2. Current Conditions and Development Issues for Major Sectors

2.1 Agriculture and Livestock

(1) Current Conditions and Problems

Agriculture accounted for 36% of Mongolia's GDP and employed more than 40% of the country's labor force in 1995. Agricultural products and processed goods made up 37% of all exports on average between 1992 and 1994. An ADB estimate reveals that the processing of agricultural produce accounts for 27% of all industrial production and employs a workforce of 60,000.

As these figures show, agriculture not only provides food for the population, it also provides raw materials for the industrial sector and makes a considerable contribution to exports.

1) The Impact of the Transition to a Market Economy

In the days of socialism, livestock was organized through collectives known as *negdel*, while crop production was organized through state farms under a planned economy framework. The suppression of *negdel* autonomy and quotas imposed on private herd sizes removed incentives for producers during this period. However, it is impossible to deny the relative success achieved through the *negdel* in securing consignments and distribution in the form of procurement, wider use of veterinary science, construction of shelters for livestock, construction of water wells and supply of fodder.

Due to climate, soil and other characteristics of the natural environment, crop farming in Mongolia is confronted by extremely hostile conditions. Accordingly, large-scale crop production in Mongolia has a very short history; through a large-scale national campaign, the target set for attaining self-sufficiency in wheat was achieved with the opening-up of virgin tracts of land in 1959 and 1960. Ongoing investment from the 1960's heralded the introduction of large agricultural machinery. Since almost all of the machinery parts, fuel, seeds, fertilizer and other acquisitions were imported, production costs were considerably high. Nevertheless, producer prices were kept at artificially low levels to stabilize prices of flour and other agricultural products. Consequently, many state farms ran at a loss.

With the commencement of privatization in 1991, both the *negdel* and the state farms embraced new corporate structures such as the joint-stock company and limited

liability company. Upon the abolition of quotas on private herd sizes, most livestock were transferred to private ownership and, by the end of 1995, 93% of livestock were privately owned.

The demise of the state procurement system, the advent of market economics and the explosive rise in fuel prices put a virtual halt to the functions of these former *negdel*, and herders were faced with remarkable difficulties in consigning livestock produce.

The ever-fragile crop sector was thus dealt a crippling blow by market economics. Production plummeted and the number of people in the sector fell from 45,000 in 1989 to 26,000 in 1994.

Although the blow to the agricultural sector with the advent of market economics in 1990 was slight compared with other sectors, production in 1995 rated at more than 10% below 1989 figures and more than 6% below the 1990 level. Crop production, in particular, fell to 43% of the 1989 result and 49% of the 1990 figure.

In spite of the major slump in the crop sector, agricultural production as a whole did not suffer such a deep recession, as a result of countervailing growth in the livestock sector. Livestock production recorded three successive years of negative growth from 1991 to 1993. However, the declining trend was arrested by 1994 and in 1995 growth was 10% up on 1990. This figure is almost identical to the variation in the number of livestock shown in the year-end survey (sheep, goats, cows, horses and camels). In short, the number of livestock in 1995 was 11% higher than that in 1990.

A stable supply of food is always closely tied to stability in the agricultural sector. According to household income and expenditure surveys between 1993 and 1995, city dwellers outlaid a third of their expenditure on meat, flour and flour products while rural dwellers outlaid a quarter of their expenditure on flour and flour products. As the figures show, meat and flour are the two staple foods of the Mongolian people and their stable supply is one of the most important issues for the government.

Those who lost their jobs in the cities during the economic crisis were rapidly evacuated to the agricultural sector, and to the livestock sector, in particular. This tripled the number of people working in the livestock sector in 1995 (391,000 people in 169,000 households) compared with 1989 (135,000 people in 69,000 households). During this period,

livestock production rose by only 10%; it can therefore be deduced that production per household fell by more than half.

Another deep-seated problem is the large number of small-scale herders. As of 1995, there were 284,000 households with livestock. This means that besides the livestock producers, there were more than 100,000 households with livestock. Generally, a herd of over 200 head is considered to be quite profitable; having less than 100 head places a herder below the poverty line, and less than 10 means extreme poverty.

In 1995, there were only 35,000 households with more than 200 head, 88,000 households with more than 100 head and 150,000 with more than 50 head. Assuming that all of these households were dedicated livestock producers, approximately 20,000 would be poverty-stricken herders with no more than 50 head. It is presumed that many of these herders would be agisting livestock from other herders, livestock companies and cooperatives, and would use products from the livestock in their care, together with their own animals, to eke out a living.

The production of fodder has also been greatly affected by the transition to a market economy. Table 2-1-4 shows the changes in fodder production from 1980 to 1995. The figure shows that 1989 marked the start of the rapid depletion of winter hay. Hay earmarked for the State Emergency Fodder Fund stood at more than 200,000 tons in 1989 but fell to below 2,000 tons in 1995, a situation that arose with the virtual cessation of production activities when the fodder sector was partitioned and privatized with the dismantling of the *nedgel* and state farms. In contrast, hay production by the private sector has been steadily increasing since 1990. However, even in 1995, total hay production was still far lower than the pre-reform levels of 1989. Meanwhile, in 1995, mixed feed and inorganic feed production for use in intensive livestock production were a mere 8% and 53% of their respective figures in 1989. The extreme shortage of mixed feed stifled growth in intensive breeding of poultry and pigs, due to their dependence on this variety of feed.

2) Emerging from Traditional Nomadism

Although, as mentioned above, the number of livestock has increased in the last few years, it is necessary to consider how this should be viewed in terms of the Mongolian economy as a whole.

The primary issue is the change in the number of slaughtered livestock. The average

number of livestock slaughtered per annum between 1986 and 1990 was 7.6 million. That figure fell to 6.5 million between 1993 and 1995–a difference of more than 1 million. This figure correlates to the number of livestock exported for consumption. Until the 1980's, more than 1 million live and processed livestock were exported annually to the former Soviet Union, but, commencing in 1992, those exports fell sharply. One undesirable natural outcome of falling exports is the decline in foreign currency earnings. An appropriate balance of production and consumption is required to attain growth in livestock production. Too dramatic a reduction in consumption of livestock may be a dominant factor in the decline in production in the food and light industrial sectors, which depend on livestock by-products for their raw materials.

The population of Mongolia has more than doubled in the last thirty years, as has the demand for food. Although the population growth rate is expected to slow somewhat in the future, continued growth is expected for some time as a result of past pro-natalist policies. Food consumption per capita has not changed fundamentally in the last thirty years, and, assuming that eating habits are not about to change, securing adequate supplies of the country's staple food, meat, will become an extremely grave issue.

As the situation stands at present with the continued existence of extensive livestock farming, the calculated total volume of pasture feed throughout Mongolia can sustain about 60 million sheep units (sheep unit = SU: 1 sheep = 1 SU, 1 goat = 0.9 SU, 1 cow = 6.0 SU, 1 horse = 6.6 SU, 1 camel = 5.7 SU) before over-grazing occurs. At the end of 1995, the number of livestock was already approaching that limit (1 SU requires 560 kilograms of pasture feed (hay) per year). Assuming that these calculations are correct, extensive livestock grazing in Mongolia will soon reach a major turning point. From the conservative viewpoint of persisting with traditional ways, any further increases in the number of livestock would be undesirable. In order to increase productivity therefore, a range of measures must be examined to dramatically boost value added through the processing of livestock by-products.

Another option is to raise the limitations imposed on the number of viable livestock by fundamentally reforming the traditional nomadic style, achieving more intensive livestock production, working vigorously to expedite the construction of shelters for livestock, increasing the production of fodder and improving pasture feed.

In reality, there must be regions where only pure nomadic livestock activity is suitable because of the restrictions imposed by the natural environment. In a few decades

from now, a blend of the two styles mentioned above, that is, "semi-nomadic" grazing, will become the mainstream practice.

The way in which herders rely on natural grasslands alone and make effective use of the limited grazing resources is fundamentally flawed in intrinsically low productivity as well as vulnerability to snow damage and other adverse climatic effects.

From an ecological viewpoint, nomadism can preserve nature in its pristine state and, for humanity, is an irreplaceable production method. However, the nomadic livestock system in Mongolia will be hit by substantial changes in the twenty-first century.

3) Issues Surrounding Organization into Cooperatives

After the *negdel* disappeared, the volume of distribution of products such as livestock by-product consignments decreased substantially; this gave rise to the establishment of cooperatives for consignment and sales as a means of alleviating this problem. In view of the considerable number of economically vulnerable herders, the establishment of these cooperatives has been generally conducive to economic stability and to the improvement of living standards.

It should be noted here that, first, the imposition of policies from above after the privatization of the *negdel* was a major factor in the present production and distribution chaos, and reorganization into cooperatives again will risk similar results. Second, most extensive livestock farming, being a relatively small-scale and independent pursuit (or managed by a limited number of people), does not require a great deal of cooperation or mutual support beyond the framework of their activities. Consequently, the duties of cooperatives will remain restricted to sales and purchases for the time being.

In reference to the first point, re-addressing the problems in the *negdel* privatization process would be essential when examining future policies.

The Supreme Council of *Negdels*, the ultimate *negdel* authority, issued a policy statement in June 1991 in conjunction with the State Privatization Committee to the effect that 70% of *negdel* assets would be set aside to make the transition to a corporate structure (joint stock or limited liability company). In January 1992, the Supreme Council of *Negdels* re-emerged as the National Association of Mongolian Agricultural Cooperatives (NAMAC).

Most of the newly established livestock production companies which replaced the *negdel* ceased operating as the number of independent herders increased. In some cases companies divided up their assets and dissolved completely. In view of this situation, the government also began to recognize the importance of the "cooperative" type structure as a vehicle for supplying livestock produce to the market and in February 1993 a joint directive by the Chairman of the Privatization Commission and the Minister of Food and Agriculture made possible the formation of "cooperative" style companies. At the time, there was no law in existence concerning cooperatives, and the Law on Economic Entities (enacted in May 1991) recognized only companies (joint stock or limited liability) and *khorshoo* (unlimited or limited partnerships).

From about that time, herders all over the country spontaneously began to establish strongly independent cooperatives (most of which are called *khorshoo* but are not real *khorshoo* partnerships), the structures of which bore no relationship to those of the former *negdel*.

In June 1994, the National Association of Mongolian Agricultural Cooperatives formulated its charter and became fully active. The Civil Code was enacted in November 1994 and the "association" structure was recognized for the first time along with joint stock companies, limited liability companies, unlimited partnerships and limited partnerships. In May the following year, the Company Law and the Associations Law were set in place. Thus, the companies and cooperative associations which were established after the dismemberment of the *negdel*, had a choice of five corporate structures from which to choose: joint stock companies, limited liability companies, unlimited partnerships, limited partnerships and associations.

Looking collectively at the whole process of the privatization of *negdel*, significant chaos was created by the lack of legislative preparedness when the Supreme Council of *Negdels* was hammering out policies in an all-out attempt to install "top down" reforms to prolong the life of the organization.

(2) Development Issues and Solutions

1) Formulating a Long Term Agricultural Development Plan

In June 1995, the Ministry of Food and Agriculture formulated the Guidelines for Rural Development Policy. In the guidelines, the Integrated Agricultural and Rural

Development in the Central Region has been accorded the highest priority, the master plan for which was formulated by JICA.

The priority given to the plan is based on the fact that the central region embraces the capital and two major cities (Darkhan and Erdenet) and includes the majority of Mongolia's arable land. However, a long term agricultural development plan covering the entire country must be formulated as soon as possible.[21]

In formulating such a master plan, regions earmarked for agricultural development must be reassessed with full consideration given to climatic, soil and other natural conditions, as well as economic factors such as access to domestic and international (particularly Russian and Chinese) markets and distribution routes. Secondly, concrete measures to shed total dependence on nomadic herding must be examined and public consensus obtained for their implementation.

2) Rebuilding the Crop Sector

The slump in the crop sector and in grain production in particular, is a serious threat to the stability of food supplies for the Mongolian people. The government should thus decide on the measures it should take to solve these problems as soon as possible. In some wheat-growing areas, recovery of former production levels can be expected through the stable supply of capital and intermediate goods. In other areas, however, problems arise in the economic viability of wheat production under the new price and subsidy systems. Full domestic self-sufficiency in wheat will remain relatively difficult in terms of economic efficiency in the future and the country will have to continue its reliance on imports to a certain extent.

Whether or not flour price liberalization and mill privatization policies, which form the basis of the ADB program, work to stimulate grain production will depend on the implementation of a number of supplementary policies. Specifically, policies must be aggressively implemented to enable a stable supply of agricultural machinery and parts,

---

[21] Mongolia stretches over a fairly vast land area. In terms of local variations in its environmental, social, and economic features, it can be roughly divided into four zones: the Central, Eastern, Western, and Gobi. It would seem reasonable to formulate development goals or priorities on a zonal basis, and ultimately integrate them into one, uniform national plan. For instance, the Central Zone would be focused on crop cultivation, farm-product processing, dairy farming, pig farming, and poultry farming (for egg production). The Eastern Zone would be a focus for projects to develop or expand cultivable farmland, particularly in the Choibalsan district. Finally, the Western and Gobi Zones would be positioned as regions for the development of livestock farming ventures based on open-grazing practices.

seeds and fertilizers, improved crop varieties, rationalization of farm sizes and multilateral farm management. The highest priority must be given to measures which will redress the current decline in domestic production of wheat and vegetable seed, which has made it impossible for farms to secure their sowing requirements.

3) Expanding Fodder Production

Stable supplies of fodder are a major prerequisite for the future development of intensive livestock production. Increased production of mixed feed in particular is a pressing problem. The State Emergency Fodder Fund must also be reconstructed quickly to deal with the possibility of natural disaster.

4) Improving Livestock Health

A number of livestock health problems emerged with the imposition of veterinary service charges. Although the number of veterinarians has not fallen to any great extent, the number of animal husbandry specialists fell by three-quarters from 1,200 in 1989 to 300 in 1995. Improving livestock health is one of the key issues in improving livestock product quality and the promotion of exports.

5) Assisting Agricultural Cooperatives

JICA is currently conducting the "Study on the Strengthening of Agricultural Cooperatives in Mongolia" and expects its final report to be issued in November 1997. According to data supplied by the National Association of Mongolian Agricultural Cooperatives (NAMAC), close to 60% of the country's cooperatives deal with animal product sales and another 30% handle purchases of daily commodities. Cashmere, wool and hides make up the majority of sales while flour constitutes approximately half of all daily commodity purchases. For a substantial portion of herding families, especially those in remote regions, there are advantages to participating in agricultural cooperatives. However, the nature of assistance provided will have to change flexibly with the anticipated structural diversification of cooperative associations.

6) Constructing Small-scale Processing Plants

Problems currently abound in milk collection methods, and large volumes are sometimes discarded. Although it might be possible to resolve the problem by supplying appropriate milk transport vehicles, building small-scale processing plants in the production area would also be effective. This problem needs to be examined along with measures to increase the production of butter, which has been falling rapidly since 1993, while reducing

the costs associated with its production. European-style cheese production, which has already commenced in some areas, should be promoted and the development of other diversified dairy products is also essential. Similarly, in meat processing, construction of small-scale plants capable of producing ham and sausages should be encouraged.

In any case, serious consideration should be given to manufacturing higher value-added products and semi-processed products in the production region. Having done so, a strategy of small-lot production of high value-added products aimed at foreign residents living in Mongolia or for export purposes should also be considered.

7) Repairing and Constructing Storage Facilities

Of all varieties in the crop sector, vegetable production is coming back on track. More vegetable production is desirable to improve the diets of Mongol people. However, enormous losses due to frost damage necessitate urgent improvements in storage and transportation methods. The repair of dilapidated storage facilities and the construction of new facilities are both pressing issues.

8) Repairing and Sinking Wells

There are limits to the availability of water from rivers and lakes in Mongolia. Water for daily consumption, therefore, is drawn from wells, and in many cases, this water is also used for livestock purposes. Life without a well is unthinkable, particularly in the typical steppe zones and the desert steppe (the Gobi Desert). The migratory routes of herders are defined by the locations of wells.

Statistics reveal that in the four years from 1991 to 1995, the number of mechanical wells fell by 8,000, while 5,000 hand-operated wells were sunk. The number of larger water supply systems for livestock grazing purposes fell from 3,600 to 1,900 in the same period.

Irrigation was a major priority area during the socialist era, to the extent that a dedicated Ministry of Water Supply was part of the administrative apparatus. Mechanical wells, which required inspection and repair, were managed by government bodies, while hand-operated wells were maintained by herders themselves.

These figures clearly show how, in the midst of economic chaos, maintenance of mechanical wells and water supply facilities fell by the wayside and, no longer capable of repair, the now-useless mechanical wells were abandoned and replaced by newly-sunk

hand-operated wells. With the decline in the absolute number of wells, livestock tend to concentrate in and overgraze smaller areas. This contributes to the deterioration of surrounding surface foliage, which in turn is a factor behind encroaching desertification. Bearing in mind the currently increasing livestock numbers, merely repairing abandoned wells will not suffice. Underground water resources must be surveyed and new wells (both deep and shallow) sunk. At the same time, an updated well maintenance and management system should be established and maintenance personnel trained.

9) Improving Livestock Production Technology

There are two aspects to livestock production technology which should be considered. First, due to the drift of casual labor to the livestock sector, there is an increasing number of herders who are not necessarily proficient in livestock production technology and hence require technical instruction. Secondly, dependence on traditional herding practices should be abandoned and emphasis placed on re-education and training programs to produce better quality livestock products to meet the diversified needs of the market.

External assistance will be more effective in realizing the latter imperative. Substantial assistance is required particularly to construct a framework of systematic technical instruction to aid the development of dairy production and other intensive livestock production. Specifically, the training of experts is an urgent requirement; this should also include overseas training programs.

2.2 Economic Infrastructure (Transport and Communications)–Current Conditions and Issues

The investigative focus on economic infrastructure here is aimed primarily at the fields of transportation (rail, road, and air) and communications (telecommunications and postal services). The supply of electric power and steam heat will be taken up in the section on energy. The transportation and postal sectors were hard-hit by the transition process, on both the supply and demand sides. By contrast, as a sector that has benefited from international infusions of aid, the telecommunication sector posted significant gains over the same period. Current conditions and hurdles in the transportation and communications sectors are explored separately below.

2.2.1 Current Conditions-Transport

(1) Overview of the Transport Sector

The Mongolian transport sector consists of three sub-sectors–railway, road and air. Overall transport movements peaked in 1988 at 1,989 million passenger-kilometers and 8,419 million ton-kilometers of freight. Subsequently, however, the figures have both trended downward, reflecting negative growth as the country undergoes transition to a market economy (see Table 2-2-1).

As a landlocked country between Russia and China, Mongolia's primary transportation challenge is to secure access to foreign ports which will facilitate the export of its products to overseas markets. Given its small population and current income levels, it would be unrealistic to expect that Mongolia could develop a self-supporting economy where the country functions as a single market. Rather, the major challenge for Mongolia is to find ways to tie its products to overseas markets.

(2) Current Conditions in Each Sub-sector

1) Railways

(1) Available Facilities

The nation's only railway company is the Mongolian Railway, a 50:50 joint venture between the Mongolian and Russian governments. The line, mostly single and non-electrified, runs to some 1,815 km in total, with the main line extending from the Russian border in the north to the Chinese border in the south. The track is subject to intense wear due to the numerous steep slopes and sharp bends. In 1992 the company had 111 diesel locomotives, 227 passenger cars and 1,865 freight cars. Due to inadequate rolling stock resources, however, the company must rent freight cars from Russia, which represents a heavy fiscal burden. To alleviate this situation, the Railway Transport Expansion Project, implemented through a Japanese yen-loan project, provides Mongolia with tracks, locomotives, passenger cars and freight cars, and UNDP assistance supports the system through the provision of rail supplies. The rail gauge in Mongolia is the same as that in Russia, but wider than that of China. Consequently, freight must be unloaded and reloaded onto different cars at the Chinese-Mongolian border. In 1994, freight transfer facilities were built at Zamyn üüd, with grant aid from Japan.

(2) Transport Volume

Freight traffic decreased to 2,131 million ton-kilometers in 1994, down sharply from 6,333 million ton-kilometers in 1986. The steep fall can be ascribed to the suspension of aid from the former Soviet Union and a chaotic domestic economy caused by the transition to a market economy. In 1995, however, the downward trend was arrested, and total freight movements rose to 2,280 ton-kilometers, up 7% on the previous year. Coal, a major source of energy, accounts for a large percentage of freight handled by the company.

2) Roads

(1) Road Construction

The Department of Roads in the Ministry of Infrastructure Development is responsible for roads in Mongolia. The total length of the country's roads is 42,000 kilometers, only about 1/26 that of Japan's, although its area is about four times as large. The road density in Mongolia is approximately 27 meters/square km, about 1/109th that of Japan, and around the same level as that of Ethiopia (20m/square km) and Saudi Arabia (40 m/square km). A shortage of materials and machinery hinders road construction and paving, and other improvements to road conditions.

(2) Road Transport

Goods transported by road fell sharply to 2.8 million tons in 1994 from 45.8 million tons in 1988. The fall was due in part to the steep fall in imports of oil, spare parts and food from Russia following the collapse of COMECON. In turn, trucks operated at lower capacities, and demand for transportation of construction materials and capital goods declined in the recessionary economic environment.

The volume of freight carried by road on a ton basis accounts for 28% of all freight, but is just 6% on a ton-kilometer basis, suggesting that small-lot traffic dominates road transport. The overwhelming majority of goods transported are construction materials. With this trend projected to continue, road transport should play a major ongoing role in improving the country's infrastructure.

Under the current system, all freight is transported through the capital city of Ulaanbaatar, pushing up inter-city transport costs. However, it is expected that short-haul *aimag*-owned companies will be privatized and that they will cut costs by selecting more appropriate routes.

3) Automobiles

There are 40,000 motor vehicles in Mongolia, of which at least 70% are over six years old; about half of all trucks have traveled more than 500,000 km and are in a bad state of disrepair. In addition, a shortage of tires, batteries and other spare parts has grown worse in recent years, and 30% of all buses and trucks are currently inoperative.

3) Aviation

(1) Services and Facilities

In the aviation sector, several private corporations together with MIAT (Mongolia International Air Transport) operate domestic air transport services. MIAT owns 70 aircraft, of which 16 have a seating capacity of 50. Fifty of these are in full-time service but most are dilapidated planes over 15 years old and, with minimal facilities available, there are no hangars for repairs and maintenance.

The Asian Development Bank (ADB) signed an agreement with Mongolia in 1993 to extend loans for the expansion of Ulaanbaatar airport, the country's only international airport. Under this project, existing facilities for domestic and international flights will be refurbished and a safe, all-weather airport control system will be established, as required by International Civil Aviation Organization (ICAO) regulations.

(2) Transport Situation

Aviation is one of the most important means of transport in Mongolia, where the land is vast and the population density is very low. Like the railway and road sectors, freight movement in the aviation sector declined after peaking at 10.6 million ton-kilometers in 1989. However, the downward trend came to a halt in 1991, and total movements stalled at 5 million ton-kilometers in 1994. A meager 200,000 (1.1% of total travel movements) people traveled by air in 1995, down substantially from a peak of 800,000 in 1990.

2.2.2 Development Issues

(1) Cross-sectoral Issues

All transport modes are bedeviled by poor standard facilities. The backward railway system is inefficient, many sections of roads are still unpaved, particularly in rural areas, and the Ulaanbaatar airport facilities fail to meet the standards required of an international airport.

Maintenance is poor because construction materials and spare parts needed for the expansion and improvement of transport infrastructure cannot be imported. There is a shortage of tires, batteries and all other spare parts for motor vehicles. The railway system suffers from a lack of freight cars and locomotives spare parts. A shortage of basic construction materials for roads bars the construction and maintenance of roads and airports.

Compounding these infrastructure problems are a number of systemic issues. First the country's freight rate tariffs are poorly developed. While other prices doubled in January 1991, freight charges were not lifted to the same extent, resulting in deteriorating profitability. Liberalization of freight rates must be examined whilst paying close attention to the privatization process for transport-related industries.

The second systemic problem faced by the transport sector involves inexperience in international transportation methods and procedures. Inexperience is rife in relation to international insurance and charter systems. The government established a state-owned freight company to solve this problem, but both staff and facilities remain inadequate. This situation must be improved in the near future, in view of possible growth in imports from, and exports to China, as well as exports to other foreign countries through the port of Tianjin in China which is much closer to Mongolia than Nakhodka in Russia.

Third, improvements in transport infrastructure will be impossible without foreign corporate assistance, because of inadequate domestic capabilities in construction and technology. To cope with this situation, Mongolia must not only make use of bilateral assistance and funding from international organizations and encourage joint ventures with foreign companies in order to introduce new technologies, but must also learn about tendering and other material and equipment procurement methods, as well as modern management methods.

(2) Development Issues for Each Sector

1) Railways

No longer able to rely on aid from the former Soviet Union, Mongolia is confronted with the problem of maintaining its own transport capabilities. Capital-based measures to resolve this problem involve acquiring more rolling stock, improving communication and control facilities and building more repair yards and spare parts factories to allow maintenance on rail facilities to be carried out within Mongolia. Urgent human resource

measures include the training of personnel to keep up with improvements in facilities.

The shipping of freight to Vladivostok for export takes three months. On top of this, freight charges have soared due to chaotic conditions in Russia. Consequently, Mongolia must attempt to link up with the Chinese railway network to increase the volume of freight traffic to Tianjin, a much closer option than Vladivostok.

2) Roads

To reduce road transport costs, Mongolia must encourage the introduction of construction materials and equipment which are in short supply, to repair and improve existing roads and construct new ones. Given the large number of aging vehicles and their poor rate of utilization, Mongolia must boost the available supply of spare parts and establish a fully-fledged maintenance and repair system.

3) Aviation

With only five asphalt runways and three-decades-old ground facilities, the country's aviation facilities are in an advanced stage of obsolescence and are in dire need of modernization. Mongolia joined the ICAO in 1989 and set its international fares and ground charges under the guidance of the International Air Transport Association (IATA). However, domestic fares are not sufficient to offset the cost of aircraft replacement and the country should be looking to raise fares and use the profits for capital investment.

2.2.3 Current Conditions and Development Issues–Communications

(1) Communications Systems, Organizations and Control

The following list of institutional reforms in communications since 1990 will show that the government has made a plethora of attempts to achieve reform in just a short period of time.

- October 1990
  Responsibility for communications, previously under the direct control of the Ministry of Communications, moves to the autonomous Mongolian Telecommunications Authority (MTA).
- February 1992
  The MTA is subdivided, giving its policy-making functions to the Mongolian Government Department of Communications (MGDC) and control of communications

activities to the newly established Mongolian Telecommunications Company (MTC).

- September 1992
  The Ministry of Road Transport and Communications (MRTC) is formed and the MGDC is placed under its wing.
- April 1994
  A construction division is added to the MRTC, which then becomes the Ministry of Infrastructure Development (MOID). A Department of Communications is formed in this Ministry to supervise MTC and the Mongolian Datacommunication Company (MDC).
- November 1994
  The Postal Division is split from the MTC and the Mongol Post Company (MPC) is established.
- August 1995
  MTC is hived off to leave the Mongolian Communications Asset Company (MCAC) holding MTC's assets. Privatized with the introduction of foreign capital, the new MTC becomes responsible for administrative functions only.
- September 1996
  The MCAC is absorbed into the MOID's Department of Communications.
- January 1997
  The Post and Telecom Authority (PTA), which controls the country's postal and telecommunications assets, is separated from the MOID's Department of Communications to stand alone within the MOID.

At present, national telecommunications activities (post and telecommunications) are administered by the seven staff in the Department of Communications within the Ministry of Infrastructure Development.

The State-run corporate MTC, split from MCAC in August 1995 to become the new MTC. The telecommunications hardware assets of the former MTC were transferred to the MCAC. The new MTC leases these assets from MCAC under contract and operates the country's telecommunications system.

The MCAC, which holds all the state-owned telecommunications facilities, is solely responsible for maintaining and expanding the telecommunications network. It bears the main responsibility for formulating network plans, devising telecommunications projects and procuring funds domestically and abroad. The functions, organizational and management

systems of MCAC are currently being restructured. It employs forty staff.

Conversely, the new MTC provides the country's basic telecommunications services using the public telecommunications network facilities leased from MCAC on a twenty-year contract. MTC has a monopoly on the basic service but is unable to offer value-added services. MTC is a limited stock company established with foreign capital from Korea Telecom, which holds 40% of the equity, but the State Property Committee has decreed that at least 51% of the shares are to be held by the government. MTC has approximately 4,800 employees.

The Mongol Post Company (MPC) has a monopoly on postal operations in Mongolia. MPC is a state-run organization and was split from MTC as a separate postal division in November 1994. Stamps are printed and issued by the Mongolian Stamp Company (MSC), which issues both standard and commemorative stamps. Most of Mongolia's commemorative stamps are sold overseas and, in 1994, earned the country a profit of Tg50 million.

The above description covers the scene in Mongolia up to August 1996. Since then, there has been a change of government with the Opposition taking power. A review of the telecommunications sector as part of an overall reorganization of the state apparatus has resulted in the MCAC, plus its assets and personnel, being absorbed into the MOID's Department of Communications in September 1996. Almost immediately after, however, in December that year, a new body was established to manage MOID's postal and telecommunications assets: the Post and Telecommunications Agency (PTA). The new PTA was hived off from MOID's Department of Communications. It is believed that the PTA will take over the role formerly played by the MCAC.

(2) Communications: Current Conditions and Problems

Most of Mongolia's basic telecommunications equipment uses analog technology developed in the former Soviet Union in the 1960's and 1970's. Although the equipment has been well maintained, it is becoming obsolescent and parts are difficult to obtain. It can no longer efficiently keep up with demand for domestic and international telephone services.

Domestic trunk routes (3,800 km in length) generally use microwave transmission technology to connect Ulaanbaatar with many of the *aimag*. However, four *aimag* are not part of the country's telecommunications network, located in areas inaccessible to the microwave system. Cable is also used in some areas but its reliability is questionable. Connections between *aimag* and *sum* are generally via cable. Villages of *sum* size or under have no means of communication at present, including postal services.

In 1993, it was planned to upgrade the Ulaanbaatar metropolitan network service by introducing French digital exchanges. The age of the existing lines, however, precluded any radical improvement. In addition, there are 500 to 1,000 subscribers in the central districts of each *aimag*, where the exchanges feature a complicated mixture of manual, semi-automatic and automatic systems.

Table 2-2-2a shows the number of subscribers and the number of telephones per 100 persons. In 1992, the number of telephones dropped both nationwide and in Ulaanbaatar. In 1995, the number of telephones per 100 people was 3.28 and 7.12 for the nation and Ulaanbaatar respectively. In the same year, there were more than 44,000 subscribers in Ulaanbaatar and over 20,000 would-be subscribers who could not be connected because of the poor capacity of the equipment. Complaints from subscribers about the poor quality of communications are endless. In the suburbs or *ger*, there are almost no telephones whatsoever and the lack of communications in time of emergency is a major social problem.

Obviously, the inability to guarantee an adequate electricity supply or good quality telephone system is a major impediment to economic development. It is particularly fatal for foreign-backed joint venture companies. The country's previous international communications network was a satellite service using Intel-Sputnik, established with Russian assistance. However, the quality of Mongolia's international telecommunications service was vastly improved by Intelsat earth stations, an international exchange, and digital microwave circuits between the earth stations and international exchange, which were provided with Japanese grant aid (completed in August 1993 at a cost of 1.51 billion yen). Two long-term experts were dispatched to Mongolia by JICA to provide technical instruction to staff engaged in the maintenance and operation of the equipment.

In September 1995, a private telephone company, MobiCom, was established with Japanese capital and technology to introduce a mobile telephony service. It has been guaranteed a monopoly on mobile telephony until 1998. The service is already available in Ulaanbaatar and the service area is scheduled to progressively include the provincial cities of Darkhan, Erdenet, Nalaikh and Zuunmod. The country's backward basic telephone network makes it imperative for corporations and individuals with urgent telephony requirements to gain access to mobile services. However, because of the limited frequencies available for mobile telephone use, MOID and PTA must formulate an expansion program that achieves balance between the existing basic system and the new mobile telephone network.

(3) Postal Communications: Current Conditions and Problems

According to the Report of an Investigation into the Mongolian Postal System (June 1995), there are 31 post offices in Ulaanbaatar and 23 in the 21 *aimag*, totaling 54 nationwide. There are no post offices at *sum* level or lower, nor any systematic postal service. In addition to the delivery of postcards, letters and parcels, the postal service can also deliver newspapers and magazines, handle consignment sales of books and cassette tapes, and transport passengers and education materials in its postal vehicles. However, the availability of these services is still not widely-known at present.

Postal items are generally delivered to post office boxes or organizations and almost never to private addresses. In 1994, there were 16,000 private boxes for a total population of 2.28 million (a ratio of one box for every 142 people). In Ulaanbaatar, there are 11,000 boxes for a population of 620,000 (120,000 households) (a ratio of one box for every 56 people). Of the 11,000 boxes, 9,000 belong to individuals. MPC revenue for fiscal 1995 amounted to Tg257 million, while its expenditure was Tg168 million. Even excluding Tg16 million in contributions to the UPU (Universal Postal Union) and Tg75 million in capital spending, there was still a major deficit of more than Tg100 million. Discussions between the Ministry of Infrastructure Development and the Ministry of Finance resolved that this deficit would be offset by telecommunications profits until 1996.

Table 2-2-2b shows recent changes in the volume of postal traffic. The number of articles posted fell dramatically from 4.2 million in 1990 to 1.35 million in 1994, attributed to the deteriorating economy, a drop in postal traffic to and from Russia and Eastern Europe, and a reduction in the number of articles posted by government organizations. The problem has worsened further since postal and telecommunications operations were split in November 1994.

Prior to 1990, postal deliveries were made daily between the central post office and *aimag*, thrice weekly between *aimag* and *sum* and twice weekly between *sum* and lower level villages. This was made possible through the use of a fleet of 360 vehicles. Now, with fuel shortages, soaring transportation costs, adverse climatic conditions and a shortage of MPC-owned vehicles (104), deliveries to *aimag* have dropped to two to five times a week, and from *aimag* to *sum* to once or twice a week. Mail from Ulaanbaatar to *sum* takes eight to ten days while mail from one *sum* to another can take up to two weeks. As might be expected, the people of Mongolia feel that the postal service is worse than ever and even more unreliable.

(4) Development Issues and Basic Policy Stance: Telecommunications

1) Development Issues and Solutions for the Telecommunications Sector

It is generally recognized around the world that there is a close correlation between the spread of telecommunications in a country and its per capita GDP. The significance of this is two-fold: telecommunications network development stimulates economic development in the country and in turn economic development accelerates telecommunications development. Mongolia's present stage could be described as one in which an expanding telecommunications network is stimulating economic development. Thus, in order to make efficient use of the country's limited resources when investing in telecommunications projects, the selection of a particular project should be made after a thoroughgoing economic and financial analysis which take adequate account of returns on such investment.

However, in countries such as Mongolia, where about 27% of the total population is concentrated in the capital city of Ulaanbaatar and the population density in other regions is extremely low, the ideal propounded by the International Telecommunications Union (ITU) of universal, readily accessible telecommunications services for the people of the world by the beginning of the twenty-first century looks difficult to achieve.

Telecommunications is a key component of both the economic and social infrastructures. That is, it must satisfy the social requirement that demands that telecommunications services, which are directly concerned with public health, education and social welfare, and other aspects of human life and human rights, be extended to sparsely populated hamlets and villages too. In Ulaanbaatar too, public telephones must be located in *ger* districts, as an integral part of the social infrastructure, though they may not be economically viable.

State organizations must play an active role in the formulation of such unprofitable telecommunications projects and therefore, involvement of MOID's Department of Communications and PTA can only be described as significant until all the population have access to telephone services. PTA should go ahead with low-profit, social infrastructure telecommunications projects after due consideration of the overall returns to the communications sector and the long-term social benefits of the project. A key challenge for the future will be the strengthening of functions and training of human resources for the PTA and MOID's Department of Communications, which will play the major role in the future for Mongolia's telecommunications sector.

Currently, a development study of the telecommunications sector is underway in Ulaanbaatar, with the technical cooperation of JICA and a master plan forecasting demand until the year 2010 is being compiled (The Study on Telecommunications Network In Ulaanbaatar, July 1996). The master plan includes a number of projects to be implemented by 2010. The major challenges will involve identifying financial resources such as soft loans and grants, and the rapid recruitment and training of the considerable number of staff required to install such leading-edge technology as digital exchanges and optical fiber communications networks. Other pressing issues include the development of a customer service framework to cope with the demand for telecommunications services in a market economy, the training of staff to provide such customer services, and the nurturing of personnel who are skilled in the financial and accounting requirements of the new system.

2) Development Issues and Basic Policy Stance: Postal Services

With the current problems faced by Mongolia's postal services, the development challenges involve: 1) stemming the current flow of red ink, 2) developing public confidence in the postal system, 3) boosting the volume of postal traffic, 4) developing a nationwide postal network.

However, despite efforts to increase the volume of mail by introducing new services and to slash transportation and other costs, geographical factors set a natural limit on the attainable cost savings. Finding a swift solution to these problems can only be described as difficult.

2.3 Mining and Manufacturing

2.3.1 Current Conditions and Problems

(1) Overview of Industry in Mongolia

Including energy, the industrial (in this paper, the industrial sector will be defined as including mining, manufacturing and energy sub-sectors) sector accounts for approximately 30% of Mongolia's GDP and employs about 14% of the working population (as of 1995). Statistics for real year-on-year growth in gross industrial output (by value) show that output contracted by 20.1% in 1991, by 15% in 1992, and 13% in 1993. Output rebounded in 1994, growing by 3.7%, and by 20.7% in 1995. This brought gross industrial output in 1995 to approximately 75% of the peak level in 1990 and to around 1985 levels. A breakdown of industrial output (nominal) by sector reveals that non-ferrous metals account for 38.3%,

electricity and thermal energy (secondary energy) for 16.7% (the entire energy sector including primary energy accounts for 22.2%), foodstuffs for 14.3%, textiles for 8.8%, and chemicals for 4.1%. Real year-on-year growth in most individual sectors was generally robust. Although the energy sector contracted by 1.9%, the non-ferrous metals sector, the largest component of industrial output, grew by 30.1%, while foodstuffs, the third largest component, grew by 10.4%, and fourth-placed textiles climbed by 15.7%.

Especially notable is the rapid growth in the non-ferrous metals sectors' share of value of industrial output, which jumped from the percentages in the teens in 1990 and 1991 to over 38% by 1995. The real value of output in this sector was 53.3% higher in 1995 than in 1990. The food and textile sectors' shares of value of industrial output stood at 24.1% and 10.8%, respectively, in 1990, and they either remained at those levels or declined over subsequent years. Pronounced declines in both sectors' shares finally came to a halt in 1994, but the value of real output in the foodstuff and textile sectors in 1994 was only 33.1% and 36.2% higher, respectively, than those in 1990. Thus, the substantial jump in value of gross industrial output in 1995 can be attributed largely to the non-ferrous metals sector.

The electricity/thermal energy and fuel sectors depend almost entirely upon domestic coal resources. Moreover, the non-ferrous metals sector's production activities consist chiefly of the supply of raw materials such as copper and molybdenum concentrates. This means that over 60% of the industrial sector depends on mining, a primary industry. Coal, in particular, is playing a key role as a basic energy resource supporting economic development, and the development of Mongolia's coal resources is therefore a top priority in terms of the country's energy strategies. Mineral resources accounted for around 70% of the nation's exports in 1995, with copper concentrate accounting for 50%, gold for 10%, molybdenum concentrate for 4%, and fluorspar for 3%. Mongolia's mining sector, along with its cashmere industry, is expected to be one of the most substantial and important sectors supporting the country's economic development both now and into the future. Meanwhile, electric power, petroleum products, and other energy imports account for 28% of the country's total imports, making them the second largest category after industrial products such as machinery, automobiles, and electrical goods, which account for 35% of Mongolia's imports.

Table 2-3 and other industrial statistics for Mongolia are best understood when these characteristics of Mongolian industry are kept in mind. It is also helpful to divide Mongolian industry into the mining and manufacturing sector, and the energy sector. Mining and manufacturing can be further divided into mining, chiefly excavating for mineral resources,

and industry in the narrow sense of manufacturing. Coal together with oil (including petroleum product imports) can best be grouped in the energy category, and analyzed together with secondary energy (electricity/thermal energy and fuel) in the overall energy sector.

(2) The Industrial (Mining and Manufacturing) Sector

According to 1995 output indices for major industrial products (1990=100), the mining sector had nearly recovered to 1990 levels, with the copper concentrate index at 100.8, molybdenum concentrate at 92.8, and fluorspar at 115.8. Tin production, which began appearing in the statistics in 1994, recorded robust, 3.8-fold growth in 1995. Especially notable is gold production, which was added to the government's statistics in 1992. Deregulation measures implemented by the government in 1993 sparked a rush of private gold mining companies into the field, and in 1995 alone, gold production grew 2.5-fold from the previous year. Indeed, by 1995 gold production had soared to approximately seven times the level in 1992, and it is now becoming a prime source of foreign exchange earnings, second only to copper concentrate. The production index for the Erdenet copper mine, a major source of foreign exchange earnings for many years, fell to 81 in 1991 and 83 in 1992. It has been staging a gradual comeback since 1993, and in 1995 recovered to its former peak levels. There are signs, however, that production has peaked out. Fluorspar production remains at solid levels, but new problems are surfacing; specifically, stagnancy in the Russian market, which has always been one of the main destinations for fluorspar exports, and competition with Chinese product.

Broad increases in industrial output were seen in 1995 in the manufacturing sector, excluding such products as glass, ceramics, fur, leather, and shoes. As a result, a large number of businesses posted profits for the year on the books, which in turn boosted national and local tax revenues. Also notable in the 1995 data is the emergence of import substitutes, produced in joint ventures with foreign firms. These include items such as televisions (Singapore, Hong Kong), disposable syringes, and disposable hypodermic needles (South Korea). Production in traditional livestock industries, however, has continued to decline since 1990. For example, in 1995 production of scoured wool was down to 56% of the 1991 result, and leather and shoe production, as well as sausage production, was 60% of that in 1991. In contrast, the livestock sector as a whole recorded steady growth in 1995. Cashmere production was up 81.3% from the previous year, and animal fur exports grew strongly (13%, second only to copper concentrate). This reflects the fact that local, traditional industries have begun to lose urban markets and that deficiencies are surfacing in the distribution of raw

materials and in energy supply, problems which are increasingly threatening the very existence of some of these industries.[22]

Thus, energy output is stagnant, production in the mining industry appears to have peaked, and the output of traditional industrial products is waning. Yet, in spite of all this, gross industrial output grew dramatically in 1995, the main reason being a price-related factor, specifically the drastic recovery of the international copper market in 1994. In Mongolia, where rebuilding the economy is a matter of greatest urgency, steady development of copper mines is crucial, both now and into the future. On the other hand, the supply and demand of copper is strongly correlated to industrial output in the global economy, and consequently fortifying the structure of the Mongolian economy to alleviate its weaknesses and instabilities continues to be a major challenge.

(3) Current Conditions and Problems by Subsector

1) Copper Mining and Refining

Of Mongolia's existing resources, the most effectively developed has been copper ore. In particular, the Erdenet copper mine, operated since 1978 by the Erdenet Mining Corporation, which is jointly owned with Russian interests, is an outstanding mine, ranked eighth in the world in total ore production. This mine is reputed to have the world's fifth largest copper reserves, with approximately 80 years' worth of ore at the present rate of recovery, and the deposit itself is located such that it can be readily excavated. Copper concentrate is mainly exported to the countries of the former Soviet Union (80%), China (10%), and Japan (10%), and accounts for between 40% and 50% of Mongolia's total exports by value. The operation of this mine plays a decisively important role in terms of government revenues: "Forty percent of the foreign exchange acquired through this mine goes to the government in the form of royalties, and this accounts for approximately 60% of the national budget."[21] Copper concentrate output grew by around 4% in 1995 to 415,700 tons, but international market prices increased by around 30%, significantly boosting the value of Mongolia's gross industrial output.

A JICA survey conducted in 1993 identified a number of issues, including the removal of production impediments such as deficiencies in equipment, materials, parts, and electric power, management issues such as the achievement of greater consistency in quality

---

[22] Economist Intelligence Unit (1996b).

[21] Fujimoto, Atsushi, et al.(1996).

in order to attract steady customers (copper refineries that buy copper ore), meeting supply obligations, and instituting payment systems in accordance with international trade practices. In this survey, a stable supply of electric power was identified as an issue that takes precedence over investments aimed at modernization, insofar as the main factors behind declining copper concentrate production indices in 1991 and 1992 were reductions in electric power capacity, to 75% of the design capacity in 1991 and 80% in 1992, and frequent power outages during these two years (975 times in 1991 and 481 times in 1992). In addition, it was estimated that an investment of around $200 million will be needed by the year 2008 under a long-term management plan in order to maintain current output, and that another approximately $300 million in investments will be needed for modernization purposes. The Erdenet mine encompasses a large number of peripheral businesses that support the mining activities, and modernizing and rationalizing the mine's operations by separating, privatizing, and establishing these businesses as independent entities is another important issue. In a venture to add high-value to the mine's products, a Japanese trading house and an American company have recently invested in a project to produce 3,000 tons of copper ingots annually.

2) Gold Mine Development

The development of gold mines changed course in 1993 when the government surrendered its monopoly in this field and opened it up to the private sector. The number of firms engaged in gold mining soared from only eight in 1993 to 47 in 1994, and then to 52 in 1995. Gold production grew roughly 2.3-fold in 1995 to 4,500 kilograms, exceeding the government's target of 4,000 kilograms and making gold Mongolia's number two export after copper concentrate. Private firms accounted for approximately half of the total production, and 1996 output is expected to reach 6,000 kilograms. Recent surveys have discovered gold veins, in addition to alluvial gold, raising expectations that the current gold boom is not just a temporary phenomenon. The development of appropriate technology through injections of foreign capital would be a welcome step, but engaging in joint ventures with the rapidly multiplying private mining companies, all of which have fragile corporate foundations, is perceived as carrying considerable risk.

3) Manufacturing Sector

The keys to the characteristics of Mongolia's manufacturing sector lie in its historical

development, specifically its participation in the COMECON system for division of labor.[21] With technical assistance from the former Soviet Union and other East European countries and under the government's protectionist policies, Mongolia processed raw materials supplied primarily by the livestock sector and produced wool, leather products, and meat, which it used to meet domestic demand and for export. At the same time, the country imported machinery, machine parts, and oil. Under this system, an enterprise's performance was evaluated on the basis of output, not on the economics or social costs of production. Accordingly, when it came to adopting new technology, in addition to the obvious lack of funds for capital expenditures, those in charge of production had little incentive to innovate because doing so would merely place pressure on them to boost their output further.

In 1992, 110 large state-owned enterprises were transferred to private ownership through a voucher system under which they were split up into individual factories or processes and hived off into numerous private companies. However, most of the mass production facilities inherited from the state enterprises have been languishing in an environment of extremely low capacity utilization rates and inefficiency, due in part to an overall contraction in consumption. In the small-scale privatization program initiated in 1991, many new producers emerged to serve the domestic market, and there are now about 1,000 small- and medium-sized enterprises in Mongolia, including about 100 joint ventures with foreign companies. These private companies generated approximately 60% of GDP in 1994. Many of such companies, however, have folded or are looking to join forces with foreign companies due to a shortage of funds, which has left them unable to adopt new technology and has hampered their procurement of energy and raw materials.

Even the flourishing textile industry, where real output (by value) grew 46% in 1995, has low capacity utilization rates in existing facilities, ranging from 10% to 18%. The food processing industry similarly recorded growth of 40.4% in real value of output in 1995. This was largely due to policies aimed at partially liberalizing the food market in urban areas in order to alleviate shortages in flour, bread, and processed milk, which had grown into a major social problem since around the onset of the country's economic reform process. Boosting food supply, by eliminating bottlenecks in the distribution of raw materials and fuel shortages, is another important issue. From the perspective of ensuring food supplies, the government continues to hold the majority of shares in food-related companies. It also controls wholesale prices in specific industrial fields (milk, bread, meat, glass products, felt shoes, children's

[21] International Development Center of Japan (1993).

clothing, lumber, and coal) and subsidizes the operations of companies in these fields.[25] The government holds 75% of the equity in one of the country's top companies, Govi HK, which provides it with a major source of revenue. The lifting of the prohibition on exports of raw cashmere wool on August 1, 1996 has heightened the need for product diversification, including efforts to move from conventional exports of processed wool and other raw materials to the export of finished products through the incorporation of greater added value into products. And specific plans are being put into action to attract foreign investment to further these efforts.

There is great demand for funds to promote more efficient production and enhance product quality through investments in the modernization of production facilities, which brings in new and appropriate production technology. Mongolia entered the second phase of privatization in August 1995 and is now taking measures to bring a market economy paradigm into existence through structural reforms. Toward this end, it is moving ahead with efforts to prepare the social and economic environments for a market economy by activating trading on the nation's stock exchange and promoting managerial reforms within companies. In addition, efforts are being undertaken to make large state-owned enterprises more independent and profit-oriented in their operations.

2.3.2 Development Issues

(1) Mining Sector

The export of copper, gold, and other mineral resources is an area in which Mongolia has already begun to demonstrate a comparative advantage in the international market. The mineral resource sector is the foremost productive sector in Mongolia and provides the driving force for the entire Mongolian economy. Accordingly, efforts must be made now to comprehensively improve mining operations. These include encouraging vigorous injections of capital, making investments in production technology and facility modernization, and incorporating greater added value into this sector's products. It will be vital to look into the issue of investing in the modernization of the Erdenet copper mine, which will remain the country's principal source of revenue for the time being, from both viewpoints of the nationwide economic effects and of the corporate finances by conducting, for example, studies on the feasibility of developing a copper refining industry. Moreover, before considering investments in modernization, a solution must be formulated to the problem of the stable

[25] Economist Intelligence Unit (1996a).

supply of electric power to large-volume users such as mines by researching the development of new power routes from Russia and the feasibility of private power generation projects.

Gold development and production, a field that has already attracted over 50 public and private enterprises, is being fostered as a leading source of foreign currency earnings. It is said that further efforts must be made to attract foreign investment to this sector and adopt more appropriate technology. However, most of the businesses that have rapidly sprouted up stand on fragile foundations, suggesting that any joint ventures would involve considerable risk. Accordingly, it is important that the government step in and create a proper business environment. With regard to the privatization of core industries such as the Erdenet copper mine, in particular, a closer, in-depth look must be taken at the conditions for creating the necessary market environment, which would include such issues as domestic capital accumulation, the stock market, and the financial system. In addition, prescriptions are needed for individual firm's detailed business plans, including proposals for reforming operations through the subdivision of businesses according to optimal scale of operations and production units. On the policy side, it is necessary to promote integrated industrial development, taking into account the compatibility of the forms of energy (coal, electric power, etc.) with the country's transportation infrastructure.

Resource surveys conducted by the Metal Mining Agency of Japan and others since 1991 point out that while there are many promising mineral deposits in Mongolia, the majority are scattered far away from railroad lines and transportation costs therefore have a measurable impact on the profitability of developing these resources. Consequently, a key issue in developing these mineral resources is boosting the added value of the resultant products before they are exported. Efforts must be made to diversify the products of copper, gold, and other existing resources by attaining more consistency in quality and incorporating greater added value. Moreover, it will be necessary to strategize the formulation of the country's resource export portfolio by conducting market studies of new mineral resources so as to minimize the impact of fluctuations in international prices.

(2) Manufacturing Sector

Through a process of trial and error, policies have been enacted that are aimed at relinquishing central control to the forces of the market economy. In reality, however, in many cases this still amounts to nothing more than the mechanical transfer of state-owned assets to private ownership. Mongolia is at a stage where it needs to mold the frameworks of artificially transplanted forms and systems to the country's social and economic realities and

adjust itself to an adequate pace of development. Now that the country has entered the second stage of privatization, it is important that it move ahead with reexaminations of legislation (including corporate law) and employment, tax, and insurance systems, and prepare the environment for independent development in such a way that the corporate society becomes accustomed to the systems and methods, the concepts of a market economy permeate to the actual working level within the government and enterprises, market information is shared within the society, and corporate activities are stepped up. Entry risks for foreign capital are still high due to the lack of detailed regulations for the enforcement of commercial and investment laws; this is exemplified by the opacity in the enforcement of trade policy, such as the flow of steel scrap into China in spite of prohibitions on its export.

With respect to small- and medium-sized enterprises oriented toward the domestic market, it is desirable for the time being that appropriate industrial policies be implemented to enhance the financial system to meet the demand for funds to upgrade outdated production technology, to bolster their competitiveness by supporting the development of human resources and technology, and especially to assist in the expansion of sales channels to large consumption markets in the nearby countries of the former Soviet Union and China. It is highly likely that the traditional industries that existed under the old system, the textile and leather industries, will be able to become competitive internationally insofar as their raw materials are supplied by the domestic agriculture and livestock industries, the proportion of imported materials is comparatively low, they excel in terms of their ability to absorb new workers, and they have an excellent potential to gain foreign currency for the country. Still, there is considerable room for improvement in the areas of design and quality control, and Mongolia should therefore actively encourage strategies that combine policies for adopting appropriate technology through joint ventures with foreign companies and investigations into the possibilities of opening up new markets.

2.4 Energy

2.4.1 Current Conditions and Problems

(1) Ongoing Energy Crises

Production indices for 1995 (1990 = 100) indicated a general halting of the downward trend in energy output, with electric power down 3.3% from the previous year (at 61.3), heat supply up 1.1% (at 93.2), and coal down 2.8% (at 68.1). Nevertheless, supply and demand continue to be sluggish. The index for heat supply fell to 85.7 in 1993, but faint signs

of recovery began to become apparent in 1994. This is attributable to intensive emergency assistance from Japan, the U.S., Germany, and other Western countries from 1991 to 1993 because in Mongolia, whose capital has the lowest average annual temperature of any capital in the world, heat supply in the rigorous winter season is regarded as an essential part of the social infrastructure. Sharp increases in electric power imports from Russia in 1994 and 1995, however, make it clear that the country's shortages in energy (for its economic infrastructure), particularly in electric power, continue to go largely unresolved.

During the transition to a market economy that began in September 1990, maintenance activities came to a grinding halt as large numbers of former Soviet technicians departed from major power plants, production at factories in the former Soviet Union fell into chaos, and shortages occurred in spare parts and consumables. This led to ongoing energy crises that have still not been overcome by subsequent Western assistance and that continue to exist today. However, through feasibility studies conducted and master plans formulated by international organizations, prescriptions for rebuilding the energy sector as part of the economic infrastructure were finally put together in late 1995 and early 1996 (details to follow).[26]

The government enacted a new Energy Law in January 1996 into which it incorporated the objective of transforming state-run enterprises into entities that are more independent in their operations and place greater emphasis on profitability. It also incorporated into the new law a review of the system of public utility rates with a view to boosting revenues. In addition, broad assistance strategies are being implemented or studied, from technical assistance (to promote stable operation, management reforms, and structural improvements) to loan assistance (for upgrading aging facilities), in an aim to move from material grant aid provided by Western countries as emergency relief and toward assistance for the establishment of a modern industrial economic infrastructure. Toward that end, the Mongolian Government is increasing its borrowings from the World Bank and ADB and stepping up bilateral assistance negotiations.

(2) Current Energy Supply and Demand

Primary commercial energy consists almost entirely of coal and petroleum products,

---

[26] ADB (1992a), (1992b), (1993), (1994a), (1994b), (1996)
World Bank (1995).
OECF (1995).
JICA (1996a).

with coal accounting for 80% and petroleum products 20% in 1995. All of the coal is produced in Mongolia, and all of the petroleum products are imported from the former Soviet Union. Supply and demand for both coal and petroleum products have been declining every year since hitting peaks in 1988, and in 1995 the supply and demand for coal was approximately 60%, and that for petroleum products was around 50% of the peak figures.

One prominent feature of Mongolia's energy supply system is its lack of flexibility. Supply and demand among the coal, electric power, and heat sectors are both physically and managerially linked through a broad, single channel. Power plants operate under the technical constraint of having to depend on contracts with the former Soviet Union (concluded in 1986) for electric power transfers to make up for shortages when they need to handle fluctuations in daily load and frequency variation because they were designed to baseload specifications based on the premise of systematic integration into the former Soviet power grid. The steam produced by power plant boilers is sent simultaneously to turbine generators, industrial steam systems, and unified district heat supply systems. Consequently, the poor quality and inconsistent supply of domestic coal, the sole source of fuel, causes frequent power plant stoppages and makes it inevitable that facilities are used under extreme conditions. Further, shortages in spare parts and consumables due to lack of funds, combined with deficient maintenance, are accelerating wear and tear on facilities.

The lack of reliability and shortages in supply, due to low capacity utilization rates, that are spreading throughout the entire energy sector, threaten the citizens' lives during the severe winters and seriously affect the mining, manufacturing, and other industries. Conditions continue to be incomparably bad. For example, the supply of heat to state-run apartments in Ulaanbaatar was insufficient on 66 of the 90 coldest days during the year, from December 1995 through February 1996, due in part to hot water leaks from the city's plumbing system. In addition, it has been pointed out that ensuring the power supply and preventing frequent power outages are necessary preconditions if the Erdenet copper mine, which brings in approximately 50% of all the country's foreign currency, is to meet its design output.

(3) Energy Management System

In the coal, electric power, and heat supply sectors, the Ministry of Energy, Mining and Geology (MEGM),[27] which has taken over nearly all of the systems and organizations of

[27] Government agencies were reorganized following the June 1996 elections, from 13 ministries to 9, and the MEGM's functions were divided up and transferred to the Ministry of Infrastructure Development and the

the preceding planned economic system, still exercises centralized control over energy-related bodies, including the state-run coal organization, the Central Energy System (CES), the public Energy Utility Organizations (EUOs: 20 regional electric power and heat utilities), and several research bodies.

The CES exercises control over 31 organizations, including 13 power and heat supply plants. All of these organizations were made independent operating entities under 1991 legislation, but in reality, the CES intervenes considerably in the management of these organizations' technology and operations. For example, in Ulaanbaatar three combined heat and power plants provide heat, and heat supply companies are in charge of hot water distribution from city plumbing and heat exchange facilities to end users. However, a residential maintenance service company collects utility fees from residents of state-run apartments and turns the money over to the CES, after deducting a 28% service charge. In addition, the power plant chiefs also hold high-ranking posts at MEGM or are linked to its key positions, thereby blurring the relationship between their responsibilities and duties in their various functions: the enforcement of energy policy, administrative functions, and the operation of power companies.

There are also deficiencies in the flow of information among organizations and in financial accounting, as seen in credit accounts in which outstanding payments due to the Baganuur coal mine in 1995 amounted to approximately 11% of CES revenue and in the misappropriation of depreciation expenses to maintenance expense accounts. Structural reform of the entire sector is a matter of the greatest urgency. This includes the formulation and enactment of sector policy, rate approvals, enforcement of regulations, and managerial reforms to orient organizations toward a greater emphasis on the achievement of independence and profitability in their operations. Meanwhile, there are concerns about a decline in the government's administrative enforcement capabilities due to the drastic changes accompanying the move to a market economy, as seen in the difficulty in collecting electric power usage fees that are in arrears from the Erdenet copper mine. Also, in the context of the enforcement of the new Energy Law, there is a pressing need for structural reforms with respect to the CES. With the ADB taking the lead, discussions are currently underway on the dispatch of a team of experts to assist operational and managerial reforms. The blurring of operations in administrative systems across policy, administrative, and business lines are

---

Ministry of Agriculture and Industry; the electric power sector came under the control of the Department of Energy in the Ministry of Infrastructure Development, but details concerning the former Central Energy System and other lower-level agencies were still undetermined as of September 1996.

said to be a feature seen also in the petroleum products market, which is overseen by the Ministry of Trade and Industry.

(4) Privatization of Energy

The energy sector was exempted from the sweeping privatization program initiated in 1992, and remained under government ownership, as were communications, roads, aviation, public transportation, the water supply infrastructure, the Erdenet copper mine, major light industries, and basic foods.

In the coal sector, private capital (25%) was injected into the Baganuur coal mine in June 1995 as a pilot project in the privatization of large state enterprises, and consideration is being given to rationalization plans aimed at commercially based coal mining operations. In addition, authorities are examining a stage-by-stage privatization of coal mines, and American and Australian companies are demonstrating interest in the renovation of existing coal mines and the future development of new mines. The Mongolian Business Development Agency (MBDA) has allocated approximately $1 million to support the investment of private capital in joint ventures.[28]

In the electric power and heat supply sector, the CES, which oversees power transmission systems and large, 100 MW-class power plants, will continue to be under government control for the time being. The World Bank and the ADB, meanwhile, are recommending that heat supply companies operate independently. To fulfill the preconditions for this, the new Energy Law incorporates a basic policy of raising electric power and heat rates to the level of long-term marginal costs by January 1998.

In the area of petroleum product imports, under the 1991 Company Law, 20% of the assets of the Petroleum Import Concern (PIC), which was transferred from Ministry of Transport to MEMG oversight in 1990, were privatized through a voucher system, and in 1994 the Neft Import Concern (NIC) was established. The NIC is almost solely responsible for the importation and domestic distribution of petroleum products, and sets uniform national prices for all petroleum products except gasoline and light oil which are under government control, by adding import tariffs, commodity taxes, road taxes, distribution costs, and other costs to the import prices. With the objective of completely deregulating gasoline prices, liberalization policies are currently being advanced by stages, with measures being taken

[28] Economist Intelligence Unit (1996b).

that include linking Mongolia's gasoline prices to international prices, abolishing uniform national prices, and abolishing the coupon system for gasoline purchases. The NIC is in charge of importing petroleum products, equipment, and materials, and its four subsidiaries are responsible for the operation of storage facilities and stations, domestic transport, the construction of related facilities, and the sale of lubricating oil. Discussions are being held with Russia and the Shell oil company concerning foreign investment in these subsidiaries. Gasoline stations are being transferred to the private sector for cash, and consideration is being given to ultimately privatizing 49% of NIC by selling 29% of the government's shares in the company on the stock exchange.[20]

(5) Current Conditions and Problems by Subsector

1) Coal

Coal is in extremely rich supply in Mongolia, with inferred reserves totaling approximately 150 billion tons and confirmed reserves 24 billion tons. However, the only types of coal that are economically usable are lignitic coals with heating values of 2,700 to 4,000 kcal/kg, which are unsuitable for export. The 27 coal mines in operation have an annual production capacity of about 8 million tons. Sixteen of these coal mines are operated by the MEGM, two by local governments, and eight by private companies. After hitting a peak of 8.6 million tons in 1988, coal production was down to 4.9 million tons in 1995 due to the overall contraction of the economy. Only three coal mines possess large-scale facilities: Baganuur, Sharyn gol, and Shivee ovoo (which began operation in 1992). These three mines account for approximately 80% of total coal production and all of the fuel supply to the CES. The Baganuur mine, in particular, accounted for approximately 60% of total coal output in 1994, when it produced 2.9 million tons.

Approximately 74% of the demand for coal in 1995 came from the electric power and heat supply sector, while about 11% came from the industrial and construction sector. A recent JICA study forecasts demand rising to between 8.9 million and 9.3 million tons in 2000 and to around 11 million tons in 2005. The study indicates that this increased demand can be met for the time being, by increasing production at the Baganuur and Shivee ovoo mines, but that new coal mines will need to be developed after 2005. It is estimated that to achieve this, $57 million will be needed by 2000 and $173 million by 2005. This study also points out that priority must be given to getting back to design output levels by resolving the mines' many

---

[20] World Bank (1995).

problems: considerable delays in the removal of excavated soil due to shortages of specialists and workers skilled in equipment repair, frequent extended breakdowns of large equipment, and shortages of spare parts and equipment renovation due to lack of funds (at the Baganuur coal mine); and lack of capital to purchase replacement parts and upgrade equipment, and poor coal quality (at the Shivee ovoo coal mine). Meanwhile, rehabilitation plans are being implemented for the major coal mines, with IDA leading the way, that include assistance plans for existing coal mines, including plans aimed at bringing the Baganuur mine's annual capacity back up to 600 million tons and the Shivee ovoo mines capacity back up to 200 million tons. Toward this end, the World Bank approved an IDA loan of $35 million in May 1996 (World Bank press release no. 96/3 2/EAP) and OECF is to provide co-financing.

2) Electric Power

Mongolia has a total installed electric power capacity of 1,066 MW. CES accounts for approximately 80% of this total, but its reliable installed capacity is only about 60% to 65%. About 90% of the country's power supply is distributed from CES's five power plants (Ulaanbaatar No. 2, No. 3, No. 4 power stations, Darkhan, and Erdenet) to three cities and six *aimag*. After hitting a peak of 2,880 GWh in 1989, power sales have been steadily dropping, to 2,400 GWh in 1991 and 1,157 GWh in 1995. At the same time, imports from Russia have been steadily rising, from 84 GWh in 1991 to 380 GWh in 1995. This increase in imports while demand was falling underscores the continued problems in supply capacity at the CES power plants.

Efficiency at these power plants is extremely poor, with average thermal efficiency of only 19%, just about half the normal level, and losses of power consumed by the plants themselves reaching 20% to 35% of their generating capacity. Capacity utilization rates are also low, averaging 37% (base load power plants are generally designed for capacity utilization rates of between 70% and 80%). Some of the problems that have been identified at the Ulaanbaatar Power Station No. 4, which supplies approximately 70% of the total demand for electricity, include frequent operating problems brought on by the non-standard, low-grade coal supplies from the country's coal mines, incompatibility between the combustion system and the grade of coal, and a vicious circle of equipment obsolescence due to a lack of proper maintenance. All the power supplied to the 15 *aimag* not linked to the CES comes from 180 kW diesel power generators, except for that from the Choibalsan coal-fired power plant. These plants, which were built in the former Soviet Union or Czechoslovakia and have been in operation for 10 to 15 years, are deteriorating and showing notable declines in efficiency. Economic reforms led to soaring diesel prices and a rise in transportation costs,

which in turn led to shortages in fuel supply, resulting in serious power deficiencies in these independently supplied regions. Power generation fell by nearly half in 1994, from 178 GWh in 1993 to 99 GWh, leaving around 90% of rural households without sufficient heat or energy.

A breakdown of power consumption by sector shows that in 1995 industrial and construction-related consumption accounted for 65%, public and residential use for 23%, and commercial, agricultural, and other consumption for 12%. Six large industrial users, including the Erdenet copper mine, the Bor öndör fluorspar mine, the Baganuur coal mine, and the Darkhan steel plant, alone account for about 70% of the electricity consumed by the industrial and construction sector, and about 45% of the country's total electricity consumption. The Erdenet copper mine is a particularly large power user, accounting for about 35% of the country's power consumption on its own. Forecasts based on studies conducted by the ADB, JICA, MEGM, and CES call for demand to climb to between 3,000 and 3,300 GWh by 2000, nearly returning to the peak levels reached in 1988 and 1989. A master plan for power development through 2015 formulated by the ADB estimates that investment totaling $1,581.7 million (at 1995 prices) will be needed in the power sector, including both CES and local heat supply systems, and that the foreign currency requirement will amount to $1,265 million.

There is a pressing need to bring existing power generating facilities up to their design capacities. Reflecting that need, capital investment in the power sector grew from only 8% of all industrial capital expenditures in 1989 to 21% in 1992. A number of rehabilitation projects for CES power plants have already been implemented or are being planned by aid organizations, including the repair of the Darkhan power plant's boiler with assistance from Germany. Japan extended grant aid for rehabilitation of the country's largest power plant, the Ulaanbaatar Power Station No. 4, from 1992 to 1994, and an OECF project to repair the boiler was slated to begin in 1996. At another major plant, the Ulaanbaatar Power Station No. 3, the ADB followed up technical cooperation provided by USAID with assistance to begin repair work on the boiler in April 1996, and negotiations are currently underway concerning loans for upgrading the plant's aging turbines.

3) Heat Supply

The sources of heat and hot water in cities are power plants' combined heat and power supply boilers, and therefore the issues of poor efficiency and low utilization rates relevant to the electric power sector and discussed above apply equally to the heat supply sector. The country's heat supply systems are designed according to Soviet-style constant-flow

technology, in which a fixed volume of hot water is supplied at a set temperature determined by the outside temperature. The result is an uneconomical system in which users control indoor temperatures by opening or closing windows, leading to inevitable energy waste.

Financial issues have made it difficult to carry out planned repairs to the system over the years, including the laying and covering of pipes, and repairs continue to be carried out on a symptomatic basis: when a steam leak is discovered, the necessary repair is made. Losses due to water leakage correspond to about 8% of the amount of heat supplied, a ratio that is 40 to 50 times higher than that for district heat supply systems in Europe (according to a February 1996 survey by ADB/DANIDA). Heat suppliers have been assiduously replacing main pipes laid in the 1960s and repairing the covered portions, and the pipeline network is to be repaired with approximately $5.5 million in grant aid from Denmark.

In the area of measures aimed at restoring stability to the heat supply system, Japan and Mongolia are currently discussing grant aid to be devoted primarily to replacing valves and pipeline materials in the Ulaanbaatar Power Station No. 4 hot water supply facilities. For the long term, the ADB and other donors are examining the adoption of variable-flow systems and dedicated heat supply boilers, but feasibility studies and other detailed investigations are yet to be carried out.

4) Petroleum Products

Supply and demand for petroleum products fluctuated at around 800,000 tons in the latter half of the 1980s. Along with the collapse of the COMECON system, imports from Russia began to decline after hitting a peak in 1988. In September 1991 Mongolia switched from a barter-based import system to payments in dollars at international prices. Consequently, soaring prices led imports to plunge to around 380,000 tons in 1994. Imports increased very slightly in 1995 to the 390,000-ton level, pointing to an end to the downward trend in import volumes.

Broken down into product categories, gasoline and light oil account for about 40% each, and fuel oil for between 10% and 15% of the country's petroleum product imports. The gasoline is used primarily in the transportation sector. Half the light oil is used for regional independent power generation, farm-based power generation, and farming machinery, and the other half is used in production-related transportation. According to World Bank forecasts for demand from 1995 to 2000, if the economy grows at an annual rate of 3% to 4%, petroleum products as a whole will grow at an annual rate of 4.2% to about 630,000 tons in 2000, finally returning to the 1992 consumption level. Therefore, assuming that imports from Russia

continue, there will be few problems in terms of storage facility capacity, number of trucks, or other elements of the transportation infrastructure. However, this sector's problems center around the continuing instability in petroleum product supply, and there have been situations in the past where supplies did not arrive as contracted, even when Mongolia paid in kind with copper (which is readily convertible into dollars) and other materials, and covered the shortfall with dollars.[10] Domestic oil reserves are being explored in collaboration with Russian and U.S. companies, but are yet to yield definite results. Accordingly, domestic oil is not expected to constitute a source of supply, at least for the time being.

2.4.2 Development Issues

(1) Sector Overview

Achieving stability in the energy sector, along with stabilizing the Mongolian financial system, is a top priority policy issue in terms of promoting economic stability. Making efforts to retain reliability in energy supply and then strike an overall balance in energy supply and demand through the least costly methods are matters of the greatest urgency in terms of establishing a foundation for modern industrial production. Toward this end, close examinations must be conducted into the energy flow, that is, the coal-electric power-heat supply flow, and the electric power (coal)-large-scale mining/manufacturing industry flow, and structural improvements promoted in terms of both hardware and services in order to heighten the efficiency of supply in the system as a whole and in each subsector. In addition, the ability to raise funds for building up the sector's foundations must be enhanced through economic recovery and expansion. At the same time, efforts must be made to promote managerial reforms at each of the relevant companies and organizations to heighten their profitability, and to encourage them to accumulate their own capital so that investments and assistance funds can be used efficiently.

Even if it were to raise public utility rates and promote the privatization of energy companies, the government should more actively fulfill its responsibility on the social development side. That is to say, it should seek to alleviate regional energy supply-demand disparities and formulate comprehensive energy strategies, including policies to redress shortages of funds in the sector as a whole, policies to guarantee energy security (ensuring peak power sources and eradicating instability in the supply of petroleum products), and energy-saving policies to eliminate the conspicuous waste inherent in the supply structure. Economic recovery will bring with it increased energy consumption, and greater burning of coal

[10] International Development Center of Japan(1993).

by industries and residents in urban areas will pollute the air. Accordingly, the government must actively use regulations and subsidies to promote environmental measures for Ulaanbaatar and other basin regions where atmospheric inversion layering tends to occur in winter.

(2) Coal and Electric Power

A top priority in the coal sector is rehabilitation aimed at alleviating operational bottlenecks, which involves creating an efficient production system and maintaining the quality of coal supplied to electric power plants in order to attain design capacities. At the same time, efforts must be made to promote essential reforms at coal companies by introducing modern mine operation techniques so that they can boost their profitability and retain more of their capital. Efforts should also be made to promote rehabilitation of existing coal mines, including the upgrading of facilities to enable them to handle the recovery in demand and expanded production. Moreover, studies should be conducted into coal supply systems for the years beyond 2000 and into the feasibility of projects to develop new coal fields, and fundraising strategies formulated.

In the electric power sector, there continues to be a pressing need for measures to arrest the vicious circle of abused and moribund equipment brought on by declines in reliable capacity and capacity utilization rates due to the already widespread deterioration of facilities and lack of maintenance. There is concern that stopgap measures implemented with emergency assistance will not be sustained due to subsequent shortages in the supply of spare parts and lack of maintenance. Facilities continue to deteriorate, and priority must therefore be given to plans being advanced separately by individual donor organizations to recapture the boiler and turbine design capacities at major power plants. At the same time, it is necessary to comprehensively coordinate the details of project lists based on lifetime evaluations of power plants, including the questions of plant closure, renovations, and expansion, and it is essential that a consensus be reached among development agencies concerning medium- and long-term power supply development plans. Moreover, endeavors must be made to promote a return to financial health through managerial reforms and increases in power utility rates up to the economic costs through application of the new Energy Law. And, efforts are essential to promote structural reforms to prevent payments to the coal sector from falling into arrears and to secure depreciation expenses. Steps must be taken to create an environment that will promote active capital flows, including bank loans, to the entire sector, ensuring the appropriate levels of such flows.

In addition to promoting the retention of foreign currency reserves by reducing electric power imports through the rehabilitation of power plants, it is extremely important, in terms of meeting to peak demand and ensuring the reliability of power distribution, to maintain links with the Russian electricity supply network for the time being. With respect to regulating electric power for coping with medium-term increases in demand, a key issue is examining the economics of securing power sources, such options including the expansion of new transmission routes through Russia. Long-term issues in this context include the option of investing in gas turbines to accommodate peak requirements and dispersed power sources, the use of hydroelectric power resources, and strategies for developing baseload power sources–new coal-fired plants to replace their aging counterparts.

(3) Separating Policy and Administrative Functions From Corporate Management in the Ministry of Infrastructure Development

It is an urgent task to rectify the lack of separation in terms of personnel, flow of funds, and concepts of accountability between the Department of Energy (policy-making and administrative functions), which is overseen by the Ministry of Infrastructure Development, and relevant state-owned enterprises (managerial functions). Support should be given to the largely unexploited intellectual potential of workers in these elite enterprises and efforts made to disseminate practical knowledge in the policy, organizational, and facility management spheres. When implementing privatization techniques and other rationalization programs, consideration should be given to preventing loss of outstanding human resources because there are inter-industry linked relationships between the energy sector and many key industries, and such losses have a huge impact on employment and morale. It will be necessary when instituting rate increases aimed at boosting revenue and the deregulation of rates in January 1998, to demonstrate a comprehensive structural improvement plan that encompasses rationalization proposals for systems and organizations, concrete plans for funding reconstruction, and the appropriate allocation of human resources to administrative enforcement.

(4) Technology Transfer for Corporate Management Practices and Personnel Retraining

It is particularly important to provide human and intellectual support to guarantee the smooth absorption of investments that have already been made, and those that are being planned, selectively and heavily in energy-related enterprises. Precedence must be given to promoting a transfer of incentives from the production culture that existed in the old system through practical affairs at all levels. To this end, assessing the inventory of personal and

intellectual support that has penetrated to practical levels, including equipment diagnosis and maintenance technology, business decisions concerning abandoning and upgrading facilities, and depreciation and other aspects of corporate finance, is an issue that will have a decisive impact on the future success of financial assistance.

(5) Diversification Strategy for the Supply of Petroleum Products

In order to alleviate Mongolia's excessive reliance on petroleum product imports, consideration must be given to diversifying supply sources by examining the possibility of purchasing petroleum products from Russian refineries other than the Angarsk refinery, on which Mongolia depends for all its petroleum products at present, and expanding the sphere of suppliers to include China, Singapore, and other countries. To achieve this end, it will be important to link this effort with the railroad transport rehabilitation projects being carried out on the China-Mongolia border. With respect to importation, domestic transport, and marketing, well-defined laws and systems must be established to promote domestic and foreign capital entry into the market. The creation of a competitive market is also an absolute necessity.

2.5 Human Resources Development

(1) Current Conditions and Problems

1) Overview

The educational policies of the socialist era were very successful in the development of Mongolia's human resources. High school attendance rates and a literacy rate of over 90% (according to 1989 statistics) were achieved in spite of forbidding natural and social conditions, specifically the country's vast area and nomadic people that account for nearly half of the country's total population.

With the transition to new economic and political systems that began in 1990, however, Mongolia has had to confront the very difficult issues of simultaneously providing education that is tailored to the new social environment and training for the people responsible for creating the country's new institutions. The former task, the creation of basic institutions for sustainable development in Mongolia, is a fundamental and long-term challenge that involves an overhaul of the entire educational system. This includes the development of new instructional methods, essential reforms of education for nomadic people, cultivation of the private education sector, provision of new vocational training, and creation of higher educational opportunities abroad. The latter task is one that must be carried out

immediately, treated on a symptomatic basis with the objective of seeking stopgap solutions to the chaos attendant upon the ongoing transition.

Among the factors responsible for chaos in the educational field, brought on by the economic upheavals that have accompanied the transition begun in 1990, are the following:

(1) A fall in educational expenditures, both as a percentage of total government expenditures and GDP[11]

(2) The lack of new educational materials tailored to the country's new institutions, and the failure to thoroughly re-train teachers

(3) Partial shift of the expenses to the parents of children who are engaged in compulsory education, for food, accommodation, and educational materials

(4) An increase in the percentage of children working with their families following the privatization of herds

(5) An increase in the indigent class due to widening income disparities

(6) Worsening working conditions for teachers, including non-payment of teachers' salaries

These factors have combined to lead to drastic increases in non-attendance rates among primary and secondary school students. While the proportion of elementary and secondary school-aged children who were not attending school has fallen, from over 30% in 1993 to 12.2% on a nationwide basis in 1995, this continues to be a major social problem.[12] Moreover, the impact of the non-attendance problem is not limited to the educational field. Insofar as it is a problem of human resources development, one that has a major impact on Mongolia's future, it is recognized as requiring immediate solutions. However, the current situation remains that adequate measures are not being taken.

2) Approaches Taken by Mongolia

Among the reforms carried out during the country's transition, the new Education

---

[11] Over the five-year span from 1991 to 1996, educational expenditures fell both as a percentage of total government outlays, from 22.9% to 15.8%, and of GDP, from 10.8% to 6.0%. Over the same period, real GDP fell by 1.5%, with the result that real educational expenditures fell by half.

[12] *Ardyn erkh* (January 10, 1996).

Law, enacted in 1991, proved to be a legislative measure that was in step with the subsequent social disruption. Swept along by the tide of democratization, Marxism-Leninism was cast aside and emphasis in the new bill was placed on freedom and basic human rights, producing a law that was fundamentally different in terms of ideology, educational content, and organization from its predecessor enacted in 1982. The new law called for the adoption of a 6-2-2 education system, the production of textbooks based on a new view of history, and the revival of traditional Mongol script.

In reality, however, due to the drop by half in real educational expenditures and the serious slump in the Mongolian economy, the former 4-2-2 system remained unchanged, no new educational materials were published, and the existing systems of teacher education, instructional methods, and educational content had to be maintained. Schools were established by the private sector, but needless to say, the educational content at these schools was inferior to that at public schools.

New education legislation was put before the parliament in the fall of 1994 and promulgated on 6 February 1995. There has been considerable confusion surrounding the implementation of these laws, both within government agencies actually responsible for education and human resources development–the Ministry of Science and Education and the National Development Board–and at schools. Indeed, in some respects the country is far from reforming the educational system of the socialist era.

One example is a policy being advanced to preserve the 10-year system of general education, but to return to a 4-1-2 system from the 6-2-2 system. In the Education and Human Resources Master Plan put together with support from the ADB, emphasis is placed on extending the number of years of education, but in reality the number is declining. Policy makers in the Ministry of Science and Education continue to maintain that they will implement specific policies based on the Master Plan, but they are forced to adopt policies in form only. The only measures that have been taken are studies and projects implemented with assistance from abroad. With respect to educational systems, planning, and materials, the country has either maintained those in existence or reverted to former practices.

With regard to non-attendance rates, some analyses have been undertaken and measures taken to address problems other than poverty, but no specific responses have been forthcoming for the problems of educational content, instructional methods, or instructor quality, and the situation at schools appears to have become even more chaotic than ever.

This was further exacerbated by a teachers' strike that lasted from April through September 1995.

The outcome of the strike was a 40% rise in salaries effective from September, but this by no means indicates that teachers' working conditions were adequately improved. Promises of improved conditions were made by the government on 21 June 1995 in the "Resolution Concerning Teachers' Working Hours and Salaries," and the "Resolution Concerning Overtime Pay," but teachers at 89 schools who did not believe the promises continued their strike.[3]

The government designated 1996 as Education Year, and decided to promote a national campaign involving a 10-year plan of educational reforms. Taking the position that they had no choice but to pin their hopes for the mid- and long-term future on the success of this campaign, the teachers ended their strike and returned to work. Education Year, however, was weak in actual substance, and it was completely ignored by the new government that took control in August.

Needless to say therefore, the conditions for addressing the 18 priorities enumerated in the ADB Education and Human Resources Master Plan[4] must be confirmed, then individual responses formulated, keeping in mind their relative importance. In reality, however, there are few cases in which this plan and these policies have been skillfully coordinated and implemented. Of course, the Master Plan is merely one starting point, and the approaches that are to be taken should be compatible with actual conditions in Mongolia. Depending on the Mongolian interpretation, however, the matter of greatest importance–that is, the principles and methodology behind the 12-year system of general education–is not currently being adequately debated in the schools.

3) Approaches Taken by International Organizations and Aid Organizations

Since the beginning of the 1990s, the UNDP's Management Development Program has been responsible for human resources development under the country's new political system. The current reality is that they are unable to comprehensively and completely cope with assistance from other organizations. The Education and Human Resources Master Plan drawn up with assistance from the ADB calls for 18 specific measures. As of 1995, six of these

---

[3] *Ardyn erkh* (September 2, 1995).

[4] Specific programs in such areas as basic education, higher education, vocational education, social education, educational administration, and the overhaul of human resources development systems.

measures had been coordinated with assistance from abroad and scheduled for implementation:

(1) Enhancement and preservation of general education in urban and rural areas

(2) Overall reform of more effective higher education

(3) Reform and rationalization of the vocational training system

(4) Provision of educational opportunities for elementary and secondary school children not attending school

(5) Rationalization and improvement of educational administration

(6) Enhancement of the Ministry of Science and Education's functions

Rural education, one of the priorities of the Master Plan, is plagued by some of the most formidable problems. Foreign and international aid organizations have pointed out that resolving the problems of rising rural non-attendance rates, the improvement of working conditions for rural teachers and overcoming the lack of teaching materials will be a shortcut to improving present conditions in Mongolia. Programs created with assistance from the ADB ($505,000) based on the Education and Human Resources Master Plan have entered their third phase, but under the amended Education Law of 1994, four- and five-year education plans are merely drawn up by making reference to the Master Plan. In some areas, implementation has only begun where assistance from abroad is available.

Nine dictionaries and textbooks in traditional script have been selected, edited (by a textbook editing committee), and published with assistance from Taiwanese and domestic funding sources. Plans call for the publication of a total of 18 new textbooks, but there is a significant shortage in the social sciences field, which accounts for only four of the 18 (as of 1995).

With assistance from UNESCO, Mongolia has since 1962 devoted a great deal of energy to the education of its rural nomadic folk. Under the country's new constitution, teachers must be re-educated, but education of the nomadic population has remained inadequate. Re-education concerned with the new constitution has been provided in both

urban and rural areas in order to deepen basic understanding of democratic society, but approaches to the market economy and educational provision for children remain insufficient.

Re-education is ongoing in part with a two year program of assistance from UNICEF ($75,000), but it is inadequate and lacks continuity. There is only one other example of a re-education program, that of an attempt by a private Japanese company, clearly reflecting the fact that the need for re-education is socially acknowledged, but that there is not sufficient fiscal or methodological support for its implementation.

To address the non-attendance problem, trial strategies for experimental extracurricular education and peripatetic teaching have been implemented with assistance from UNICEF, and are proving a success in the three *aimag* of Selenge, Töv, and Khentii.

Steps are being taken in the area of general education, with a DANIDA-assisted project aimed at the implementation of the second round of Master Plan reforms by the end of 1996. The Teachers' College is also participating in this effort. The Danish Ambassador to China visited Mongolia at the end of August 1995, at which point a final assistance budget ($1 million) was determined for the re-education of teachers and development of new teaching materials.

In the area of training educational administrators, preparations and discussions are underway with UNESCO, and a partial program of re-education for school principals and school administrators has begun. While it is being implemented as one component of the UNDP's MDP, this is taking place in certain areas on a priority basis only. The ADB has also begun to pay attention to this problem, but in line with its recognition that this is a problem that requires cooperation or coordination of assistance , it is waiting to examine the response forthcoming from the Mongolian side.

In the area of higher education, language laboratory facilities have been established at the country's national university and repairs made to the agricultural university's experimental station with assistance from Japan. JICA has provided assistance for the computer division at the science and technology university.

The fields just mentioned are ones in which some positive accomplishments have been made with educational and human resources assistance from international organizations and other countries. Additional assistance, including that from DANIDA for the

development of teaching materials, the UNDP's MDP and PAP, and JICA technical training (approximately 330 persons over six years), is expected to sustain these achievements in the future as they are extended to include rural areas. The responses by Mongolia, which must oversee and coordinate this educational and human resources assistance, are as yet still confused or lacking in coordination. There is a very real need for Japan to become directly involved in the coordination of educational and human resources assistance, armed with initiatives such as those it has been taking at the Mongolia Assistance Group Meetings.

(2) Development Directions

1) Overview

The confusion and contradictions in the human resources development field described in the preceding section brought about by the transition have been met with emergency, crisis-like solutions achieved through Mongolian efforts and with assistance from international organizations and various aid organizations. However, the precondition for Mongolian independence is consideration of a long-term human resources development program that takes into account the spread of new methodologies in human resources training within the field of basic education and within the special environment of nomadic regions. To fulfill this precondition, the responsible agencies on the Mongolian side must take the initiative to understand the necessity for human resources development, specifically elucidate the policies that should be taken, and then implement them. It is urgent that the government's planning capabilities be enhanced and that the educational system be restructured in order to cultivate human resources that are suited to the new environment of a market economy.

2) Approaches Taken by the Mongolian Government

In August 1996, a new government was elected in Mongolia. The incoming administration issued new educational guidelines (in October 1996), but no major changes were made to the country's educational systems. The policies were primarily devoted to lessening the burden of educational costs, including a policy of free educational materials, but they leave unanswered concerns about future revenue sources. One new problem in terms of educational content is that of traditional Mongol script.

This problem is related to national culture, and as such, the Mongolian government must be the one to determine policy in this area. According to the June 21, 1995 edition of Ardyn erkh, the Mongolian government announced its responses in the educational field

based on its determination to aim for 100% usage of traditional script by the year 2005. There has been no change since October 1994 in the policy of focusing first on Cyrillic-character education and then teaching Mongol script in parallel. Under the present government, which came to power in 1996, this policy remains intact. It is quite possible to find realistic and feasible methods of introducing Mongol script while respecting the basic policy. Expectations are for flexible methods of implementation, such as separating its use in schools from use in official government documents or introducing the script in schools first into the social science field and delaying its introduction in the natural sciences.

3) Teacher Re-training

With regard to re-training teachers, seminars for teachers are being held in all areas of the general education curriculum. Seminars are conducted first in the capital for representatives from each *aimag*, and these representatives or other qualified persons dispatched from the capital are then providing re-training at educational centers in the *aimag*. The problem here, however, is a lack of funding.

4) Development of New Educational Materials

A publishing division is scheduled to be created within the Ministry of Science and Education, but this plan has not yet been realized. As of April 1995, traditional script textbooks had been printed for nine subjects. No progress has been made in the remaining nine subjects due to paper shortages. Third-year students who entered school between 1991 and 1993 have been studying in Mongol, but students who enrolled in 1994 are to study in Cyrillic. The "Basic Program for Mongol Script," promulgated on 21 June 1995, seeks to have the entire population using traditional Mongol script by the end of the 10-year period from 1995 to 2005, but educational materials in Mongol continue to be in short supply.

The Ministry of Science and Education and Teachers' College are leading the way in the development of new Cyrillic educational materials with assistance from DANIDA and Japan. Only an extremely limited number of educational materials and published materials are available, however, and the typical method of development involves re-evaluating materials created before democratization and turning these into new teaching materials. The severe shortage of educational materials remains unresolved.

The belief that shortages of study supplies, stationery, and other educational materials are major factors behind the country's non-attendance problem has led to the formulation of plans to construct factories to produce these items, but so far these plans have not been realized.

5) Vocational Training

While it is recognized that vocational schools must be revived, progress has been slow except in management and foreign language schools. There were seven vocational schools in Ulaanbaatar prior to democratization, but today there are only four. It is said that the shortage of technically skilled labor is slowing industrial development, and policies to revive vocational training are not proving effective. There are a number of vocational training schools, including one specializing in tourism, but the links between this form of education and employment are currently insufficient, which has very serious implications for the operation of such schools. Private education has begun to complement this vocational education, but the training of technicians, who could be said to constitute the foundations of Mongolia's economic independence, is currently lagging. This situation is one to which the donor community must give adequate attention.

6) The School Non-attendance Problem

The school non-attendance problem is particularly acute in rural areas, where it is attributable to changes in herdsmen's lives. The common analysis is that increases in the number of livestock being raised and growing expectations toward children as a source of labor in the home have led to higher non-attendance rates. However, there are other reasons: educational content has remained unchanged from that prior to democratization, making it irrelevant to actual society and causing many children to lose their desire to learn; and in the process of promoting the transition to a market economy, there has been a tendency to overlook education.

In addition to tuition fees, rural education involves the payment of boarding school meal expenses, and this added burden is another factor having a negative impact on attendance rates. Those families that can afford to pay for meat do so. The remaining costs for non-meat meals and for tuition are small, but nevertheless there are families so poor that their children do not have clothes to wear to school. In 1987, the nation's boarding schools could accommodate 74,000 students; currently however, they can accommodate only 60,000, leaving a shortage of 20,000 spaces.

Children of livestock breeders are slow in terms of physical development, and accordingly the policy of admitting them to school at age eight cannot be changed in light of dormitory life. It was decided that it would be preferable for them to attend primary and secondary school under a 10-year 4-4-2 system and a series of regulations to this effect was promulgated and enforced in 1995. However, it was forgotten that general and vocational

educational methods for children living in boarding school dormitories were limited and that there would be problems in not being able to carry through effective policies, such as the provision of peripatetic teachers.

The fact that peripatetic teaching, which helps supplement boarding school education, is not only a new emergency, crisis-like solution but is an essential component of primary and secondary school education in Australia, Inner Mongolia in China, and other pastoral nations has not been discussed. The basic issue of what educational methods should be like in a society that is chiefly composed of scattered villages on the steppes is not being debated in schools at the local level.

7) The Social Status of Teachers and Conditions of Employment

The teachers' strike begun in April 1995 continued until September that year, when salaries were raised 40%. Nevertheless, teachers' working conditions cannot be said to have improved adequately. The non-payment of salaries to rural teachers is yet to be resolved, and this is a grave problem that continues to attack the very foundations of Mongolian society. With such challenges being faced amidst the transition to a market economy, it is absolutely essential to enhance the social status of the teachers who are responsible for communicating to the younger generation the vision of a new Mongolian society and the specific approaches to improving the existing society. The new government born in August 1996 made a public promise to make improving education a top priority. It is not clear how the financial resources to make education free will be secured, but it is hoped that the new government's other public pledge, to reduce taxes, will not affect the education budget, one that tends to take a back seat.

8) Development Directions

The greatest problem is that the lack of policy coordination in the educational system is slowing the overall resolution of human resources development problems. It is well known that the country's fiscal straits have a major impact on the socially disadvantaged, and the failure to adequately coordinate policies for the resolution of this problem has created a situation in which the people in a position to help are not convinced of the importance of education and human resources development. If this environment in which teachers are unable to gain confidence persists, it will prolong the situation in which confidence is not imparted to the disadvantaged.

Thus far we have discussed the Mongolian responses, international aid

organizations' responses, and Japanese responses in the education and human resources development field since 1990. It is easy to imagine that certain levels of success would have been attained in all sectors. It must be stated, however, that the vast majority of these successes were attained in an emergency, crisis-like fashion rather than in a systematic manner through deliberately planned programs. A step must be taken forward from this emergency, crisis-like education and human resources assistance to the next stage of development. Above all else, the content of the ADB Master Plan must be reaffirmed, organizations in each country must coordinate their assistance plans with others, and systematically promote human resources development in the fields of macroeconomic policy, infrastructure development, health care, and education.

Judging from the series of educational laws and regulations that have been drawn up, the 10-year education reform plan launched in 1996, Education Year, can be expected to produce systematic results. In more than a few cases, however, these legislative changes are election promises or do not conform to actual conditions. This is reflected in still-high numbers of children not attending school, a group that now numbers 55,747 (12.2% of the total number of 455,200 students).

Growing demand for child labor in livestock production regions is of course one reason for the country's high school non-attendance rates, but beyond this, educational policies that fail to dispel disappointment in educational content and lack of confidence in teachers are in need of improvement. Along with the creation of school dormitories and the supplementation of school meal costs, it is necessary to provide adequate new educational materials, to rationalize instructional content and teachers' salaries, and to begin creating Master Plans for teacher re-training, peripatetic teaching, and distance education.

Over 330 Mongolians have taken part in JICA education and human resources development training in Japan over a six-year period. Some may contend that this is grossly insufficient in terms of absolute numbers, when as many as 10,000 exchange students (trainees) were sent to the former Soviet Union and East European countries during the socialist era, but nevertheless certain accomplishments have been recorded. When one considers that education and human resources development is the very basis of a country's independence, however, one can see that while overseas training is indispensable, it plays nothing more than a complementary role–it by itself is not sufficient. The new government is pinning its hopes on education abroad, but it should put more energy into education and human resources development at home.

A focus is being placed on preschool education, but the most important issue is restoring confidence in education itself. To achieve this end, budgetary measures should be devised using all possible means, and policies adopted that will foster national self awareness.

Based on the above, the following directions must be emphasized:

- Reconfirming and carrying out comprehensive education and human resources development programs
- Formulating systematic training plans in all sectors
- Coordinating donor countries' assistance priorities in the education field
- Vocational and technical education (including accounting and tax accounting)

2.6 Social Infrastructure–Health Care, Employment, Poverty Alleviation

During the socialist era, thanks to government policies that placed priority on social development and abundant fiscal resources, Mongolia had constructed a national health and medical care system under which free medical services were provided to 90% of the population. In addition, there were no unemployment problems, and no specific socioeconomic groups bedeviled by poverty under the socialist economic system. With the transition to a market economy, however, a number of difficult social problems surfaced, including a deterioration of social welfare services, unemployment, and poverty. Current fiscal difficulties are major factors at the root of these problems, and the situation is exacerbated by the chaos attendant upon the fall of the old system and the transition to a new one. The growth in numbers of poverty-stricken households must be addressed in particular. At the root of the problem lies economic difficulty. In addition to the confusion of restructuring formerly state-owned enterprises and large plants amidst the transition to a market economy, the dismantling of distribution mechanisms and industry torpor in small regional cities are ongoing concerns, and the hardships faced by people living in large and small cities are ever more severe. There are many problems in the agricultural and livestock sector, including widening regional and income disparities, and confusion and scaling-down of market transactions. This sector can no longer accept and absorb poor urban households.

Over the past several years the Mongolian government has made efforts to restructure and upgrade the country's social infrastructure, and new steps are finally being taken to address the poverty issue. Specifically, progress is being made in the development of a new policy framework called the Poverty Alleviation Program (PAP). The National Poverty

Alleviation Committee (NPAC), headed by the Deputy Prime Minister, was launched in the fall of 1995, and the Poverty Alleviation Fund Council, comprising representatives from interested government and non-governmental bodies, was established under the NPAC and given the task of monitoring the activities of various funds within this framework. The activities that are carried out within the framework of this plan were to be overseen under the former administrative arrangements by the Ministry of Population Policy and Labor. The plan itself is aimed at alleviating poverty by covering a broad range of areas, including the creation of jobs, enhancement of women's economic status, promotion of agricultural and pastoral regions, and social welfare.

In the following sections, we will consider health and medical care, employment, and poverty alleviation while taking into account the conditions discussed above.

(1) Health and Medical Care

Mongolia's health and medical care system formerly reached the furthest corners of the administrative regions, the *aimag*, *sum*, and *bag*, but many problems have arisen due to fiscal difficulties and institutional changes. We will examine each of these problems in turn: the medical care delivery system and administrative functions, the health insurance system, the aging of medical instruments (updating and adoption of new technology), distribution mechanisms for the supply of existing and improved pharmaceuticals, human resources development, education, and retraining mechanisms.

1) Medical Care Delivery System and Administrative Functions

National health and medical care indicators are shown in Table 2-6-1. To illustrate regional disparities, indicators are given for the capital city of Ulaanbaatar, the northern industrial city of Darkhan, and the western *aimag* of Zavhan. Out of a total number of 470 hospitals, 51 are general hospitals, 398 are regional hospitals. Public health centers can be found in 19 of the country's 21 *aimag*. In addition to hospitals and clinics, recent years have seen the emergence of home physicians and private physicians. The home physician system is one that has been adopted primarily in urban regions since 1991. Home physicians work at clinics and provide outpatient medical care that is paid for with public funds. A home physician is responsible for 70 households on average; he or she provides treatment and refers patients to specialist hospitals when necessary. Home physicians travel to the homes in their area, talk with families about child birth and family planning, and provide health education. There are reported to be approximately 200 private physicians throughout the country. They are active in such fields as traditional medicine, internal medicine (Western style), dentistry,

gynecology, and pharmaceutics. A small number of joint venture hospitals have been opened in partnership with Russia, South Korea, and Great Britain (one each), and it is reported that preparations are currently underway for a joint facility in partnership with Tibet. Thus, the medical care delivery system is well-established, but regional disparities exist, and confusion can be seen in medical administration. For example, the distribution of physicians is uneven and there are notable shortages and excesses of personnel in certain areas. There are also problems such as the mismatch of medical instruments and qualified operators. Current trends in this area include a weakening of medical services in agricultural and pastoral regions, difficulty in accommodating nomadic families that move around over large areas, declining quality of maternal-child health care, and increases in health problems suffered by poor women and children.

2) The Health Insurance System

Mongolia has abolished its universal free health care system, adopting in 1991 a system under which patients are partially responsible for their medical expenses. Public funds continue to be used, however, for basic services, such as emergency treatment, vaccinations, pregnancy, child birth, and treatment of chronic disease. The National Health Insurance Law, which took effect in 1994, has as its policy objectives ensuring a source of government revenue, boosting the income of medical care professionals, and reforming patients awareness of the system. Currently, 97% of the population is covered by two types of health insurance: compulsory insurance and voluntary insurance. Those covered under compulsory insurance pay a fixed percentage of their salary, 6%, in insurance premiums, while the government pays the premiums for those covered under voluntary insurance (for example, children aged 16 and younger, farmers, herdsmen, seniors, retirees, the infirm, and mothers with children aged two or younger). In reality, however, this insurance system cannot be said to be fulfilling the functions stipulated in the Insurance Law. There are severe revenue shortages in rural areas especially, and in some cases, government subsidies cover 30% and the patient contribution amounts to 70%. Some central hospitals and *aimag* hospitals exempt poor households from payment responsibilities and *sum* hospitals are considering similar measures.

3) Aging Medical Instruments and Shortages of Pharmaceuticals

Decentralization has been encouraged since 1992, and regional areas have been given autonomy with respect to the formulation of health care plans and the compilation of health care budgets. However, major problems abound: revenue is tight and hospitals lack sufficient sources of funds, facilities and equipment are aging, pharmaceuticals are in short

supply, and wages for physicians and other medical professionals are low. Concerns have also been raised about the stability of electricity and other energy supplies. The medical facilities at central hospitals are relatively modern, and high-tech medical instruments and special training have been provided (for CAT scanning, for example) with international assistance. In regional hospitals at the *aimag* level and below, however, ultrasound, X-ray, and other diagnostic equipment is lacking or rapidly aging; in some cases hospitals have X-ray rooms but no appropriate equipment. There are also severe shortages of pharmaceuticals, and there are some situations where supplies procured from the central government do not reach regional medical facilities. These pharmaceutical shortages are basically attributable to a lack of imports, itself a product of insufficient funds. Nevertheless, the supply of pharmaceuticals with international assistance (for example, by the French NGO Médein Sans Frontière) is a one-off event, and cannot support the Mongolian medical system on a continuing basis.

4) Human Resources Development, Education, and Retraining Mechanisms

Specialized training is provided at the National Medical University of Mongolia and practical training offered at central hospitals. However, shortages of educational equipment (lack of microscopes, for example) is a major problem. At *sum* hospitals, medical treatment is provided by physicians, specialized technicians, and nurses. People in these educational categories require re-education and training so that they can keep up with developments in medical technology. The health and medical care system, including the area of education and human resources development, must be systematically rebuilt.

(2) Employment Problems

According to government statistics, the unemployment rate steadily worsened after 1990 until it peaked at 8.7% in 1994, after which it began to improve (Tables 2-6-2 and 2-6-3). Using figures for the economically active population in 1994, the unemployment rate was 5.2% in 1995 and 5.7% in the first five months of 1996. If employment in various informal sectors is taken into consideration, the actual unemployment rate probably far exceeds the official figures. The percentages of unemployed people in the population is low in the industrial cities of Ulaanbaatar and Darkhan. Moreover, there are considerable differences between *aimag*; in some, the number of unemployed is rapidly increasing and no improvement is evident (for example, Arkhangai, Bulgan, Dornod, and Ömnögovi). Behind this reality lie a host of problems, including the difficulty of restructuring large state factories, problems in obtaining raw materials and transporting products due to inadequate

distribution mechanisms, a poorly developed manufacturing sector, including industries engaged in the processing of agricultural and livestock products, and employee cutbacks due to fiscal constraints. In the informal sector there are increasing numbers of peddlers, part-time workers, invisible unemployed in agricultural and pastoral regions, and low-income workers making less than the average cost of living.

(3) Poverty Alleviation

1) Social Protection and the Social Safety Net

According to the criterion revised in December 1995, the poverty line is Tg8,000 per person per month for urban households and Tg6,900 for rural households. Based on this yardstick, approximately one-fourth of the total population belonged to the indigent class as of 1995. The majority of this indigent class consists of female-headed households, small herders who own 15 or fewer animals, and unemployed persons.

Mongolia offers three types of pensions: retirement pensions, disability pensions, and pensions for orphans. A range of social security payments is presently the safety net for the indigent class. A transition was made to a new system in 1994, and consideration is being given to stipulating a premium payment obligation and to the establishment of a social insurance company. Due to inflation, many pension recipients find themselves in the indigent class. Emergency assistance, including a wide range of assistance from abroad, is being extended in the area of social welfare services (e.g., wheat and other food assistance, provision of meals, district social welfare center activities).

2) Poverty Alleviation Program

The Poverty Alleviation Program is aimed at ameliorating the problems of the indigent class, which has been growing in size during the transition process. The PAP is a six-year program formulated in 1994 with support from the UNDP and other international organizations. The most important feature of the PAP is that it simply provides a national framework for poverty alleviation policies and activities, and no blueprint detailing the program's content was prepared at the outset. A second important feature, related to the first, is that it envisions a participatory approach in which the government and aid organizations do not force the content of the program on the people from above, but rather the beneficiaries–the indigent class–themselves take the initiative to plan and formulate individual projects. Accordingly, the PAP centers established at the regional government level–in the *sum* and *aimag* that are closest to the participants–have a key role to play in

terms of implementing the program. A third important feature of the program is that it spans numerous sectors, including infrastructure, agriculture, livestock farming, social welfare, and education, and is expected to use a wide variety of means, including small-scale public works projects, support for small start-up enterprises, education assistance for poor children, strengthening of health care and medical systems, programs for boosting women's income, and welfare programs for the poor. That is to say, a key feature of the PAP is that it focuses a wide variety of activities in numerous sectors on the indigent class and directs these activities toward the four major goals of job creation, local community development, women's development, and social assistance.

Specifically, the PAP involves the following:

(1) Interrelated PAP centers (or committees) have been established at three administrative levels–the central government, *aimag*, and *sum*.

(2) In line with bottom-up mechanisms, individuals or small groups of people plan small-scale projects and submit them to the *sum* PAP committee in response to appeals from the central government PAPO (PAP Office). The *sum* PAP committee examines the project plans it has collected.

(3) The *sum* PAP committee summarizes the projects it has examined for the *aimag* PAP center. It also submits the projects to the central PAP management unit, then coordinates them and proceeds toward their implementation. The *aimag* PAP centers are given the authority to select and make decisions about projects.

(4) The overseeing organization is placed at the *sum* level.

(5) Sectoral organization involves four areas (local development, social assistance, employment promotion, and women's development). A decision was made to give precedence to employment promotion in 1996, but, needless to say, all four areas are interrelated.

(6) Funds (financing) are programmed separately for each area (including, for example, World Bank funds for local development, UNDP funds for women's development, and trust funds for the two other areas).

7. *Aimag* PAP centers are responsible for handling funding transfers and contracts.

In the first funding round in 1996, a list was drawn up of 225 projects in 17 *aimag* and Ulaanbaatar. [15] According to this list, over half of the projects fall into the category of handicraft and food processing industries. There were few agricultural activities. Public projects are concentrated in the area of community service, and there are a scant number of projects in the areas of use and conservation of natural resources and road preservation. The total cost of these projects amounts to Tg129,771,482, representing an average of Tg57,650 per project. While the goal for this year has been narrowed down to job creation, projects are concentrated in the area of helping small-scale start-up enterprises and there is a tiny number of small-scale public works projects. Data concerning the second round of projects are not available, but in two hearings the details were found to vary by region, and individual/small-group projects included vegetable cultivation (e.g., cabbages, potatoes), the raising of small livestock (pigs, chickens, etc.), the transport and sale of drinking water, the collection and sale of cow manure, and the manufacture and sale of furniture. In the area of public works projects, plans have been made for *sum* waste treatment projects (employing five persons each) and cleaning projects.

Separate to the activities initiated within the PAP framework, a number of programs and projects in women's development have been formulated and implemented.

In Mongolia, gender equality in the political, economic, and social realms was guaranteed, and remains so after the country's economic reforms, but women's status has begun to decline amidst the transition to a market economy. Among poverty problems, the impoverishment of female-headed households and female pensioners has become a major problem. The percentage of female-headed households is particularly high in the Gobi region, and special consideration is currently being given to this problem.

A wide range of women's development projects aimed at empowering Mongolian women were being implemented prior to the start of the PAP. For example, providing small credit to support start-up micro-enterprises in sewing and other handicraft industries to help boost incomes in female-headed households, establishing and providing vocational training centers and technical training courses in order to expand employment opportunities and assist start-up enterprises. These include projects begun in 1991. The Mongolian Women's Federation, with local chapters throughout the country, plays a central role in these

[15] PAPO (1996b).

development projects. In addition, international organizations and foreign governments (e.g., UNDP, UNESCO, Australia, the Netherlands, Italy) are providing intellectual and financial assistance, and NGOs have been active in promoting domestic and international cooperation (with Germany, Japan, the United States, etc.). Presently, these organizations, in conjunction with the PAP projects, are strengthening cooperation at the *aimag* level through cooperation with local government.[36]

[36] PAPO (1996a).
Griffin, Keith (ed.) (1995).