

UNDERSTANDING KOREA

5 ECONOMY



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1. Type of the Economy

The Democratic People's Republic of Korea is propped up by the planned economy which, on the basis of socialist ownership of the means of production, is operated by organically combining the state's unified guidance with individual enterprises' relative independence and creativity. It is a self-supporting national economy that stands on its own feet, progressing by dint of domestic efforts, materials and technology.

2. Planned Economy

Planned economy is a type of economy that develops in a planned and balanced way according to the unified strategy of a given state.

The state accelerates economic construction by ensuring a reasonable balance between accumulation and consumption in conformity with the laws governing the development of the socialist economy, and draws up and executes a national economic plan geared up to steadily improving the people's living standards.

This type of economy is based on socialist ownership of the means of production and collectivism.

3. Socialist Ownership of the Means of Production

Socialist ownership of the means of production means that the material elements for production are under the collective ownership of the socialist working people. In other words, it means that the material elements for production—means of labour and objects of labour—are under the public ownership of a social collective.

Within the state machinery of the DPRK, raw and other materials, land, production-related buildings, means of transport, posts and telecommunications, and all other means of production are placed under the collective ownership of the working people.

Socialist ownership of the means of production is a form of ownership that enables the working masses to become real masters of production and benefit from what has been produced.

This form of ownership can be divided into all-people ownership and cooperative ownership.

4. All-People Ownership and Cooperative Ownership

All-people ownership means the ownership by all the people of the means of production, and cooperative ownership is the public ownership of the means of

production within the bounds of a certain collective.

In the DPRK cooperative ownership holds the dominant position in the sector of the rural economy. As socialization of the means of production is confined to the individual cooperative economy in the sphere of cooperative ownership, products are distributed and used within the scope of the cooperative economy and the ownership is confined to those involved directly in the management of the cooperative economy. This indicates that cooperative ownership is a low-grade form of ownership as compared with all-people ownership.

Cooperative ownership is gradually converted into all-people ownership.

5. Necessity for the Conversion of Cooperative Ownership into All-People Ownership

Only when cooperative ownership is converted into all-people ownership, it is possible to eliminate the differences between the urban and rural areas, and between the working class and the peasantry, and achieve the complete victory of socialism.

To this end, the DPRK are pushing forward the three revolutions—ideological, technological and cultural—in the countryside and organically combining the two forms of ownership in the direction of constantly enhancing the

role of the leadership of all-people ownership over cooperative ownership.

6. Organic Combination of All-People Ownership with Cooperative Ownership

It is through the interaction between all-people ownership and cooperative ownership that the machinery, technology, advanced method of enterprise management and cultured production practices in the industrial sectors are introduced into the cooperative economy.

In the DPRK the two forms of ownership are being combined organically in the direction of cementing the direct relations of production between industry and agriculture and improving the role of the leadership of all-people ownership over cooperative ownership. The state directs concern to building up the national enterprises directly involved in the rural economy such as farming machine stations, irrigation stations, seed-selection farms, seed-processing stations, agricultural experiment stations, breeding stock farms, and veterinary and anti-epizootic stations. It also exercises unified control over these enterprises and induces them to take an active part in the agricultural production of the cooperative economy. It is solidifying their material and technological foundations and managing them in an

effective way, so as to steadily improve their role in developing the agricultural cooperative economy.

7. Planning of the National Economy

Reasonable balance is essential to the planning of the national economy. Balance should be established in such a way as to assure an increasingly high speed of economic development.

Planning is done by a scientific system and method. Unified and detailed planning is important in this respect.

8. Unified Planning

Unified planning means ensuring uniformity in planning under the coordinated direction of the state.

What is fundamental to unified planning is to set up a uniform planning system.

In the DPRK all organs and sections in relation to planning make up a uniform planning system under the unified guidance of the State Planning Commission.

This planning system makes it possible to effectuate the unified leadership of the ruling party and the state in each planning section, the basic unit of production, and combine leadership with the producer masses in planning.

9. Detailed Planning

Detailed planning means drawing up a specific, elaborate plan to dovetail the economic activities of all the sectors and units of the national economy to the finest detail.

The essential characteristics of detailed planning are that it is a scientific method of combining the overall development of the economy closely with the management activities of all factories and enterprises, and that it is a method of working out elaborate plans to meet the actual conditions of economic sectors, regions and enterprises.

Detailed planning makes it possible to eliminate the factors for imbalance and spontaneity in economic development and develop the country's economy smoothly at a high speed.

10. Advantage of the Planned Economy

The planned economy is advantageous in that it maximizes economic effectiveness by ensuring unified control of all economic potentialities available in the country and exploiting them under a unified plan.

11. Independent National Economy

An independent national economy is one that can stand on its own feet without being subordinated to

others.

During the anti-Japanese armed struggle Kim Il Sung advanced an idea of building an independent national economy in the **Ten-Point Programme of the Association for the Restoration of the Fatherland** (May 1936).

Immediately after the country's liberation (August 1945) he stressed that, in order to remove the after-effects of Japanese colonial rule and build a new Korea, it was vital to build an independent national economy on the principle of self-reliance, instead of seeking help from other countries, and wisely led the efforts to this end.

In the whole period of socialist construction the DPRK has adhered to the line of building an independent national economy.

12. Differences between Independent Economy and Closed Economy

An independent national economy is by no means a closed economy. In other words, it does not close the doors to other economies, nor does it rule out foreign trade. It is opposed to economic domination and subjugation of other countries, not to international economic cooperation.

It strives to promote a wide spectrum of relations and

cooperation with other economies, producing by itself what is vital and in large demand and obtaining what is lacking or in little demand or cannot be made domestically, through trading with other countries on the principle of filling each other's needs.

13. Key Aspects of the Independent National Economy

The key aspects of the independent national economy are the establishment of a multi-faceted and comprehensive structure of economic sectors; equipping of the national economy with modern technology; building up of domestic bases for raw materials, fuels and power; and management and operation of the economy by native technical personnel.

14. Viability of the Independent National Economy

In the post-liberation years the Korean people rehabilitated and developed the devastated economy in accordance with the line of building an independent national economy, though the Japanese imperialists claimed that they were not capable of doing so. During the Fatherland Liberation War (1950-1953) they filled wartime needs by themselves to win victory in the war. After the war the US imperialists claimed that the DPRK

would not rise up again even after 100 years, but the Korean people rehabilitated the national economy in two to three years. They carried out the task of industrialization in a matter of 14 years, to the admiration of the developed capitalist nations with a history of hundreds of years of industrialization. In spite of severest difficulties facing them in the 1990s, they succeeded in launching the country's first artificial earth satellite, which they manufactured by relying on their own efforts, technology and resources.

In recent years, despite harsh sanctions by imperialists, they have established a Juche-based system of producing iron, fibre and fertilizer, put many industrial establishments on a Juche-oriented and modern footing, and raised the fierce flames of industrial revolution in the new century to push back the frontiers of science and technology.

Today the DPRK's independent national economy is fully developed and equipped with modern technology, and boasts reliable bases for materials and fuels. It is progressing at a fast speed, unaffected by economic upheavals worldwide.

15. Economic Structure

The DPRK's economic structure is centred on the Cabinet.

The Cabinet adopts policies for the sectors of the national economy and guides the efforts for their implementation in a unified way.

16. Theory on Management of the Socialist Economy

The theory on management of the socialist economy consists of the fundamentals of socialist economic management, basic principles to be maintained in the management and operation of the socialist economy, and methods to this end.

The fundamentals of socialist economic management are to make the masses of the people the real masters of economic management, ie, to help the masses of the people to exercise their actual rights and perform their responsibility and role to the full as the masters of economic management.

The basic principles to be maintained in the management and operation of the socialist economy are proper combination of political guidance and economic and technological guidance, unified guidance of the state and the creative abilities of individual units, democracy and unitary supervision, and political and moral and material incentives, and gaining actual benefits to the maximum in economic work.

17. Tae'an Work System

Kim Il Sung created the Tae'an work system during his field guidance at the then Tae'an Electrical Machinery Plant in December 1961.

It is a people-centred system of economic management, whereby the masses of the people are the real masters of economic management, managing and operating the economy in a scientific and rational way under the collective guidance of the relevant committee of the Workers' Party of Korea; it is a type of socialist economic management that embodies the collectivist principle of "one for all and all for one."

With the establishment of this work system, the leadership of the Workers' Party of Korea over socialist economic management has been strengthened in a comprehensive way, all undertakings for economic management and operation conducted by relying on the great enthusiasm and creativity of the producer masses, and the objective economic laws and the requirements of production embodied to the letter.

18. Major Methods of Socialist Economic Management

The major methods of socialist economic management are political method, economic-technological method and administrative-organizational

method.

The political method in the sphere of socialist economic management is a method of organizing and inspiring the producer masses to the fulfilment of economic tasks by arousing their revolutionary enthusiasm and creative activeness.

The economic-technological method is a method of conducting economic-technological work scientifically and rationally in accordance with the objective economic laws and the scientific and technological requirements of production.

The administrative-organizational method is a method of mobilizing economic institutions and enterprises and their members by administrative ways and means, in an orderly fashion and through organizations.

19. Seed Essential to Improving Socialist Economic Management

The seed essential to improving socialist economic management is to adhere to socialist principles and ensure maximum actual benefits.

This means that the economy should be managed and operated in such a way as to accrue more substantial benefits to the people by enhancing the effectiveness of economic activities while thoroughly maintaining the

attitude of defending the interests of the masses of the people.

20. Line of Economic Construction in the Songun Era

The line of economic construction in the Songun era is to develop the defence industry on a priority basis while developing light industry and agriculture simultaneously, as demanded by the new era.

It is, in essence, the most revolutionary and people-oriented line to defend the dignity of the country and nation and safeguard socialism in a complex and tense situation, while at the same time providing the people with an abundant and cultured life.

21. Goal of Economic Development

The DPRK aims to become a socialist economic giant.

22. Definition of *Socialist Economic Giant*

The socialist economic giant the Korean people are building is a country that is strong in terms of its independence and Juche character and is developing with science and technology as the main productive force. A socialist economic giant precisely means a powerful country with a self-supporting economy, a

knowledge-based economy, which produces and supplies by itself the material means needed for defence building, economic construction and people's livelihood improvement, and in which science and technology are integrated with production and hi-tech industry plays the leading role in promoting economic growth.

23. Strategic Line of the Workers' Party of Korea for Building an Economic Giant

The WPK's strategic line for building an economic giant is to make the national economy Juche-oriented, modern, IT-based and scientific at a high level by maintaining the spirit of self-reliance and self-development and by relying on science and technology, and to provide the people with affluent and cultured living conditions.

24. Essential Characteristics of a Socialist Economic Giant

The genuine features and essential characteristics of a socialist economic giant are not just that the country is highly developed in terms of productivity and national income; it must also be a people's paradise which provides its people with an affluent and cultured life.

25. Objective of the Five-Year Strategy for National Economic Development

At present the DPRK are implementing the five-year strategy for national economic development from 2016 to 2020.

The objective of this strategy is to lay the foundations for the sustainable development of the country's economy by reenergizing the overall national economy and ensuring a balance among economic sectors.

In this period the DPRK plans to improve the people's living standards drastically by normalizing the vanguard sectors of the national economy, the basic industries, and boosting agricultural and light industrial production, while holding fast to the WPK's new line of simultaneously promoting economic construction and the upbuilding of the nuclear forces, and resolving the energy problem.

26. Industrial Infrastructure

The DPRK's industrial infrastructure has been designed to develop all sectors in parallel with the main emphasis on heavy industry.

Heavy industry comprises mining industry including the extraction of coal and mineral deposits and other sectors involved in the initial processes of production, electric power industry, and processing industry such as

metallurgical, machine-building and chemical sectors.

Light industry includes textile, garment, footwear, foodstuff and daily necessities sectors.

27. Priority Given to Heavy Industry

The DPRK lays great stress on developing heavy industry, taking into account its position and role and the country's specific conditions.

According to the basic line of socialist economic construction it has maintained the principle of giving priority to the development of heavy industry, concentrating funds, materials, equipment and labour on it.

It adheres to the line of building a self-supporting, modern heavy industry, the policy of properly combining rehabilitation, renovation and new construction, and the policy of developing heavy industry not for its own sake but in such a way as to render substantial services to developing light industry and the rural economy.

It has built up the material and technological foundations of a self-supporting heavy industry centred on machine-building industry.

28. Extractive Industry

The DPRK set it as the general direction for the development of extractive industry to build up raw-

material and fuel bases by giving definite precedence to extractive industry over processing industry, and it has followed it consistently.

It adopted reasonable policies according to this general direction and is carrying them out to the letter: maintaining the principle of prioritizing geological prospecting, conducting the technological revolution and stepping up scientific research; concentrating investment on coal and other mines with large deposits and favourable extracting conditions, and developing large-, medium- and small-size mines while renovating and expanding the existing ones; giving precedence to construction of pits, tunnelling and removal of overburden, introducing large, modern and high-speed mining equipment, extracting, transporting and processing in large quantities, and using cableways, conveyors and pipelines in transport.

29. Underground Resources

The DPRK is abundant in underground resources—iron ores and other ferrous minerals; gold, silver, lead, zinc and other nonferrous minerals; raw materials and fuels for industry including magnesite, limestone, talc, kaolin and other nonmetallic minerals; and anthracite, lignite and other coal reserves. Graphite, magnesite and some other minerals are among the world's largest.

The DPRK's minerals are widely known for their variety and plenitude; they are deposited in thousands of places and their kinds total more than a hundred. Few small countries have such a wide variety and large quantity of mineral deposits.

The DPRK's minerals are also noted for their high density per unit area and country-wide distribution.

According to an American investment bank report, the DPRK has about USD 3.7 trillion's worth of mineral deposits. *Le Monde* estimated them at USD 6 trillion. Reuters noted that the DPRK has an abundance of coal reserves, in addition to such minerals as magnesite, limestone, uranium, gold, lead, manganese and copper.

30. Construction of Mines

The DPRK has maintained it as its basic mining policy to build up the mineral production bases in the country and give precedence to mining industry over processing industry.

Prospecting is extensively carried on to build new mines and the projects for renovating the existing mines are well under way.

Due concern is paid to comprehensive mechanization of mining work, introduction of large, modern and high-speed equipment, and use of various means of transport.

Today the mining sector is striving hard to attain higher production goals, developing the depths and vicinity of the extracting areas at large mines, securing pits for mass extraction, accelerating the construction projects to boost transport, speeding up the compressive mechanization of the mineral production lines and pushing forward the projects for putting the production lines on an automatic and IT basis.

31. Important Mines

The DPRK's important mines include the Musan Mining Complex, Komdok Mining Complex, March 5 Youth Mine and Ryongchon Mine.

The Musan Mining Complex, an open-air iron ore mine, has put mining, conveying, ore-dressing and all other lines on a mechanized and modern footing.

The Komdok Mining Complex has built nonferrous metallic mineral production bases in different areas to boost the output of useful minerals.

The Ryongchon Mine under the General Bureau of the Tanchon Area Mining Industry has been spruced up. Its newly-built ore-dressing plant has well-equipped lines for crushing, grinding, flotation and other purposes. It prioritizes long-term prospecting and strives to increase its extracting capacity.

32. Coal-Mining Industry

The DPRK is very rich in coal.

Though with some regional variations, coal reserves are found in all provinces. Their distribution has some characteristics; bituminous coal is mostly present in the northeastern part of the country, anthracite in the central part, and bituminous coal and ultraanthracite in the western part.

The coal-mining industry concentrates investment on mines with rich deposits and favourable conditions for mining, and conducts a dynamic campaign for increased production so as to satisfy the growing demand of the national economy for coal. Coal mines introduce more efficient mining methods, and strive to realize the comprehensive mechanization of pit work, diversify transport and improve coal dressing processes so as to supply high-quality coal to consumers. Precedence is given to prospecting and tunnelling aimed at identifying more coal reserves that can be exploited and at developing new coal mines and pits on a large scale.

33. Big Coalfields

The DPRK has big coalfields in the northern and southern parts of North Hamgyong and South Phyongan provinces, in Anju and in the Kowon-

Munchon area.

The coalfield in the northern part of North Hamgyong Province produces millions of tons of bituminous coal on a yearly basis, the biggest of its kind in the country.

Bituminous coal is also produced at the many coal mines of varying sizes in the southern part of North Hamgyong Province.

Anthracite from the coalfield in the southern part of South Phyongan Province is mostly dust coal, not stone coal. For its high quality it is primarily used for the ferrous metallurgical, fuel and power industries.

The coalfield in the northern part of South Phyongan Province is the largest in the country, which comprises a number of coal mines of varying sizes—Sinchang Coal Mine, Songnam Youth Coal Mine, Kaechon Coal Mine and Joyang Coal Mine.

The coalfield in Anju has huge deposits of lignite.

One of the country's biggest coal producers, it is located in the economic heartland.

The coalfield in the Kowon-Munchon area with big reserves of anthracite is in the eastern part of the country. As it adjoins an important industrial region, it occupies a significant position in developing chemical, fuel and power industries and improving the people's living standards.

34. Electric-Power Industry

The DPRK maintains it as the basic direction for the development of its electric power industry to build up the country's independent and modern power production bases and give definite priority to electric power industry over all other sectors of the national economy.

The electric-power industry adjusts and improves the defective production processes and facilities at power stations and steps up their technical upgrading so as to raise the efficiency of generating equipment, ensure their operation at full capacity and lower power generation costs systematically.

The state takes steps to provide the equipment, materials and funds needed by this sector on a preferential basis.

In order to make effective use of the electricity that is produced, a nationwide integrated power control system has been established and operated effectively, and alternated production organized on a rational basis. The power transmission and supply network is upgraded, the voltage step heightened and power-factor improved to ensure minimum loss of electricity in transmission. The transmission system is gradually being converted to a flexible alternating current system.

Due concern is paid to developing on an extensive scale electricity production bases that rely on power

sources that are abundant in the country.

Proactive efforts are made to complete ahead of schedule the power stations that are now under construction and build the large-scale Tanchon Power Station as soon as possible, with work on the atomic power plant pushed ahead at the same time, so as to open up prospects for settling the electricity problem. Provinces, cities and counties endeavour to build small- and medium-scale power stations where practicable and ensure their steady operation.

35. Tapping of Renewable Energy Sources

The DPRK has conditions favourable for the development of solar and wind power. The vast expanse of tideland in the west coast offers a promising prospect for the development of wind power. The Great Paektu Mountains run from north to south, dividing the eastern and western coastal regions; because of variations in air pressure, the wind blows hard constantly.

Geothermal energy sources are abundant in the country. Efforts are made to boost the amount of electricity generated from wind and tidal power and from biomass and solar energy, and consistently expand the scope of the use of renewable energy. Geothermal energy is used for the cooling and heating system at the existing and new buildings.

36. Metallurgical Industry

The DPRK maintains metallurgical industry as an important link in the whole chain of reenergizing the national economy and satisfies the domestic demand for metallic materials.

It has brought about a radical turn in developing the metallurgical industry by relying on domestic resources. The Juche-based iron production system has been set up at several iron and steel plants; remarkable advances have been made in developing and introducing methods of producing iron with domestic fuel.

The metallurgical industry improves the level of technical equipment for its iron- and steel-making and rolling processes and takes steps to supply raw materials, fuel and power so that iron and steel production can be increased. It expands the production capacity at iron-ore mines and builds up the production bases for electrodes, ferro-alloys and refractories in order to further consolidate its material and technical foundations. It also improves the technical and economic indices of iron and steel production and increases the variety of alloy steel and standardized steel by relying on advanced technology, in keeping with the modern trend of development of the metallurgical industry.

37. Juche-Based System of Producing Iron

The DPRK has no deposits of coking coal so it has since long ago carried on research to produce iron by relying on its own materials and technology.

The Songjin Steel Complex has succeeded in developing a Juche-based system of making iron without using coking coal, by connecting the rotary furnace to the oxygen-blast furnace, thus effecting a turnaround in the country's metallurgical industry.

It is an innovative system whereby the iron- and steel-making processes have been integrated to turn out steel without cooling molten iron throughout those processes.

38. Important Metallurgical Bases

The DPRK's important metallurgical bases include the Chollima Steel Complex, Kim Chaek Iron and Steel Complex, Hwanghae Iron and Steel Complex, Songjin Steel Complex and Tanchon Smeltery.

Recently, these industrial establishments are upgrading their production lines and equipment on the basis of modern technology, CNC technology in particular.

The Chollima Steel Complex has built several UHP electric arc furnaces and multielement alloy steel production shops. It has also completed the renovation of

the rotary furnace No. 3 at the Posan Iron Works and set up oxygen plant with a capacity of 550 cubic metres.

The Kim Chaek Iron and Steel Complex has established a new steel plate production system by introducing a high-temperature air combustion furnace and reactive power compensation device.

39. Machine-Building Industry

The machine-building industry has been the core of the DPRK's heavy industry.

The basic direction of its development is to build a self-supporting, modern machine-building industry that is developed in an all-round way, fed by locally available raw and other materials, and equipped with advanced technology, so as to meet all other economic sectors' demand for modern machinery.

Strenuous efforts are being made for the technological upgrading of heavy-industry equipment including machine tools, precision machines, extractive machines and power-generating machines, light-industry equipment including textile and foodstuff-processing machines, and means of transport including trucks and ships.

The machine-building industry strives to equip itself with cutting-edge facilities, upgrade its production lines by improving the performance of existing machinery and

equipment and forming flexible manufacturing cells, and resolve the problem of measuring equipment and tools. On the basis of the latest advances in machine-building technology it designs and manufactures modern, new-type machines of the international standard and launches serial production of them.

40. Shipbuilding

For the sea-girt DPRK, shipbuilding is critical in developing fishing, marine transport and foreign trade. It is also important in laying the material and technological foundations for carrying out grand nature-remaking projects such as reclamation of tideland and improvement of the rivers and streams.

Now it has been developed into a self-supporting, modern industry that relies on domestic efforts, technology and materials, and can build various sizes of vessels needed for economic sectors.

41. Chemical Industry

The basic direction for the growth of the chemical industry is to establish a production structure in which all sectors of inorganic and organic chemistry have been developed harmoniously on the basis of domestic materials and equipped with modern technology.

Close concern is paid to ensuring organic

combination of and reasonable balance between the sectors of the chemical industry—inorganic chemistry, organic chemistry, high polymer chemistry, fine organic chemistry, etc., and to developing new branches of the industry as required by the present era. Priority is given to resolving the problems of raw materials, fuels and food in line with global economic trends. Due attention is directed to producing vinalon, nitrogenous fertilizer, bioactive fertilizer and high-concentration compound fertilizer.

The chemical industry carries out regular adjustments and maintenance of its production equipment and systems, builds up its production capacity and ensures the domestic production of catalysts so as to normalize the production of fertilizer and vinalon based on Korean methods and basic chemical products. It presses ahead with its technical upgrading in the direction of reducing power consumption and removing pollution, and builds new chemical goods production bases fed by local resources under a long-term plan. In the period of implementing the five-year strategy, it strives to establish a C1 chemical industry based on coal gasification, create a carbonization process using brown coal, and perfect the sodium carbonate industry whose starting material is glauberite. In this way it ensures that the production of such chemical goods as methanol,

synthetic fuel and synthetic resin is placed on a highly Juche-oriented basis.

42. Vinalon

Vinalon is synthetic fibre made from polyvinyl alcohol. Dr. Ri Sung Gi (1905-1996) invented it in the 1930s.

Carbide is essential to vinalon production. It is made from limestone and anthracite, which are abundant in the DPRK.

Vinalon cotton is whitish and gleaming. The cloth is durable, warm and, especially, hygroscopic as compared with other synthetic fabrics. It is also very resistant to acid, alkali and microorganisms including mould.

The February 8 Vinalon Complex produces over 400 kinds of chemical products—vinalon cotton, inorganic and organic chemicals, high polymer chemicals, fine organic chemicals, vinalon intermediate, sodium hydroxide, vinyl chloride, vinyl acetate, hydrochloric acid, catalysts, herbicides, insecticides, dyes, etc.

43. Recent Advances in Chemical Industry

In recent years the DPRK's chemical industry has made notable progress in establishing the Juche orientation and upgrading the production lines on the basis of frontier science and technology.

The February 8 Vinalon Complex has introduced

CNC technology in line with the requirements of the IT era, thus developing into a chemical giant that turns out inorganic chemicals, organic chemicals, high polymer chemicals and fine organic chemicals.

The Namhung Youth Chemical Complex has established a large-scale anthracite gasification process up to the latest standards and mass-produces nitrogenous fertilizer by relying on the materials abundant in the country. With the development of DCS, an advanced level of automatic control system for chemical processes, the fertilizer industry has gone beyond the cutting edge, and the prospects become bright for the introduction of a computer-controlled integrated manufacturing system in big chemical plants.

The Hungnam Fertilizer Complex has completed the project for the first-stage process of lignite gasification.

Large chemical plants maintain regular production of intermediate and basic chemical goods.

Asbestos cloth and sodium carbonate production bases have been built, the Kwangmyongsong Salt Works and Wonsan Salt Works in the east coast, and salt refineries in coastal provinces.

The existing tyre factories are being upgraded and new ones built.

Modern organomineral fertilizer and microbial compound fertilizer factories have sprung up.

44. Building-Materials Industry

The DPRK's key policy in developing the building-materials industry is to make it self-supporting and modern and keep building-materials production in step with capital construction.

The building-materials industry makes efforts to modernize its factories and enterprises, ensure both the specialized and traditional production of goods, and make the most of the latest technical advances, so as to diversify the types and range of building materials and produce them domestically.

The Sangwon Cement Complex, Sunchon Cement Complex and other big cement producers satisfy the domestic demand, giving a strong impetus to construction projects going on across the country. Technological upgrading of the production bases is promoted to meet the growing demand for metallic and chemical materials, synthetic resin products, building stones, fittings, furniture, prefab parts and other finishing materials and ceramics.

The natural building stones, tiles, glassware and other fittings and fixtures from the Aeguk Stone Processing Factory, Chollima Tile Factory and Taean Friendship Glass Factory are used to decorate buildings in line with the demands of the times and modern aesthetic standards.

45. Light Industry

Light industry is a major thrust of the effort to build an economic giant and improve the people's standard of living.

Building a Juche-oriented, modern light industry is the DPRK's consistent policy.

The large-scale central industry and the medium- and small-sized local industry are developed in parallel. To this end, modern, big factories have been built up as the backbone of light industry and their role enhanced steadily, while medium- and small-sized local industry factories are being upgraded.

Close concern is directed to building up factories as models in the era of the knowledge economy, rely on locally available raw and other materials, and boost production so as to satisfy the people's demands for consumer goods. Efforts are channelled into developing new products and improving quality so as to produce a variety of international-standard light industrial goods in larger quantities.

46. Central Tasks Facing Light Industry

The central tasks facing light industry at present are to build up its factories as models in the era of the knowledge economy, rely on locally available raw and other materials, and boost production so as to satisfy the

people's demands for consumer goods; to develop new products and improve quality so as to produce a variety of international-standard light industrial goods in larger quantities; and to encourage local areas to organize their work scrupulously so that they manage their economy by their own efforts and develop it in a unique way.

47. Textile Industry

Given the limited area of arable land and low yields of cotton, the DPRK has consolidated the Juche-based fibre production system. It has also built a number of modern, big textile mills, as well as medium- and small-sized fabric plants in provinces, and stepped up their technological upgrading to perfect the infrastructure of the textile industry and the production stages and lines. A dynamic campaign is carried on to update the textile industry and improve the qualitative composition of cloth.

Most recently, the Pyongyang Kim Jong Suk Textile Mill has set up a polyester rayon yarn shop and the Sinuiju Textile Mill a knitting shop. The Nyongbyon Silk Mill has developed a mercerized ramie production system and adopted a method of making *yaksan* silk (a kind of figured satin) from a new source of materials to double the output of silk. Textile mills in different parts of the country have introduced a technology of making suit cloth with elastic staff looms.

48. Garment Industry

The material and technological foundations of the garment industry have been laid solid; hundreds of clothing factories are scattered around the country.

Clothes production has been put on a specialized footing; there are factories that specialize in making children's, women's and men's clothes. Clothing factories press on with the upgrading of their technical equipment and strive to achieve self-sufficiency in production.

Various forms and methods have been introduced to generalize new costume designs, while intensifying research into clothes to meet modern aesthetic tastes.

49. Footwear Industry

The DPRK's footwear industry satisfies the domestic demand by relying on locally available materials and modern technology. It produces a varied assortment of shoes as suited to the people's lifestyle and economic activities and the country's climatic conditions.

Recently, the Wonsan Footwear Factory has been renovated into a model and yardstick of the footwear industry in line with the requirements of the new century. It has put its business operation and production lines on a highly modern and IT footing, saving labour and materials, reducing cost, boosting output and

improving quality. It has intensified research to diversify its products in terms of kind, shape and colour, and developed new designs according to the seasons, ages and gender. Children's fur shoes, women's summer shoes, university students' leather shoes and other products enjoy popularity among customers for their light weight, latest designs and high quality.

50. Foodstuff Industry

The DPRK makes effort to establish the Juche orientation in the foodstuff industry to ensure that it depends on domestic materials and meets the requirements of the people's dietary life.

The foundations of the foodstuff industry have been solidified by keeping the development of the large-scale foodstuff industry in parallel with that of the medium- and small-scale foodstuff-processing industry. Raw-materials bases have been built up to increase the output of foodstuffs by using the materials abundant in the country, and close concern is directed to mass-producing essential and subsidiary foodstuffs and ensuring their better quality.

The principle of making production proportional to consumption with the county as a unit has been maintained to build up the foodstuff factories that contribute to improving the county residents' dietary life

and equip their production lines with modern machinery.

The Pyongyang Wheat Flour Processing Factory has renovated the buildings of several workshops introduced CNC technology in the production lines and made them germ-free. The Pyongyang Cornstarch Factory has updated all its production lines ranging from the input of raw materials to packaging. The Sonhung Foodstuff Factory, Susongchon General Foodstuff Factory, Kangso Mineral Water Factory and other foodstuff producers and speciality-processing plants pay off.

The Changsong Foodstuff Factory, a locally-run factory, has built a supercritical extraction line in a modern fashion.

51. Daily-Necessities Industry

The DPRK makes great efforts to produce plenty of high-quality, useful goods by developing the daily-necessities industry.

It has developed large-scale central industry and medium- and small-scale local industry in parallel, tapping domestic materials to the full to increase the variety of daily necessities and improve their quality.

52. Local Industry

The DPRK has since long ago kept it as an important principle of socialist economic construction to develop

central industry and local industry in parallel.

Changsong County in North Phyongan Province was transformed into a model unit of local industry. On the basis of the achievements made in the county, locally-run factories mushroomed and sideline production gained momentum; mountainous regions made good use of mountains, coastal regions utilized coasts effectively.

With the growth of local industry the urban-rural gap has been narrowed and all the regions of the country developed evenly.

53. Electronics Industry

The DPRK's electronics industry has a perfect infrastructure composed of materials, elements, hardware and other production sectors. It is supported by the bases for the designing and manufacturing of the latest microchips.

Its priorities include consolidating the existing electronics-industry bases, manufacturing state-of-the-art hardware and ensuring their best quality, and developing electronic devices with new characteristics and functions. Particular emphasis is put on developing superpure metals and reagents, precision alloys, and other basic materials of electronic devices by means of domestic resources and technology, and on adopting latest materials-processing technology. High-quality and

modern electronic goods for household use are mass-produced to enrich the people's cultural life.

54. Agriculture

The DPRK's agriculture was extricated from centuries-old backwardness. Now, along with industry, it constitutes one of the major components of the national economy.

Recently the country has made significant progress in agricultural production and the development of agricultural science and technology: arranging crops and their strains on the principle of sowing the right crop on the right soil and cultivating the right crop in the right season, as demanded by the Juche farming method, and manuring and cultivating them in a scientific and technological way; developing high-yielding, superior seeds; carrying out large-scale land-realignment projects and attaining a high level of irrigation in the rural economy; promoting potato, soybean and double cropping extensively; encouraging organic farming and establishing food production cycle; putting all the processes of the rural economy on an industrial and modern footing by introducing the latest advances in science and technology.

The state makes constant efforts to develop agriculture and increases investment in this sector.

55. New Agricultural Guidance System

In early 1962 Kim Il Sung had a cooperative farm management committee set up in every county, and then a rural economy committee in every province, thereby establishing a well-knit national system of agricultural guidance from the centre to the lowest levels.

The new agricultural guidance system centred on the county cooperative farm management committee, makes it possible to ensure industrial guidance over the socialist rural economy.

The county cooperative farm management committee exercises unified control over agro-technicians, farming machine stations, farming implements factories, irrigation management stations and other state-owned enterprises in the service of the rural economy, and gives on-site direction and guidance over the business operation of cooperative farms. It also performs the function of both directing cooperative farms and bringing the state's material and technological assistance to the rural economy.

56. Sub-Workteam Management System

Kim Il Sung created a sub-workteam management system during his field guidance at the Phochon Cooperative Farm, Hoeyang County, Kangwon Province, in May 1965.

Under this system manpower and various means of production are fixed for each sub-workteam, which is the lowest unit of production and manpower organization at a cooperative farm and the cell of a collective life. The quota is defined for each sub-workteam and the work-points of its members are assessed according to the results of their work done, before determining the share of distribution.

The system is a form of production organization and management that enables farmers to take an active part in the production and management with a feeling of attachment to the collective economy and an attitude befitting masters.

The plot responsibility system that has recently been instituted according to the sub-workteam management system pays off as it enables farmers to have a higher degree of consciousness of being masters of the land who are responsible for the country's cereals production.

57. Juche Farming Method

The Juche farming method created by Kim Il Sung is geared to doing farming in a scientific and technological way as suited to the climate and soil of the country and the biological features of agricultural crops, and to making agricultural production highly intensive on the basis of modern science and technology.

The fundamental requirement of this method is to

arrange crops and their strains according to the geographical characteristics on the principle of sowing the right crop on the right soil and cultivating the right crop in the right season, manure and cultivate them in a scientific and technological way, ensure accuracy in the number of seedlings in a cluster and the number of clusters per *phyong*, and attain high and stable yields by making effective use of the fields, water, farming machinery, fertilizer and other means of production.

58. Seed Revolution

The DPRK's agricultural sector is putting great emphasis on breeding good seeds that are suitable to the local climate and soil, those capable of yielding abundantly while demanding less fertilizer and shorter growth period and withstanding the cold, and of resisting pests and natural calamities such as drought, rainstorm and biting cold. Due concern is directed to importing high-yielding seeds from other countries.

In addition to crop cultivation, all other sectors of the rural economy such as animal husbandry, fruit farming and sericulture carry on the seed revolution.

According to the well-regulated national seed-selecting system, seed research institutes develop the first filial generation and other superior seeds and supply them to cooperative farms across the country.

59. Agricultural Science and Technology

The DPRK set it as the major task for developing its agricultural science and technology to realize comprehensive mechanization of the rural economy, find proper solutions to the problems that arise in the research to develop agriculture, and radically raise the scientific and technological level of agricultural workers.

Amid the dynamic campaign to develop agricultural science and technology, the mechanization and chemicalization of the rural economy have been promoted, many scientific and technological problems arising in agricultural production resolved, and the scientific and technological level of farmers improved. Latest models of tractors and other high-performance farming machines have been supplied, and advanced farming techniques and methods introduced in the farms all over the country.

Among the models of scientific farming are the Migok Cooperative Farm in Sariwon, Sinam Cooperative Farm in Ryongchon County, Samjigang Cooperative Farm in Jaeryong County and Tongbong Cooperative Farm in Hamju County.

60. Land Realignment

The DPRK pushed ahead with land realignment as a grand nature-harnessing project and a patriotic work of

everlasting importance to increase agricultural production by obtaining new land, free farmers from hard labour by realizing comprehensive mechanization of the rural economy, eliminate once and for all the remnants of feudal land ownership, and hand over to posterity the land transformed as befits that of socialist Korea.

Kim Jong Il decided to launch land realignment in Kangwon Province, which was lagging behind other provinces in this regard and had unfavourable working conditions, and generalize the experience to transform the landscape of the country.

In hearty response to his appeal all the people turned out in the land realignment projects, with the result that in a few years hundreds of thousands of hectares of paddy and non-paddy fields were repartitioned into large standardized plots as befits the land of the socialist state.

61. Irrigation Network

Large-scale irrigation systems, including the Phyongnam, Kiyang, Amnokgang, Sohungbo and Singye irrigation systems, ramify throughout the country.

These irrigation systems cover all the paddy and non-paddy fields in both lowland and highland regions. Major irrigation systems have been interconnected in a circular way. Pumping-up irrigation systems, or gravitational waterways where appropriate, have been

built according to the regional characteristics.

At first irrigation systems were built separately in the regions and then connected with one another to form a loop.

In the new century the Kaechon-Lake Thaesong, Paengma-Cholsan, Miru Plain and other large-scale gravitational waterways have been built one after another. As a result, the country's irrigation network has been developed to a higher level.

62. Gravitational Waterways

Gravitational waterways are built on the basis of the physical property of water that flows downward. The completion of gravitational waterway projects in the DPRK marks a new milestone in its irrigation history.

Typical of them are the Kaechon-Lake Thaesong, Paengma-Cholsan and Miru Plain waterways.

The Kaechon-Lake Thaesong Waterway, built in 2002, flows along the 150-odd-km channel with a 23m difference in elevation, irrigating more than a hundred thousand hectares of paddy and non-paddy fields in 15 towns, counties and districts of South Phyongan Province, including Pyongyang and Nampho.

The total length of the gravitational waterways in the country is thousands of *ri* (ten *ri* equals 4km).

Now a large waterway in South Hwanghae Province

and another connecting the irrigation network in South Phyongan Province with the Chongchon River are being built. The completion of these projects will signify the full establishment of the gravitational waterway system for the fertile farmland along the west coast, which has a large share in the country's cereals production. In other provinces, towns and counties they are striving to build gravitational waterways of varying lengths in conformity with their local conditions.

63. Tideland Reclamation

The DPRK has a limited area of land under cultivation as mountains constitute nearly 80% of its territory.

Tideland reclamation is crucial in expanding the area of arable land.

As early as the 1980s, the state worked out a plan for reclaiming hundreds of thousands of hectares of tideland, transforming into fertile fields the Tasado, Kwaksan (first stage), Sokhwa and other tidelands with favourable conditions on the west coast.

Reclaimed in 2010 was the Taegyedo tideland the size of a county. The project was the biggest of its kind in the country.

Now under way are the Kwaksan (second stage), Ryongmaedo, Honggondo and several other tideland reclamation projects.

64. Taegyedo Tideland

The Taegyedo project reclaiming 8 800 hectares of tidal flat, the biggest of its kind in the country, was finished in July 2010.

As a result, several islands scattered on the west coast were linked by a dam tens of kilometres long and the meandering coastline was shortened remarkably, redrawing the country's map.

Now the tideland has become a comprehensive agricultural base, rendering a tangible contribution to improving the people's standard of living—a vast expanse of crop cultivation area, fish farm covering an area of 100 hectares, salt works, modernly-equipped duck and oyster farms, and ponds teeming with flatfish and other species.

65. Organic Farming

The Korean Association for the Development of Organic Agriculture works according to the Law of the Democratic People's Republic of Korea on Organic Industry. Microbial compound fertilizer factories number several hundreds, and organic fertilizer factories are in Sukchon County, South Phyongan Province, and other parts of the country. The organic compound fertilizer factory in Pyongyang depends on the mud from the Pothong River. Model units have been set up in some farms for the purpose of establishing an organic farming

system and introducing advanced technology, and modern livestock farms built in different parts. This has resulted in the establishment of a food production cycle.

The methods of using mud snails in growing rice and introducing biological pesticide and other substances have been applied in cultivating and manuring the crops, thus strengthening pest control, saving manpower and boosting productivity.

The DPRK is promoting cooperation and exchange with relevant international organizations. It acceded to the IFOAM in 2005 and is carrying on the project of building a bridge for the diffusion of knowledge about organic farming and increasing the capacity for the development of organic farming.

66. Crop Cultivation

The DPRK has brought about a fresh turn in crop cultivation by applying the Juche farming method to the letter.

It lays special emphasis on effecting the seed revolution, encouraging the double cropping based on the principle of grain with grain and making a radical improvement in potato and soybean farming.

67. Vegetable Growing

The DPRK pays close concern to supplying the

people with plenty of fresh vegetables all the year round.

There are many vegetable farms and workteams around cities and workers' districts.

The fields for vegetable growing have been selected on the principle of sowing the right crop on the right soil and cultivating the right crop in the right season, and high-yielding seeds, appropriate watering systems, cultivation on terraces and multiple cropping have been introduced to meet the demand according to different seasons.

Taking seasonal characteristics into account, appropriate crops are selected to ensure sustained production, while hotbed and greenhouse cultivation is encouraged by radically increasing the number of modernly-equipped greenhouses.

Arched or adobe greenhouses covered with PVC sheeting, solar-heated greenhouses with a food production cycle and many other models of greenhouses have been built to ensure a high level of scientific and intensive cultivation.

68. Mushroom Production

It is an important policy of the DPRK government to provide the people with adequate amounts of tasty, nutritious mushrooms by putting mushroom production on an industrial and scientific footing.

Close attention has been directed to the research into mushroom cultivation. The Central Mushroom Institute has been newly built under the State Academy of Sciences to distribute original spores and cultivation techniques across the country. Modern mushroom farms have been built in Pyongyang and every province. Also, individual families grow mushrooms to improve their standard of living.

69. Industrial Crop Farming

The DPRK pays due concern to industrial crop farming, while focusing on cereals production.

In order to meet the demand for raw materials of light industry industrial crops are planted intensively on the right soil, and fibre and oil-bearing crops are cultivated extensively, as well as crops for luxury items, medical use and other purposes.

Efforts are made to estimate the demand for each crop, fix the area suitable for its cultivation and the volume of production there, and to put production on a specialized, intensive basis by forming separate workteams and sub-workteams.

Such oil-bearing crops as perilla, sesame, sunflower and rape are sown on idle land, or sometimes arable land, and tended with care to increase their per-hectare yields.

70. Livestock Farming

The livestock farming sector strives to solve the problem of domestic breeds and their feed, rear them scientifically, and adopt comprehensive anti-epizootic measures so as to boost livestock production. A mass drive is being conducted to raise grass-eating domestic animals, and collective livestock farming developed at cooperative farms and individual livestock farming in rural households, so that every place seethes with livestock farming.

The Youth Goat Farm in Hamhung, Unjong Livestock Cooperative Farm in North Hwanghae Province, Kyenam Livestock Farm in South Hwanghae Province and other farms have been laid out as model units in livestock farming, and the successes and experiences gained in their work are being generalized across the country. Production is increasing at the Kanggye Chicken Farm and other modern livestock farms.

They have laid solid foundations for radically increasing the number of livestock by introducing advanced rearing techniques, resolving many scientific and technological problems, improving veterinary and anti-epizootic work, and boosting the output of nutritious, high-yielding crops for animal fodder.

Ostrich farming is in full swing.

The Sepho area is being turned into a large-scale livestock farming base.

71. Pomiculture

The DPRK has newly set up a mechanism for the guidance of the fruit-growing sector and increases state investment in it to put production on a specialized, intensive footing.

Orchards of varying sizes have been built in large numbers, and dwarf apple trees and other good species arranged properly to boost the output. The processing and storage facilities have been updated to ensure enough supply of tasty, nutritious fruits and their processed products for the people.

Following the construction of the Taedonggang Combined Fruit Farm in Pyongyang, the material and technological foundations of the fruit farms in Kwait County, Pukchong County and other regions have been cemented, so that they can produce dozens of tons per hectare.

Recently, Kosan in Kangwon Province is being turned into a modern combined fruit farm.

72. Sericulture

The DPRK has consolidated the foundations for putting cocoon production on a highly specialized,

intensive and modern footing—a vast expanse of mulberry fields and modern sericultural facilities in the regions with favourable conditions, and breeding new species of mulberries and silkworms.

The per-hectare yield of cocoons is rising at many farms including the Manpho Cocoon Farm in Jagang Province, Osan Cooperative Farm in Jongju, North Phyongan Province, and Sahyon Cooperative Farm in Kumya County, South Hamgyong Province.

73. Fishing Industry

The DPRK has followed the direction of developing the fishing industry in an all round way and putting it on a Juche-oriented, modern and scientific footing.

As a result, fishing, inshore aquaculture and freshwater fish farming have been developed in equal measure, and the production and processing of seafoods combined closely to ensure balanced development of the relevant sectors and improve the structure of production. With the consolidation of the material and technological foundations at the fishing implement factories, ship repair bases, fishing machine plants and fishing research institutes, fishing, processing and aquaculture have been put on a highly modern and scientific footing.

The productive forces of the fishing industry have been arranged on the principle of ensuring regional

balance, making effective use of the fisheries on the east and west coasts, and developing the production and processing of seafoods in a comprehensive way. This has provided a sure guarantee for the full development of the fishing industry.

Fishing units upgrade their boats and equipment, introduce cutting-edge science and technology in establishing a perfect system of weather forecasting, command at sea, fish processing, equipment and power monitoring and ship repair, and endeavour to catch fish all the year round, so as to land the biggest possible hauls.

74. Fishing

The DPRK develops in parallel deep-sea and inshore fishing, and large-, medium- and small-scale fishing to expand the scope of the fishing area, increase the number of days when the vessels are out fishing and thus maintain a big catch in all seasons.

There is an enterprise that specializes in fishing in and around the northwestern Pacific Ocean, in addition to fishing fleets accompanied by factory ships.

Inshore fishing is done by many fishing stations and fishermen's cooperatives, as well as the cooperative farms, organs and enterprises in the coastal regions.

State-owned small-scale fishing stations, fishermen's cooperatives and the fishing workteams of cooperative

farms strive hard in all seasons to press on with small-scale fishing in the coastal areas, using small boats and simple fishing implements.

75. Inshore Aquaculture

With a large area of shallow seas, bays and tidal flats, the DPRK has natural and geographical conditions favourable for inshore aquaculture, which occupies a big proportion in the country's marine production.

Many aquaculture farms are distributed along the eastern and western coasts. These farms cultivate sea tangle, seaweed, laver, oyster, mussel, trepang and others in a scientific way by putting the main stress on mixed farming of algae and shellfish while raising the utilizing rate of the cultivation areas.

According to a white paper on the world aquaculture published in 2009 by FAO, the DPRK is one of the six biggest seaweed cultivating states.

After species are selected according to the characteristics of the waters, they are bred artificially from the stage of fry to increase the unit-area output.

The country is striving to expand the area of inshore aquaculture and put it on a scientific and intensive basis.

76. Fish Farming

The DPRK directs close attention to developing fish

farming. It has favourable conditions for fish farming as it has many large and small rivers and natural and artificial lakes.

It has built farms for raising catfish and other fish species in various parts, and is making efforts to raise fish by industrial methods by putting it on a scientific and intensive footing. It has established a system of breeding species which grow quickly on less feed and have strong vitality and of sending them to fish farms. It is also developing fish farming on a long-term basis by solving the feed problem through combination of instant and natural feed.

Labour-saving and water-saving methods have been introduced into fish farming, and offshore and cage-net fish farming widely conducted.

The main fish farming bases are the Pyongyang Catfish Farm, Taedonggang Eel Farm, Ryongjong Fish Farm, Kujang Fish Farm, Poman Fish Farm and so on.

A large-scale sturgeon farming system has been established on the west coast and, on the east coast, there is a research institute where research, farming and processing of high-grade fish including Atlantic salmon have been integrated.

77. Seafood Processing

The DPRK has a solid foundation for processing

seafood.

A fish refrigerating system has been established at the sites of production and consumption and state-of-the-art equipment and methods are introduced in processing seafood. There have been built many factories that process seafood on a high standard and research centres equipped with modern facilities.

Recently the Kalma Foodstuff Factory, Pyongyang Taegyong Laver Processing Factory and other modern seafood processing bases are being set up.

78. Transport

In the DPRK, various forms of transport are utilized in proper combination according to the national economic plan.

It develops road transport and water transport with the main emphasis on rail transport and diversifies transport system by introducing cableways, conveyors and pipelines. It also satisfies the growing demand for transport by reasonably combining the unit train services, integrated rail-road-water transport and container transport.

The domestic air transport system facilitates transport to various areas of the country.

79. Rail Transport

The DPRK regards the railways as the pilot of the

national economy and the arteries of the country. As the leading sector and backbone in transport, rail transport claims greater share in satisfying the demand of the national economy.

With the promotion of electrification, the unified system of haulage by electric locomotives has been completed in the main. The rolling stock production and repair bases produce and repair 8-axis electric locomotives and 100-ton wagons. The technical stations equipped with modern facilities ensure the large proportion of unit train services and container transport.

The rail transport sector is now striving to transport materials needed for building an economic giant by modernizing the trunk lines and raising the traffic capacity and volume of transport. It is stepping up the introduction of heavy-duty and high-speed rails, and directs concern to modernizing its facilities and equipment including those for communications and electric power system, and putting the overall operation and command on an IT footing.

80. Songun Pulguni 1 Electric Locomotive

Songun Pulguni 1 is a 4-axis AC electric locomotive for passenger and freight transport equipped with asynchronous traction motor.

The traction power, braking power and speed of this

locomotive are controlled in real time by a computer in line with the traction requirements.

It is equipped with a self-steering biaxial bogie, running gear capable of ensuring the safety in curve running, effective high-speed compressor, auxiliary servomotors including various types of converters and electric motors newly developed for the rail conditions of the country, and other electric devices and appliances.

As compared with the former 6-axis electric locomotive, it uses 30-40% less electric power and has a traction power 1.5 times higher, and its output is 4 200kW.

81. Road Transport

The DPRK ensures high-speed road transport by producing modern and large-sized trucks, raising the transport capacity through scientific and reasonable organization of transport and keeping the road network in a good state of maintenance.

The modernly-equipped auto factories turn out various models of trucks, and there are repair and spare parts production bases in different parts of the country.

The country has an intricate network for road transport including motorways.

An integrated command system has been introduced to improve transport organization and combine road transport with other forms of transport.

82. Water Transport

The DPRK has many merchant fleets, trade ports equipped with modern facilities, marine transport companies, dockyards, port construction enterprises, stations for managing such barrages as the world-class West Sea Barrage, aids of navigation stations and so on.

Sea-girt on three sides, it has also many rivers including the Taedong, Amnok and Chongchon.

By relying on the modern ports, wharfs and ships for various purposes, it satisfies the demand for transport in foreign trade. Typical ports on the east coast are those of Chongjin, Hungnam, Wonsan, Rajin, Kim Chaek and Tanchon, and Nampho, Haeju, Songnim and Sinuiju on the west coast.

83. West Sea Barrage

The West Sea Barrage was built across eight kilometres of the sea in the lower reaches of the Taedong River. This hydraulic structure of the world class was commissioned in June 1986.

Construction of the barrage opened a bright prospect for solving the problem of supplying water for industrial and drinking use and irrigation in the area around the lower reaches of the Taedong River, including the reclaimed tidal flats. It also made it possible to prevent drought and flood damage and develop transport in this area.

The barrage has three lock gates: the first one accommodating ships of 2 000-ton class; the second, 50 000-ton class; and the third, 20 000-ton class. The annual cargo traffic capacity is 45 million tons. On the lock gate is the swinging bridge with a railway track, a motor road and a pedestrian precinct.

84. Transport by Means of Cableway, Conveyor and Pipeline

Transport by means of cableway, conveyor and pipeline ensures sequence in transport between two fixed places. Compared to its big transport capacity, the cost is low. And it does not cause air and noise pollution.

By introducing a long-distance conveyor belt at the Unnyul Mine, conveyor belts at the Komdok Mining Complex and the Musan Mining Complex, a long-distance pipeline for the transport of ore concentrates from the Musan Mining Complex to the Kim Chaek Iron and Steel Complex and modern cableways at coal and ore mines, the DPRK has diversified the forms of transport and raised the overall transport capacity.

85. Telecommunications

The telecommunications network is densely distributed and centralized in the DPRK.

In line with the demand of the IT era, the state is

investing heavily in modernizing telecommunications. It has introduced optical fibre cables in the communications network, and on the basis of this established a high-speed data communications network, nationwide mobile communications network and satellite communications system.

Domestic communications are provided by the Central Mobile Communications Agency and international communications by the International Communications Centre.

The international communications services in Pyongyang and Rason provide access to the Internet.

The TNT and DHL, international express service companies, have their offices in Pyongyang.

86. General Orientation of Land Administration

The general orientation of land administration in the DPRK is to develop the land as befits that of a powerful socialist country.

On the basis of a long-term plan for land administration, the country designated general mobilization periods for land administration in spring and autumn, and is enlisting all the people to spruce up their streets and villages and improve roads, railways and rivers, and their surroundings, so as to accelerate the

pace of economic construction.

87. Afforestation

In the DPRK, mountains account for nearly 80% of its land area. Forest creation and conservation are of great significance not only in increasing the country's natural resources and improving the land but also in developing the national economy.

It is laying out timber forests, forests of economic value and scenic forests with the tree species that grow quickly and are of economic value on a nationwide scale and in a big way, thus developing forests in a prospective way. By establishing a modern forest creation and conservation system and putting forest management on a scientific footing, it is constantly increasing forest resources and using them in a comprehensive way. The Central Nursery and other nurseries direct primary efforts to putting production of saplings on a scientific, industrial and intensive footing. On every Tree Planting Day (March 2) all the people turn out.

Recently, the state worked out a plan to turn all the mountains into thickly-wooded "treasure mountains," into "gold mountains," within the coming ten years; forest restoration headquarters were formed in the capital and in every province, city and county, and they are providing guidance over tree planting according to 10-

year, stage-by-stage and annual plans.

88. Landscaping with Lawns

By establishing the Turf Research Branch of the State Academy of Sciences in Pyongyang and similar institutes in other parts of the country, the DPRK is directing nationwide efforts to breeding new turf strains with evergreen and smooth leaves and strong vitality, perfecting the methods of cultivating them and widely disseminating them.

Provinces, cities and counties are now planting and cultivating turfs through a mass campaign.

89. Agroforestry

In the DPRK agroforestry is a contributing factor in developing the national economy and improving the people's standard of living, as it makes it possible to use forest land effectively in a comprehensive way.

Agroforestry, started in Suan County, North Hwanghae Province, is now being introduced in many cities and counties. According to the framework of the national strategy to introduce and popularize agroforestry across the country, 400 000 hectares of land will be secured by agroforestry until 2023 and be used to solve the food problem.

Agroforestry for sustainable cultivation of various

types of pastures including artificial and natural ones and forests for fodder will be introduced in the Sepho Plateau, a comprehensive animal husbandry base. Bases for agroforestry will be established in many places by combining various elements including forests for raw materials of the local industry, for paper production, for firewood and for the cultivation of medical herbs and mushrooms, and these will contribute to covering the whole country with trees and flowers.

90. Recent Achievements in Land Administration

In recent years, the DPRK has built or repaired its roads to revamp the traffic network in such a way as to develop the national economy.

Scenic spots have been better laid out and are providing excellent conditions for people's cultural and emotional life.

As the country has put great efforts into reclaiming tidal flats as a way of expanding the area of land under cultivation, the map has to be redrawn.

Large-sized power stations, as well as medium- and small-sized power stations, have been built in a large number.

As a result, many places and regions including Pyongyang are being laid out as socialist fairylands.

91. Commerce

Commerce in the DPRK is socialist commerce. It is in essence supply work for the people.

As required by the socialist commerce of serving the people by satisfying their material and cultural demands, the country is giving full play to the superiority of this type of commerce on the principle of enhancing its role as supplier.

The commerce of the country can be divided into state commerce and cooperative commerce according to the forms of ownership and into selling of consumer goods, public catering and procurement according to the economic missions of products and forms of organization of their circulation.

The state commerce plays an important role in increasing production quickly and improving the material and cultural standard of living of the working people by linking production with consumption on a planned basis. It also contributes to the fast development of industry and agriculture and the strengthening of the worker-peasant alliance by realizing the economic link between urban and rural areas and between industry and agriculture.

The cooperative commerce consists of producers' cooperatives, fishery cooperatives and direct retail stores run by some cooperative farms.

The supply of consumer goods to the working people constitutes an important part in the internal division of the socialist commerce.

92. Public Catering

In line with the increasing demand of the people for public catering with the improvement of their material and cultural life, the DPRK is distributing public catering facilities including restaurants and soft-drink stands according to the characteristics of residential areas, increasing the number of foods and drinks and improving their quality.

It also ensures food safety by modernizing their production facilities, and enhances the sense of responsibility and role on the part of commercial workers.

Recently, in Pyongyang, the Ryugyong Service Complex, Haemaji Restaurant and other public catering facilities of unique architectural design were erected, and Okryu Restaurant, Chongnyu Restaurant and others renovated. At the Okryu Restaurant, people eat sturgeon and terrapin dishes while looking at the live ones swimming in glass tanks.

93. Quality Management

By strengthening the authority and role of the state

organ which controls in a unified way the major sectors of quality management including standardization, industrial art, measuring and quality accreditation, and adopting laws on quality management, standardization, measuring, licensing production and others, the DPRK is improving the quality of products on a solid legal basis.

It also guarantees scientific transmission of measurement units through the National Standards Agency, and is striving to raise the quality of products to the world standards in close cooperation with the International Standardization Organization.

It has designated every February and July as periods for taking measures to improve the quality of products.

94. Quality Accreditation

The DPRK adopted regulations for quality accreditation in 1994 and has amended and supplemented them several times since then.

It set up the National Accreditation Association under the State Commission of Quality Management to give unified control over the work of certification and accreditation. It also established a legal basis and the well-organized system of state machinery for this work.

The NAA has registered five organs (Quality Accreditation Centre of Korea, Environment

Accreditation Centre, National Maritime Accreditation Centre, Pyongyang Accreditation Office and National Nanotechnology Agency) as sector-specific accreditation organs, and conducts its work as required by the national standards and such international standards as ISO 9001 for quality, ISO 14001 for environment, ISO 17024 for member accreditation, ISO 22000 for food safety, GMP for medicines and GAP for agricultural produce and seafood.

The state has registered such research organs as the State Academy of Sciences, Kim Chaek University of Technology and Environment Protection Institute and some factories and enterprises as places for state accreditation test that conform with ISO 17025, and has them assess products from various sectors.

The NAA joined the International Accreditation Forum in September 2002, and is regularly exchanging information on accreditation and certification with international organizations and actively coping with the world trend in this sector.

95. Standardization

After the promulgation of the Law of the DPRK on Standardization in 1997, the country has provided unified standards and established a strict standardization system.

The standardization work at the relevant units, ranging from the State Commission of Quality Management to ministries and other central agencies, provinces, cities, and counties and factories and enterprises, is conducted under a unified system.

The Standardization Institute expands the scope of objects to be standardized, works out standards for new areas and conducts its work on a scientific basis.

The DPRK is now conducting the work related with standardization in close contact with ISO and other international organizations.

96. Finance

The finance of the DPRK is socialist finance.

The finance of the socialist state is, in essence, the function of using the money earned by the people for the good of the people.

It enables the people to become genuine masters of the state property as its resources are earned by their creative labour and provide a guarantee for their independent and creative lives.

The major tasks of the socialist finance are to accurately implement the law of balance between accumulation and consumption, the law of a steady and high rate of development of the socialist economy and the law of distribution according to work done.

97. System for Protecting Intellectual Property Rights

The intellectual property rights are fully protected by law in the DPRK.

The intellectual property rights include the rights to patents, inventions, industrial designs, registered trademarks and copyrights.

Patents and inventions are protected by the Law of the DPRK on Invention adopted in May 1998, industrial designs by the Law of the DPRK on Industrial Designs adopted in June 1998, registered trademarks by the Law of the DPRK on Trademarks adopted in January 1998 and copyrights by the Law of the DPRK on Copyrights adopted in March 2001.

98. Activities for Protecting Intellectual Property Rights

The DPRK has offices for protecting intellectual property rights in various places.

These offices conduct all the official and legal activities in the DPRK including the application for patent, resolving of the problems arising during deliberation, re-deliberation and settlement of disputes as entrusted by foreign companies and individuals who are desirous of having their intellectual property rights protected. They conduct these activities on behalf of the

applicants and in their name. They also direct efforts to providing methods and conditions for the convenience of domestic clients requiring such protection within the country, simplifying the procedures concerned and going through them quickly and accurately.

They also deal with national and foreign applications and registered documents of intellectual property including patents and trademarks in close contact with their counterparts in various countries. In addition, by renewing the contents of their service items, they satisfy various demands of their clients.

There are Ryongsan Office, Namsanjae Patent and Trademark Office, Arirang Patent and Trademark Office, Pyongyang Intellectual Property Company and other offices under the General Bureau of Invention of the DPRK and the Trademark, Industrial Design and Geographical Indication Office of the DPRK.

99. Foreign Trade

Foreign trade in the DPRK is conducted under the unified guidance by the state. The country develops foreign trade in various ways according to a well-organized management system. The state is now promoting trade with many countries of the world including developing countries, on the principle of independence, equality and mutual benefit.

It ensures that the sector of foreign trade maintains credit-worthiness, eliminates bias, improves the country's trade structure in such a way as to increase the proportion of processed goods export and the trade in technology and services, and encourages foreign investment. Trading companies and joint ventures with different categories of business have been set up and production bases are expanded in many units in the capital city and other regions. The Pyongyang International Trade Fair held every spring and every autumn and other events provide opportunities for developing bilateral and multilateral foreign trade.

The Wonsan-Mt Kumgang zone, Mt Chilbo zone and other regions are being transformed into tourist attractions, and every province is conducting brisk activities to set up economic development parks as suited to its concrete realities and develop them in a characteristic way.

100. Effecting a Turnaround in Building an Economic Giant

In order to effect a turnaround in building an economic giant, the state is enhancing its functions as the organizer of economic work and establishing full-scale economic management methods of the Korean style that embody the Juche idea. It is providing unified guidance over and strategic management of economic work in a

responsible manner.

The Cabinet, the country's economic command centre, assumes responsibility for economic work. It has worked out a strategy for developing the national economy and stage-by-stage plans in a down-to-earth way, and is organizing economic work to the last detail to implement them and making persistent efforts to carry them through. It plans and directs economic work in such a way as to revitalize the economy overall while concentrating efforts on the main link in the whole chain. In keeping with the requirements of the Cabinet-responsibility system and the Cabinet-centred system, the country's overall economic work is placed under the control of the Cabinet and all the economic sectors and units are establishing strict discipline and order by which they work in accordance with the Cabinet's unified planning and direction.

The socialist system of responsible business operation has been properly enforced. Factories, enterprises and cooperative organizations work out reasonable management strategies in keeping with the requirements of this system and conduct business activities on their own initiative and in a creative manner so as to normalize and expand production. The state takes steps to provide enterprises with all the conditions they need to exercise their vested management rights without a hitch.

UNDERSTANDING KOREA (5) **(ECONOMY)**

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