, merchant capital, or the "Conservative" banking houses of the area, who preferred to lend to government or to landowners (houses such as Schaffenhausen or Rothschilds). However, with the formation of the Bank of Commerce and Industry, a new model for capital investment was established. This was a banking house set up by Moritz von Haben, a baker from Karlsruhe, with backing from the Cologne bankers, Oppenheim, Mevissen and Deichmann. It faced immense opposition from Rothschilds, who stood against it in the Frankfurt Senate; it also faced discouragement from Prussian civil servants, who were content to see investment dominated by the Schaffenhausen Bankverein in Cologne. Basic capital, though, came from the Pereires, with whom a syndicate was formed, and thereafter, the bank undertook extensive investment in the North German Lloyd Shipping Company, in Austrian railways and in state loans. The formation of a number of enterprises followed.

a) the Diskonto-Geselleschaft under the leadership of David Hausemann (and later Bismarck's banker Bleichroder, who played a substantial role in raising state loans to the Prussian government through the "Prussian Consortium").

b) the Belines Handels Geselleschaft, which brought Rhineland and Berlin bankers together under the leadership of Bleichroder and Mendelssohn (Berline) and Mevissen and Oppenheim (Cologne). This handled extensive investments in railways.

c) the Dresdner Bank, the Deutsche Bank and the Darmstadter Bank.

d) the Magdeburg HandelsGeselleschaft, which focused on local markets.

e) on a different scale, the F.W. Raiffeisen rural co-operative banks (beginning in 1862) and the Schulze Delitizsche Co-operative Bank (involving craftsmen and shopkeepers), which operated primarily in Wurtemmberg and more broadly in South Germany.

10.5 GROWTH AFTER 1871

After the creation of the German Empire in 1871, steady growth in industrial production (which followed the boom of 1852) continued unabated. The payment of the indemnity from France after 1870 ensured high levels of public expenditure to reinforce the stimulus provided by the increasingly integrated market of the Zollverein. High rates of growth in net domestic product have been noted for the 1870-1874 period, the Grunderjahre (foundation years) of the Empire.The slump which followed the financial crisis of 1873, which affected Europe generally, as well as the USA the Grunderkrise (foundation crisis), did not ultimately retard economic expansion, although it lasted long (until 1879). Thereafter, demand for railway equipment in the USA, which occurred at the time of the patenting of the Thomas-Gilchrist steelmaking process, which allowed Germany to make extensive use of her phosphoric iron ore resources, led a major period of growth, indicated by the following figures.

Annual average rate of growth of output in German Industry 1870-1913

Industrial sector	% growth of output
Metal producing	5.7
Iron manufacture	5.9
Steel manufacture	6.3
Metal working	5.3
Chemicals	6.2
Textiles	2.7
Clothing and leather working	2.5
Gas, water, electricity	9.7

(Source: S.B. Saul and A. Milward, *The Development of the Economics of Continental Europe* (1977) p.26)

It is recognized that, in much of this, the great joint-stock banking concerns acted as an encouraging force, in industrial expansion, and also induced manufacturers to avoid competition and establish cartels and syndicates among themselves, i.e. organizations which established agreements on pricing and production policy in a particular area of manufacture. In relation to these pressures and other circumstances, the German Steelworks Association, formed in 1904, regulated prices and production of our major steel companies, and a number of other cartels and associations existed at this time. The success of German industry during this period is attributed to the development of the large banks. Banks helped in mobilization of funds in support of expansion of the industry. Banking practice during this period was to intervene directly in policy formulation through representatives who were present on the boards of major companies. The ultimate consequence of this regulation was undoubtedly positive in minimizing competition and directing production with firmness – making German industry decisively competitive in the international arena. It had a drawback, however, which was to be felt deeply: it generated desperation in labour which often faced a stout wall in negotiations. This, as scholars have pointed out, led to added violence in industrial conflict and aggravated class tensions in the country by the turn of the century. Under Wilhelm-II, the Imperial government attempted to curb the powers of finance capital and industrial capital through direct intervention in economic activity and management: but the sole measure to effect this before 1914 was a failure: the government's abortive attempt to buy the Hibernia concern, which was decisively defeated by industry. The result was that, at the time of the outbreak of the First World War, the problems of class conflict generated by concentration did not show any signs of resolution.

Check Your Progress 2

1) How did the measures taken by the German state facilitate the growth of capitalism?

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2) Write in brief on the progress of industrialization after 1871.

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10.6 THE ROLE OF THE STATE IN RUSSIAN INDUSTRIALIZATION

The advance of industrial capitalism in Russia from the 1890s has been characterized as a process of the late development because it occurred several decades after industrialization in England, France and Germany. Late industrialization offered Russia the benefit of borrowing rather than originating industrial strategies. Since middle of the nineteenth century, the main problem confronting the Russian state was how to pursue her aspiration to be a great power in Europe with inadequate resources to sustain this claim. This imbued Russian industrialization with a strongly political complexion throughout its history even into the Soviet period. The backwardness of Russian economic and social systems legitimized state intervention more than anywhere else in Europe. This is particularly valid for the first, but short lived, attempt towards industrial growth launched by Tsar Peter the Great (1689-1725). This was accomplished by building serf-manned factories to provision and arm the army and navy, undertaken at a frenzied pace and underscored by the best techniques that could be borrowed or stolen from Europe. The landowning aristocracy was averse to industrial innovation until at least the 1890s. The state appropriated all the tasks of investment, consumption and production. From mid-nineteenth century, state focused on four issues in order to promote industrial capitalism. They were the budget (balancing revenue with expenditure); the currency (stability in its value abroad); the balance of trade (the values of imports versus exports); and, the balance of payments (payments on loans).

Budgetary stability was necessary to provide infrastructural facilities for industrialization. A sound currency was essential for the inflow of foreign capital. A healthy balance of trade was necessary in order to pay for imported technology by exports of grain. Finally, Russia's international prestige was linked to prompt payment of interest on debt, since the huge state debt was mostly held abroad. Russia enjoyed the benefits of a rapidly growing population and rich natural resources; but the peasants were poor, hence internal demand was limited. Given such weak demand, the state itself had to function as a leading buyer. It did so in many ways, including bulk state orders for heavy industry, guaranteed profits, and loans.

Having started late, Russian industries could not compete well with West European industry. The state therefore provided protection by setting tariff rates for imports and exports. But it had to do so, by striking a balance between and within the interests of agriculture and industry, on the one hand, and its own revenue requirements, on the other.

Tariffs were relatively low in Russia between the 1850s and 1870s. During this period of low tariffs, imports rose substantially. Despite an expansion of agricultural exports, Russia had a trade deficit (the value of imports exceed that of exports) throughout the 1860s and 1870s. By keeping tariffs low, the Russian state sought to stimulate light industries (like cotton textiles) to meet popular demand, rather than heavy industry whose demand would come from within the industrial sector. In 1877, 1881, 1884, 1885 and 1887, import duties were raised to protect metallurgical and mining industries.

10.7 THE GERSHCHENKRON MODEL

Alexander Gershchenkron, whose account of Russian industrialization is highly influential, devised a model to explain Russian industrialization in particular and industrialization in conditions of "economic backwardness" in general. This model rejects both the idea that the processes of development by the 'leader' (or first) industrializing country and 'follower' (or later) nations is essentially similar, because even the prerequisites for industrial revolution differ. Instead he emphasizes the ideological and institutional distinctions between these processes in different national settings, depending on the relative degree of 'backwardness'. According to this view, it is the differences that determine variations in the suddenness of the 'spurt' or speed of industrial growth, and the resulting industrial structures.

Depending on a given country's relative economic backwardness at the start of industrialization, the course and character of industrialization tended to vary in the following ways in this model:

a) The more strongly its industrialization tended to start as sudden great spurt proceeding at a relatively high rate of growth of manufactured output. In Russia, significant industrialization began from a low base in the 1890s and during that decade industrial growth attained the highest rates in the world till then.

b) The more backward the country more pronounced is the stress on bigness of plant and enterprise. Indeed by 1900 Russia was the most highly 'concentrated'economy in the world, because the larger enterprises had a higher share of output and labour here than elsewhere.

c) The more backward the country more pronounced is the stress on producer goods as against consumer goods. Although the cotton industry (the pre-eminent consumer industry) remained the single largest industry in pre-revolutionary Russia, state attention and capital investment favoured mining and metallurgical branches of industry from the 1880s to 1913.

d) The more backward the country more heavy is the pressure on consumption levels of its population. From the 1890s, state-directed industrialization proceeded on the basis of high indirect taxes, the export of grain and the relative neglect of 'social' investment in areas like health, housing and schools. Taxes and lack of social facilities affected peasants and workers most, and their consumption of industrial essentials appreciably improved only after about 1900.

e) The more backward the country greater is the part played by special institutional factors designed to increase the supply of capital to nascent industry and in addition to provide it with less decentralized and better informed entrepreneurial guidance. Gershchenkron contends that the more backward the country, the more pronounced was the coerciveness and comprehensiveness of these factors.

Russian industrialization was indeed accompanied by the emergence of an overgrown state, dominated by a powerful finance Ministry, whose sway over the economy exceeded any other in the industrializing world. Coercion was comprehensive in that it thoroughly permeated patterns of work, life and the response to legitimate grievances by peasants and workers alike.

f) The more backward the country less able was agriculture to play an active role in the industrialization process by offering nascent industry a growing internal market based on growing productivity of labour.

Recent research suggests the need to revise and qualify this proposition in the Gershchenkron model. The per capita rates of growth of agricultural output were more respectable than was assumed earlier. Moreover, in the 1880s and 1890s productivity of agricultural labour also rose, at about 75% of the industrial rate. After 1905, the Stolypin Reforms (that sought to promote individual farming) and growing migration to Siberia generated better incomes and marketing, rising farm consumption and a diversification of production patterns. Agriculture was therefore performing as a progressively better complement for industry after 1900.

A distinctive trait of the Gershchenkron model is provided by the presence of 'substitutes' as compensation for absence of essential props for industrialization. In Russia, the state substituted for factors that were missing or in short supply. It stepped in to perform the role that individual entrepreneurs had played in English Industrial Revolution or the role played by large investment banks in Germany. Gershchenkron regards this role of the state as an inevitable result of tension that emanated from the growing gap between Russia and her European rivals.

The state in Russia did this in various ways. It remained the biggest single customer for industrial goods like iron and steel in order to offset the smallness of individual enterprise orders. Even in 1913, the number and resources of state banks overshadowed private banks. Given the shortage of bank credit, the state itself supplied credit to select entrepreneurs. Or again, it sought to make good the deficiencies of a small and poorly-qualified entrepreneurial class by encouraging the import of foreign capital and skills.

The earlier view was that private enterprise was unable to assume the burden of mobilizing resources for rapid industrial growth because of the size and urgency of the task; and that the state's own predominance stifled private capitalists. Revisionist history increasingly reveals that the government was unwilling to accept growing private business activity outside state regulation.

The Gershchenkron model provides for state's active role to diminish as industrial growth gathers momentum with expanding non-state enterprise and capital. Industrial growth after 1900 was considerably less reliant on state orders and railway expansion than earlier as explained in section 10.8 Banks assumed a

greater role as sources of investment funds, the share of light industries increased in total manufactured output, the per capita consumption of many basic items grew, and between 1900 and 1910, the rate of inflow of foreign capital into Russian industry and banking slowed down.

10.8 INDUSTRIAL TRENDS FROM THE 1860s TO THE 1890s

Late 1860s and early 1870s saw a considerable boom in the growth of industrial output and trade turnover, the founding of joint-stock companies, and the expansion of the railway network. From 1873, under the impact of a general European crisis, the Russian economy experienced a crisis of overproduction, falling prices and failure of numerous industries and banks. Since this was primarily a crisis affecting iron, steel and fuel, contemporary observers correctly traced its roots to a decline in railway construction, and this soon affected industrial investment in the consumer industries too. The importance of the peasant consumer was highlighted by shrinking markets caused by poor harvests and famines in the first half of the 1870s. In 1877, under the impact of the Russo-Turkish war, industry was stimulated by military orders, as well as the good harvests of 1878 and 1879 which led to record grain exports.

This was shortlived. Industrial development went into decline from 1882 until 1885. There was another recession affecting most sectors in 1890 and its effects were sharpened by a catastrophic harvest failure and subsequent famine in 1891. Apart from crop failure, the crisis was again prompted by declining investment in railways, as well as by shortages of credit from Western Europe, itself in crisis from 1880. This was expressed in slower rates of formation of new share-holding capital and railway network, in the closure of factories, and mass unemployment.

Industrial output doubled between 1862 and 1882, which implied an annual average growth rate of 3.5%. Between 1860 and 1890, coal output leapt up by 2005% iron and steel production as well as petroleum extraction quadrupled, and, the railway network expanded by about 2000%. The industrial labour force doubled between 1860 and 1890.

By the late 1880s and early 1890s economic conditions in Russia were ripe for revival. The developments in metallurgy, coal mining and oil production, together with the mechanization of cotton production and the revival of railway construction provided a springboard for industrial spurt of the 1890s.

This spurt was critically dependent on two features: government policy towards industrialization, and, peace in Europe. In the 1860s, the Russian government was apprehensive about industrial development because the ensuing tension from worker unrest would strain the fabric of a largely agrarian society dominated by the nobility.

The cost of reimbursing the nobility for the loss of their serfs in 1860 had an economic impact that lasted through the 1860s. From 1850s to 1870s, Crimean War and Russo-Turkish War diverted state revenues away from productive investment towards the military, weakened the value of the Russian rouble abroad, and induced inflation within Russia.

International peace was an essential background to the movement of capital, goods and specialist technical advice on which the industrial leap of the 1890s depended. Russian Finance Ministers like Nikolai Khristianovich Bunge (1881-87), and Ivan AlekseevichVyshnegradsky (1887-92) fruitfully utilized peace in Europe after 1878 to lay the foundations for budgetary expansion, monetary stability and foreign investment in Russia.

From the 1890s, industrialization became the accepted as well as the central goal of Russian state. This aspiration was most forcefully represented by Sergei Yulyevich Witte, the Finance Minister from 1893. To a large extent Witte's motives were political. Since Russia was the most backward of the world's great powers in 1890s, industrialization was a race against time for Witte. Economic strength had to be built up rapidly since political power was measured in terms of industrial productivity.

Check Your Progress 3

1) What do we understand by the term "substitutes" in the Gerschenkron model?

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2) What was the background to the industrial spurt of the 1890s?

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10.9 THE WITTE SYSTEM

Count Sergei Yulyevich Witte (1849-1915) Minister of Finance (1892-1903) and first Prime Minister of Russian Empire identified the taproots of industrial strength in railways and heavy industries. The Witte system was characterized by tariff protection, monetary stability and financial reform, heavy taxation and encouragement of foreign investment. His plan was to stimulate private enterprise, and exploit Russia's rich natural resources through a vast programme of state capitalism. He hoped development of metallurgical and fuel industries would be supported by rising urban and industrial demand.

For Witte, delayed start to industrialization was to be compensated by rapid rate of growth, the import of advanced technology from Germany and United States (rather than England), and the establishment of mammoth factories with large work-force. All these features sprang from shortages of domestic capital,

entrepreneurship and skilled labour as well as from anxieties about the widening gap between Russia and her political rivals.

It should be emphasized that although the Witte system represented a bold and timely exercise in massive state intervention, it was not entirely novel. Many of its features had been foreshadowed since the 1860s by former Finance Ministers like Mikhail Khristoforovich Reutern, N.K. Bunge and I.A. Vyshnegradsky. Measures were undertaken by them to improve budgetary balances, stabilize the rouble and encourage foreign investment.

10.9.1 Fast Growth

Railway construction dominated industrial upsurge of the 1890s. The length of track almost doubled so that 37% of the entire network, or one-half of what was built in the preceding fifty years, was constructed during the 1890s. The total inventory of railway rolling stock (locomotives, passenger and freight wagons) also doubled between1890 and 1900. Annual additions to the railway capital stock usually exceeded additions to the industrial capital stock between 1890 and 1905, and it was investment in rail and rolling stock that generated demand on a scale broad enough to sustain the new iron and steel industry in the Ukraine and the engineering industry in St. Petersburg. During the 1890s as much as one-third of Russian iron output might have been absorbed by railways, which also provided a major market for coal. In 1890, Russia ranked fifth among nations in the length of her railway network, but by 1900 only the United States was ahead. Relative to her vast area, of course, Russia's network remained thin and inadequate, as was starkly revealed during the First World War, but the railways undoubtedly represented a major industry.

From about 1895, railway investment was almost evenly divided between private and state capital. But the financial participation of the government was considerably greater, since, in addition to direct state railway loans, government guaranteed profit on every loan and was prepared to buy back important or indebted railway lines from private companies. By 1900, the total capital of the Russian railways amounted to 4.7 billion roubles, of which approximately 3.5 billion, more than half the total state debt belonged to the state. Foreign investment in Russian railways in the 1890s, standing at about 341 million rubles, was proportionately much smaller than in extractive industry or banks.

Throughout the nineteenth century and even in 1890s textiles remained the leading individual industrial sector. Though cotton manufacture was not particularly fostered by Witte, its fastest period of growth in the century came in the 1890s with output rising at over 8% annually. During the 1890s the cotton industry was mechanized. By 1899 this industry was the largest single employer, with one in every seven industrial workers.

The basis of this highly impressive performance, the fastest in the world till then, lay in heavy industry, as the Russian state intended. In percentages, the annual rates of growth among sectors were: mining, 11.2; chemicals, 10.7; lumber, 9.3; metallurgy, 8.4; ceramics, 8.0; textiles, 7.8; and food processing, 1.7. There were striking increases in productivity too. Whereas in the cotton industry, the increase in the value of output was accompanied by an equal rise in the number of workers, in mining and metal production, output rose by 152% from 1887-97 and the work-force by only 39%. A conspicuous measure of the industrial spurt

of the 1890s was that 40% of all industrial enterprises in 1900 were founded after 1891.

10.9.2 Revenue and Taxation

Witte needed to support his industrial policies by measures to bring in more revenue and to stabilize the value of the rouble. Most of the 1890s were good years for borrowing abroad because the rate of interest was low; by converting expensive domestic loans to cheaper foreign loans he was able to reduce expenditure by over one billion roubles. Witte strove to preserve the favourable balance of trade secured in the 1880s by continuing a highly protective tariff policy and encouragement of import substitution by direct state support for Russian industry by means of tax remissions and guarantee of profit. The Tariff Act of 1891, one of the most prohibitive in the world then, allowed free entry to only fourteen products for which there was little demand in Russia. Raw materials and manufactured products suffered heavy import duties. But owing to these high duties the output and efficiency of the metallurgical industry rose, thus encouraging the emergence of a Russian machine-building industry.

But Witte still faced two problems. Since state investment in railways rose massively, he needed income to balance his budget. Secondly, as grain prices, Russia's chief export, fell to their lowest in the early 1890s, he had to face a deteriorating balance of payments. To balance Russia's domestic budget and stimulate exports, Witte turned to higher taxation. He favoured indirect taxation, which accounted for about half of all revenue during the 1890s. The fact that the main weight of these duties fell heavy on the poorest lent substance to the charge that peasantry bore the brunt of Russian industrialization.

State-initiated growth was financed by taxation and loans, on the one hand, and by stabilizing currency and introducing Gold Standard, on the other. Witte wanted to accelerate the flow of foreign capital into Russia. Since foreigners were unwilling to lend to a country with a depreciating currency unless interest on loans and profit on capital was guaranteed by rouble backed by gold reserves, the adoption of Gold Standard became imperative.

This became possible after 1877, when all import duties were collected in terms of gold, not paper, rouble. Secondly, the rouble itself was stabilized by exchange control and by policy of State Bank to hold high reserves relative to issue of notes. In addition, the policies of heavy taxation contributed to building up substantial gold reserves and, eventually, following a good harvest in 1896, the rouble was placed upon the Gold Standard in January 1897.

The gains came in the stabilization of the exchange rate of rouble, easier borrowing conditions abroad and a level of foreign investment between 1897 and 1913 that was twice as high as that between 1881 and 1897. But its cost was a huge burden of additional taxation, of extra forced exports of grain and immobilization of Russia's gold reserves.

10.9.3 Role of Foreign Capital

Foreign supplies of capital were indispensable to make good the inadequate supply from domestic sources. By encouraging its inflow, Russia had become Europe's largest debtor nation by 1914. The proportion of Russia's national debt that was

held by foreigners rose from 30% in 1895 to 48% in 1914. Possibly one-half of this foreign investment accounted for state railway loans. The rest was distributed within industry, particularly southern mining and metallurgical industries and oil industry in Caucasus, as well as in banks and trade. France and Belgium provided the bulk of foreign investment after 1890. According to estimates by J.P. McKay, the author of a study on foreign entrepreneurship in Russian industrialization, the cumulative total amount of foreign capital in Russia increased from 215 million roubles in 1890 to 911 in 1900, 1,358 in 1910 and 2,06 in 1915. Its share in new industrial investment rose from 33% in 1890-92, to 47% in 1900-02, and to 50% in 1909-13.

Why did such large volumes of foreign capital flow into Russia in this period? At one level, the European bourgeoisie had enough surpluses after 1850 to invest in foreign lending. Why was Russia more successful than other countries in attracting this capital?

The rates of profit were higher in Russia than in Western Europe. The government ensured tariff protection, guaranteed loans and profits, and provided security against industrial action by workers. The adoption of the Gold Standard enhanced Russia's credit worthiness, at about the same time as the fact that the exceptionally low level of world interest rates in the 1890s made investments in Russia attractive.

Political factors also contributed. For instance, the German and French governments encouraged such investments in Russia as they competed to secure a Russian alliance. The alliance with Germany, known as the Dreikaiserbund of 1879, promoted flow of German capital to Russia during the late 1870s and early 1880s. It then shifted to an alliance with France in 1894. Similarly, the Entente with Great Britain in 1907 led to a marked increase in flow of British funds into Russia.

10.9.4 An Assessment of the Industrial Spurt of 1890s

By the beginning of the twentieth century Russia had undoubtedly been transformed into a major industrial power. With 6% of world output of iron and steel, Russia occupied fourth place in the ranking of industrial powers, after the United States (42%), Germany (18%) and Great Britain (14%). In addition, Russia had the makings of a modern engineering industry while newer industries like basic chemicals had also begun to appear. Consumer goods industries thrived, largely on account of growth of urban population. The construction of a huge railway network promised further wide ranging economic advance, by reducing transport costs, improving inter-regional trade and stimulating population movement to areas of economic opportunity like Siberia and Central Asia.

These impressive achievements rested, however, on fragile foundations of state investment in industry, taxation of peasantry and loans and investment capital from Western Europe. In the Witte system, agriculture was barely affected by state policies that focused attention and investment on industry. Witte was an advocate of the view that industrial improvement would somewhat automatically 'trickle down' to agriculture and stimulate output and productivity in that sector too; the necessity of a separate policy was overlooked. Within the industrial sector, heavy industry received considerably greater investment and protection than consumer industries. These were the serious limitations of the Witte system. It encountered mounting opposition in official circles and among the nobility

who were anxious to guard the interests of agriculture. The durability of the drive was weakened by lack of an autonomous Russian capitalist stratum.

10.10 INDUSTRIAL CAPITALISM FROM 1901 TO 1914

The spurt of the 1890s came to an abrupt end in a recession that began in1901. The basic problem was that during the 1890s living standard of peasants and their tax-paying capacity declined. Between 1897 and 1901a series of well below-average harvests hit the leading grain producing provinces; arrears of redemption and other payments rose and export earnings declined. This meant that capital expenditure by the government in industry could not be maintained at the levels of the 1890s, while its balance of trade and payments were adversely affected.

10.10.1 Crisis

The immediate cause of the industrial crisis appears to have been a tightening of the money market from the middle of 1899. Rising world interest rates and a slow down in the flow of international investment had severe repercussions not only in Russia but in Western Europe also. The industrial crisis manifested itself in numerous bankruptcies, sharply falling industrial prices, contracting output (especially in heavy industry) and over-production in leading branches like pig iron, iron and crude oil. During 1902, the worst year, some 2,400 industrial concerns closed down, including one-third of mining ventures at Krivoi Rog and one-quarter of largest metal producing enterprises. Industrial unemployment rose to a high of 90,000. Interest rates rose and share prices fell. Banks restricted loans to protect capital reserves and working capital became more difficult to find. The depression mainly affected those branches of heavy industry which had expanded most rapidly in the 1890s.

This crisis led to the dismissal of Finance Minister Witte in 1903. Opponents of government industrial policy took this industrial crisis as evidence of the idea that heavy taxation on peasant was incorrect and that Russian industrialization was artificial because it depended heavily on government orders.

10.10.2 Monopolistic Devices

This crisis in Russian industry stimulated the growth of various monopolistic devices for regulating production and sales. In each sector, ‘syndicates’ of the larger firms were formed. This movement spread rapidly from 1902, above all in industries dominated by foreign capital: Prodamet (1902) in the metallurgical industry; Prodvagon (1904) for railway carriages; and, Produgol (1906) for Donets coal are examples. By 1914 there were over 150 such organizations and they controlled not only mining and metallurgical sectors, but also certain branches of light industry like textiles and sugar.

Unlike similar organizations in Germany called ‘cartels’ with whom they are compared, they were loose associations concerned with holding prices and controlling competition in the branch of industry they represented. Their methods varied. Some took over the allocation of orders to save on transport and sales costs while others controlled terms of credit. The syndicates were usually sales agencies that rarely intervened to regulate output.

Industrialization continued at a slightly lower annual growth rate of about 6% from 1901 to 1914. The crisis of 190103 exposed the weakness of industrial policies based on state orders and railway construction since the industries producing consumer goods were less affected. Accordingly, in the pre-war years upto 1914, industrial capital proceeded at a slower pace and in an altered framework. The war with Japan in 1904-1905 and the Revolution of 1905-1907 strained the budget, as along with abolition of redemption payments and principle of joint responsibility for the payment of taxes. Railway construction proceeded at a slower rate and on a smaller scale.

In the Gershchenkron model, patterns of substitutions changed with banks rather than state playing a leading role in financing industry by tapping foreign investment but deploying it mainly now through Russian companies.

A fresh depression hit several industrial sectors in 1907-08. A slump in the production of coal, iron and steel, cotton goods and refined oil was accompanied by a fall in prices and rising unemployment.

10.10.3 The Growth Years of 1908-1913

All sources agree that last five years before the war, 1908-1913, were years of steady, even impressive, growth in both industry and agriculture. Russian industry again expanded at a rapid rate after 1908, aided to an extent by excess production capacity in factories established before 1900. Between 1908 and 1913, the output of pig-iron rose by 61%, that of coal by 73% and of iron and steel by 60%. This contributed to the output of large-scale industry rising, from 1908-13, at an annual average rate of more than 9% in current prices and more than 7% in the 1913 prices. These were impressive rates of growth, comparable to rate of growth of the 1890s, and far in excess of modest rates achieved between 1900 and 1907, when annual rate of growth barely exceeded 1.5%.

Agricultural output rose faster between 1905 and 1913 than it had between 1895 and 1905. This was based on an increase in the sown area, and higher grain yields, although yields still remained low in Russia. Grain prices, and those of other agricultural products, rose relative to the prices of industrial goods both on domestic and world markets. With grain exports raising too, the peasants were able to provide a greater market for domestic industry.

On eve of the First World War, output, investment, prices and profits all testified to rapid growth. The growth in output of heavy industry continued to affect all sectors. But the growth of output in consumer goods did not lag far behind. It was most marked in rubber, footwear, woolens, fats and some foodstuffs. Indeed, by 1913, it was not the basic industries, such as mining and metallurgy, that dominated industrial production so much as consumer goods. Even after three decades of industrialization by 1913, textiles and foodstuffs together accounted for about one-half of gross industrial production. This was twice as much as mining, metallurgy and engineering combined. The Stolypin Reforms (1905-1911), permitted the voluntary disbanding of the commune and abolition of joint land holding; joint responsibility for tax payments stimulated the growth of labour force and augmented real incomes of peasants. The increased volume of purchase of industrial items by them was reflected in the fact that the average rates of profit in light industry exceeded those in heavy industry.

10.10.4 Russia in 1914

In the last year before military hostilities disrupted economic activity, Russia remained predominantly an agrarian country. Agriculture claimed bulk of the population (more than 85% in rural areas), employment (67%) and national income (more than 70%) and the burdens of backwardness, poverty and illiteracy in Russia were essentially borne by the peasants.

Goldsmith has estimated that from 1860 to 1913, gross industrial production annually grew by about 5% (if both factory and craft industries are considered) and per capita production by about 3.5%. These were high rates of growth to maintain for half a century in that period of history. Russia's economic strength, however, remained her agricultural strength. It may be noted that agriculture was also the major economic sector where neither the state nor foreign capital were substantive entrepreneurs or even major suppliers of technology and inputs.

By 1914, Russia had a significant industrial sector which was not an 'enclave' as the modern sector in a colonized or contemporary underdeveloped economy tends to be. It was closely linked to the rest of the economy through market and fiscal systems. In fact, Russia possessed a 'dual' industrial sector, made up of large factories and small-scale peasant and artisan establishments. Even during the 1890s, according to Russian economist S.G. Strumilin, the value of small-scale industrial production may have doubled, compared with a tripling in large-scale manufacturing. This dual industrial sector, with a high proportion of rural-based manufacturing, testified to continued economic backwardness.

In international comparison Russia was still an underdeveloped country and this provides another indicator of the persistence of economic backwardness. Real income per head, the best simple overall measure of the level of economic development, in Russia in 1913 was only about one-third as high as in the United States or in Great Britain, the most developed industrial capitalist economies then, and about one-half as high as in Germany, in many ways Russia's economic mentor, example and rival.

Check Your Progress 4

1) What was Witte's strategy to compensate for delayed start to industrialization?

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2) What were the limitations of the industrial spurt of 1890s?

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3) What were the measures taken by 'Syndicates' to counter the industrial crisis in the beginning of the 20th century?

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4) By 1914 'what were the main features of the Russian industrial economy?

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10.11 LET US SUM UP

We have discussed in this Unit the growth of industrial capitalism in Europe between 1851 and 1914. In the process of industrialization a major role was played by the state which tried to mobilize a labour force, create uniform legislative measures, finance industry and create market for industrial products. Russia a latecomer in industrialization benefitted from the experience of other European countries. In Russia because of a limited market for consumer goods the main focus was on growth of heavy industry.

10.12 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) See Section 10.2. You can elaborate on the setting up of banking and credit facilities.

2) See Section 10.3. You can elaborate on how in spite of Alsace and Lorraine going to Germany industry maintained its ties across the border.

Check Your Progress 2

1) See Section 10.4

2) See Section 10.5

Check Your Progress 3

1) See Section 10.7

2) See Section 10.8

Check Your Progress 4

1) See Section 10.9

2) See Section 10.9

3) See Section 10.10

4) See Section 10.10