3. 質問書および回答

Questionnaire
for
The Feasibility Study
on
The Facility Improvement and Environmental Protection
of
Borsod Power Plant
in
the Republic of Hungary

September 1995

Preparatory Study Team of JICA

CONTENTS OF QUESTIONNAIRE

Legend

1) Remarks Column :

A: To be obtained by the Preparatory Study Team (June 1995)
B: To be obtained by the Preparatory Study Team (September 1995)
C: To be obtained by the Feasibility Study Team (June 1995)

2) Availability Column :

0: available *: JICA team already received
Items which JICA team already obtained are marked *.
Please fill out the availability of the rest of items.

3) Please prepare and provide the answers in English.

I. GENERAL INFORMATION OF ELECTRIC POWER SUPPLY IN HUNGARY

Items	Data and/or Information	Remarks	Availability	Received from
1-1. Organization of Electric Power Supply	1-1-1. Administrative organization of electric power supply	A	*	MVM
	1-1-2. Organization of IKM and MVM	A	*	MVM
1-2. Year Books of MVM	1-2-1. Year Books of MVM (annual report)	A	*	MVM
	1-2-2. Financial statement of MVM	C	O	MVM
1-3. Electric Power Tariffs	1-3-1. Electric power tariffs of MVM	A	*	MVM
1-4. Generating Cost	1-4-1. Generating cost in the latest 5 years (a) Thermal power plant (b) Nuclear power plant (c) Hydro power plant (d) Others	C	O	IKM MVM
1-5. Historical Records of Electric Power Demand and Supply	1-5-1. Historical records of energy consumption and number of customers by customer categories (for the latest 10 years)	B/C	O	IKM MVM
	1-5-2. Historical records of demand-supply balance by supply categories (hydro, thermal, nuclear, etc.) (for the latest 10 years) (a) Installed capacity of power plants (b) Available capacity of power plants (c) Peak demand (d) Energy generation	C	O	MVM
	1-5-3. Historical records of peak demand (in the latest year)	C	O	MVM
	1-5-4. Monthly peak demand (in the latest year)	C	O	MVM
	1-5-5. Daily load curves by month (in the latest year)	C	O	MVM

Items	Data and/or Information	Remarks	Availability	Received from
1-6. Forecast of Electric Power Demand and Supply	1-6-1. Forecast of energy consumption and number of customers by customer categories	C	O	MVM
	1-6-2. Forecasts of demand-supply balance by supply categories (hydro, thermal, nuclear, etc.) (a) Installed capacity of Power Plants (b) Available capacity of Power Plants (c) Peak demand (d) Available energy generation (e) Required energy generation	C	O	MVM
	1-6-3. Forecast of peak demand	C	O	MVM
1-7. Imported/Exported Electric Power	1-7-1. Imported electric power in the latest 5 years (a) MWh per annual (b) Max MW (c) Charge per kWh	C	O	MVM
	1-7-2. Exported electric power in the latest 5 years (a) MWh per annual (b) Max MW (c) Charge per kWh	C	O	MVM

2. ELECTRIC POWER FACILITIES IN HUNGARY

Items	Data and/or Information	Remarks	Availability	Received from
2-1. Power Plants	2-1-1. List of existing, on-going and planned power plants in MVM and others (a) Owners (b) Type (hydro, thermal, nuclear, etc.) (c) Plant name (d) Location (e) Number of Boiler and Turbine (f) Environmental countermeasures (DeSOX, DeNox, Durt, Collector, Stack Hight, etc.) (g) Installed capacity (h) Available capacity (i) Station service power ratio (j) Energy generated (for the latest 5 years) (k) Date of commissioning	C	O	MVM IKM

Items	Data and/or Information	Remarks	Avail-ability	Received from
2-2. Transmission Lines	2-2-1. List of existing, on-going and planning transmission lines (over 110 kV rating) (a) Owner (b) Voltage (c) Section name (d) Section length (e) number of circuit (f) Conductor or cable (g) Support (h) Date of commissioning	C	O	MVM
	2-2-2. Transmission system diagram	C	O	MVM
	2-2-3. Power flow diagram of transmission lines	C	O	MVM

Items		Data and/or Information	Remarks	Avail-ability	Received from
2-3. Substations	2-3-1.	List of existing, on-going and planned principal substations (over 110 kV rating) (a) Owner (b) Voltage (c) Substation name (d) Location (e) Installed capacity (f) Date of commissioning (g) Manufacturer	C	O	MVM
	2-3-2.	Expansion plan of substations and transmission lines	C	O	MVM
2-4. Electric Power System Interr-uption	2-4-1.	Electric power system interruption records in terms of frequency and duration (in latest 5 years) (a) Power plants (b) Transmission lines (c) Substations	C	O	MVM
2-5. Load Dispatching System	2-5-1.	Organization for load dispatching operation in MVM system	C	O	MVM
	2-5-2.	Existing, on-going and planned load dispatching facilities	C	O	MVM
	2-5-3.	Present function of load dispatching system	C	O	MVM
2-6. Detailed F/S Report for Borsod Power Plant	2-6-1.	Full document of detailed F/S report for Borsod power plant(1993)	B	O#	Borsod PP

part of full document

3. BORSOD POWER PLANT

Items	Data and/or Information	Remarks	Availability	Received from
3-1. Location Map	3-1-1. Topographic map covering project area scale 1 : 25,000 1 : 50,000 1 : 250,000	A	O	FTI (Bp.)
	3-1-2. Aerophotograph	B	O	FTI (Bp.)
3-2. Geological and Seismic Data	3-2-1. Geological map covering project area scale 1 : 50,000 1 : 100,000	A	O	MAFI (Bp.)
	3-2-2. Existing boring column and test data	C	O	
	3-2-3. Seismic prospecting or earthquake report	C	O	FO (Bp.)
	3-2-4. Records of earthquake	C	O	
	3-2-5. Applicable seismic design criteria	C	O	
3-3. Cooling Water Resources	3-3-1. Source/flow quantity/level fluctuation	A	O	EKF,EVIZIG
	3-3-2. Water quality	A	O	EKF
	3-3-3. Record of maximum flood in project area	A	O	EVIZIG
3-4. Standard and Regulation in the Republic of Hungary	3-4-1. Laws and/or regulations on (a) dangerous objects (b) preventing of fire (c) civil works and buildings	C	O	MSZM (Bp.)
	3-4-2. Code and/or standards of (a) electrical equipment (b) mechanical equipment (c) civil and architectural works (d) piping (e) others	C	O	

Items	Data and/or Information	Remarks	Availability	Received from
3-5. Power plant facility	3-5-1. layout, operation/maintenance data, fuel data, flow diagrams.	C		
	3-5-2. Organizations and number of workers	A	*	Borsod PP
	3-5-3. Outline of facilities for boiler, turbine and generator (including start-up boiler)			
	(a) Main Specifications (Rated/available capacity, type, steam conditions, fuel,manufacturer, commissioning date, etc.)	A	*	Borsod PP
	(b) Major equipment of the power plant	A	*	Borsod PP
	(c) Electrical one-line diagrams	A	*	MVM F/S
	(d) Other systems (fuel and ash handling, water treatment, automatic control, anti-pollution equipment, etc.)	B	O	Borsod PP
	3-5-4. Data of operation			
	(a) Operation cost in the latest 5 years	B	O	Borsod PP
	(b) Accumulated numbers of start-up	A	*	Borsod PP
	(c) Typical patterns of operation (base load/peak load, operation curves, if available)	B	O	Borsod PP
	(d) Plant thermal efficiency.	A	*	MVM F/S
	(e) Brown-out records for the latest 3 years	A		

Items	Data and/or Information	Remarks	Availability	Received from
3-5. cont'd	3-5-5. Data of Maintenance (a) Maintenance cost in the latest 5 years (b) Comprehensive overhaul reports of all units for the latest 3 years (c) Non-scheduled shutdown (average number per year) (d) Historical record of large replacement of parts (such as valves, pipes, turbine blades, etc.) (e) Condition of electrical equipment (f) Lists of daily maintenance work orders for the latest 1 year	C		
	3-5-6. Technical problems in operation and maintenance such as errosion, corrosion, malfunction, etc.	C		
	3-5-7. Component of exhaust gas and fuel	A/B		
	(a) Content of SOx, NOx, dust, humidity and O2 in flue gas.		O	Borsod PP
	(b) Volume of exhaust gas (N-m3/hr)		O	Borsod PP
	(c) Property of coal (Sulfur content , ash content, clorific value etc.)		*	Borsod PP
	(d) Amount of coal consumption		*	Borsod PP
3-6. Steam Supply	3-6-1. Steam capacity, steam conditions	A	O	MVM F/S
	3-6-2. Specification of steam line, etc.	A	*	MVM F/S
	3-6-3. Location map, layout drawing, flow diagram, etc.	A	*	MVM F/S
	3-6-4. Selling price	A	*	MVM F/S

4. COAL IN HUNGARY

Items	Data and/or Information	Remarks	Availability	Received from
4-1. Organization of Coal Supply	4-1-1. Administrative organization of coal	A	O	MVM
	4-1-2. Organization of coal mine company	A	O	MVM
4-2. Coal Mines	4-2-1. Location of coal fields	A	*	Borsod PP
	4-2-2. Coal deposits (possible supply years)	A	*	MVM F/S
	4-2-3. Type of coals	A	*	MVM F/S
	4-2-4. Method of mining	A	*	MVM F/S
4-3. Coal Supply Data in the latest 5 years	4-3-1. Output of coal and cost of mining in each coal field and type of coal	A		
	4-3-2. Amount of imported coal and price in each type of coal	A	*	MVM F/S
	4-3-3. Method of coal transportation	A	*	MVM F/S
4-4. Coal Demand Data in the latest 5 years	4-4-1. Amount of coal consumption and price in each year, type of coal and purpose of demand	C	O	Borsod PP
4-5. Forecast	4-5-1. Future coal demand	C		
	4-5-2. Supply plan including development of new coal field	A	*	MVM F/S
4-6. Typical Coal Quality of above mentioned Coal Mines	4-6-1. Proximate analysis, calorific value, total sulphur, ultimate analysis, hardgrove grindability index, etc.	A	*	MVM F/S
	4-6-2. Ash analysis, ash fusion temperature, etc.	A	*	MVM F/S
	4-6-3. Specification criteria of coal for power plants, especially sodium oxide contents of ash and hardgrove index.	A	*	MVM F/S
4-7. Imported Coal	4-7-1. Amount of imported coal, country(ies), price per ton, low calorific value (Kcal/kg), sulfur contents (%), surface moisture (%), etc.	C		
4-8. Coal Supply for Borsod Power Plant	4-8-1. Coal transportation, Coal anlysis, Developing plan of coal mines, etc.	C		

5. LIMESTONE

Items	Data and/or Information	Remarks	Avail-ability	Received from
5-1. Limestone Supply for Borsod Power Plant	5-1-1. Limestone mines (Owner, location, reserve, annual product)	A	*	Borsod PP MVM
	5-1-2. Size of limestone	C	O	
	5-1-3. Transportation to power plant (railway, road, etc.) and transport capacity per day.	C	O	
	5-1-4. Price of limestone	C	O	

6. METEOLOGICAL DATA, ENVIRONMENT AND COMPENSATION

Items		Data and/or Information	Remarks	Avail-ability	Received from
6-1. Meteological Data in the latest 5 years	6-1-1.	Ambient temperature/relative humidity records	A	*	JICA F/S
	6-1-2.	Wind intensity/direction	A	*	JICA F/S
	6-1-3.	Rainfall and heavy rainy season	A	*	JICA F/S
	6-1-4.	Peculiar condition	A	*	JICA F/S
	6-1-5.	IKL (Isokeraunic Level) map	C	O	
6-2. Environmental and Ecological Conservation Regulation	6-2-1.	Organization responsible for the assessment	A	*	KTM
	6-2-2.	Organization on environmental and proceeding flow chart.	A	*	KTM
	6-2-3.	Air pollution regulation,	A	*	KTM
	6-2-4.	Water pollution regulation	B	O	EKF
	6-2-5.	Noise standard	B	O	
	6-2-6.	Disposal regulation (solid waste-ash)	B	O	
	6-2-7.	Usage of ground water	A	*	KTM
	6-2-8.	Industrial wastes disposal	A	O	EKF
	6-2-9.	Land filling, reclamation	A	O	NTA
6-3. International Conventions on Environmental Conservation	6-3-1.	Name and date	A	*	KTM
6-4. Environmental Protection System in Borsod Power Plant	6-4-1.	Flue gas desulfurization facilities	A	*	Borsod PP
	6-4-2.	Electrostatic precipitator	A	*	Borsod PP
	6-4-3.	Low-NOx burner	A	*	Borsod PP
	6-4-4.	Two stage combustion system for lowering of NOx	A	*	Borsod PP
	6-4-5.	Waste-water treatment facilities	A	*	Borsod PP
	6-4-6.	Exhaust gas monitor	A	*	Borsod PP

Items	Data and/or Information	Remarks	Avail-ability	Received from
6-4. Cont'd	6-4-7. Monitoring of SOx and NOx	A	*	KTM
	6-4-8. Measured values of SOx and NOx in ambient air.	A	O	ANTSZ
	6-4-9. Water pollution around ash-treatment facilities/pond	A	*	EKF
	6-4-10. Technical data of CFBC and HFBC system (desulfurization efficiency, firing system, etc.)	A	O	MVM
	6-4-11. Detailed test data of HFBC at Ajka power station	A	O	MVM
6-5. Existing Environmental Study Report	6-5-1. Power plant candidate sites	A	*	MVM
	6-5-2. Local consultants (Name, Past records, Ability)	A	*	MVM
6-6. The Natural Environment within and near the project area	6-6-1. Fragile nature (wetlands, etc.)	A	O	EKF
	6-6-2. National parks / natural parks	A	O	BNP
	6-6-3. Precious fauna/flora	A	O	
	6-6-4. Biological map and data	A	O	
	6-6-5. Water resources data	A	O	EVIZIG
	6-6-6. Utilization of ground water	A	O	EKF
	6-6-7. Water quality and temperature of the rivers	A	O	
	6-6-8. Water pollution	A	O	
	6-6-9. Soil contamination	A	O	Ok Jut
	6-6-10. Noise and/or vibration problem	A	O	EKF
	6-6-11. Offensive odor problem	A	O	ANTSZ

Items		Data and/or Information	Remarks	Availability	Received from
6-7.	The Social Environment within and near the project area	6-7-1. Utilization of land, owner of the land	C	O	FHOK
		6-7-2. Minorities, Former residents	C	O	Onkorm.-ok
		6-7-3. Public facilities (hospitals, schools, etc.)	C	O	
		6-7-4. Drinking water facilities and sewage systems	C	O	
		6-7-5. History of epidemic diseases	C	O	ANTSZ
		6-7-6. Future development plan	C	O	Onkorm.-ok
		6-7-7. Water use rights, fishing rights	C	O	EVIZIG
		6-7-8. Law and restriction for compensating the economic activities	C	O	Onkorm.-ok
		6-7-9. Statistical data of the economic activity	C	O	KSH
		6-7-10. Historic or cultural site	C	O	Onkorm.-ok
		6-7-11. Landscape important for tourism and/or religion	C	O	BNP
6-8.	Compensation	6-8-1. Compensation cost	C	O	

7. INLAND TRANSPORTATION

Items	Data and/or Information	Remarks	Availability	Received from
7-1. Port Facilities	7-1-1. Available port nearest from the project site (a) Port name (b) unloading capacity (c) Seasonal restriction for unloading	A	O	Koz.ig. HAV
7-2. Transportation Route	7-2-1. Inland transportation from port to site (a) Transportation route (b) Limitation of carrying capacity by weight and dimension (c) Recommendable contractor for inland transportation (d) Past survey report of transportation route	C	O	
7-3. Cost of Inland Transportation	7-3-1. Cost of inland transportation per km, per Ton, etc.	C	O	
	7-3-2. Hire charge of truck, car, barge, etc.	C	O	

8. COST ESTIMATION AND ECONOMIC EVALUATION

Items	Data and/or Information	Remarks	Availability	Received from
8-1. Construction Cost	8-1-1. Labor cost (a) Daily working hours and wages (b) Premium payment for holiday and over-time work	C	O	Borsod PP KSH
	8-1-2. Materials/machines cost	C	O	Borsod PP
	8-1-3. Unit cost of thermal power plants constructed in recent years (per kW) (a) Nuclear (b) Domestic coal (c) Imported coal (d) Oil	C	O	Borsod PP IKM MVM
	8-1-4. Unit cost of transmission line and substations	C	O	Borsod PP
8-2. Fuel Cost	8-2-1. Fuel cost (past and future) (a) Nuclear (b) Domestic coal (c) Imported coal (country, Kcal/kg) (d) Oil (e) Natural gas	C	O	Borsod PP IKM MVM
8-3. Operation and Maintenance Cost	8-3-1. Thermal power plant	C	O	Brosod PP
	8-3-2. Transmission line	C	O	
	8-3-3. Substation	C	O	
8-4. Administration Cost	8-4-1. Administration cost	C	O	
8-5. Import Duties	8-5-1. Import duties	C	O	

9. SOCIOECONOMIC SITUATION

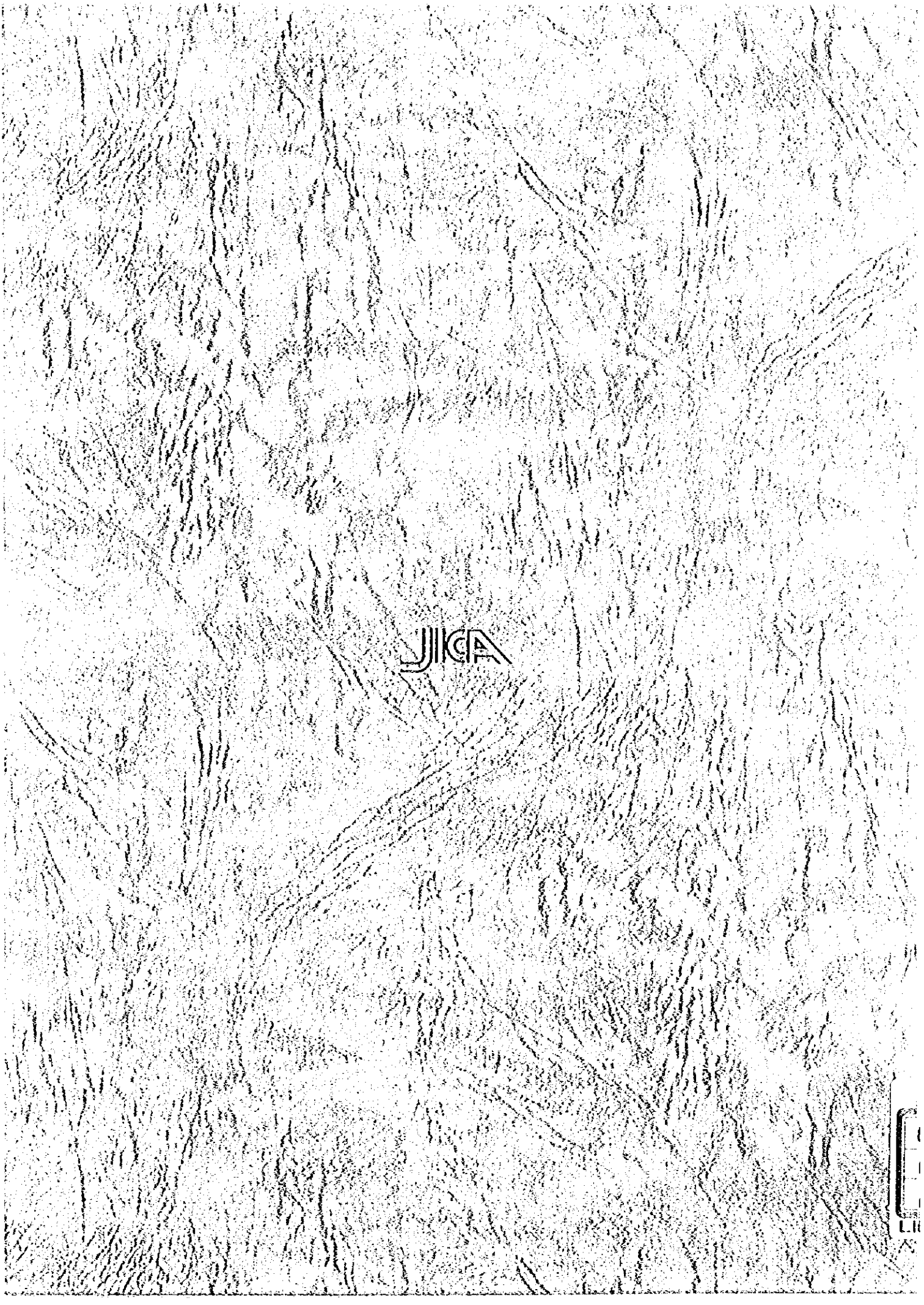
Items	Data and/or Information	Remarks	Availability	Received from
9-1. Population	9-1-1. Historical records of population by regions (in the latest 10 years)	C	O	KSH
	9-1-2. Forecasts of population by regions	C	O	
9-2. Economic Situation	9-2-1. Historical records of economic indices (in the latest 10 years)	C	O	KSH
	(a) Gross domestic product (GDP) by sectors			
	(b) Gross national product (GNP)			
	(c) National income			
	(d) Government revenue and expenditure			
	(e) Balance of trade		O	IKM
	(f) Export and import by type of commodities		O	
	(g) Balance of international payment		O	MNB
	(h) Outstanding foreign debts		O	
	(i) Foreign currency reserves		O	
	(j) Consumer price index			KSH
	(k) Wholesale price index			
	(l) Exchange rate			
	(m) Employment by sectors			
	(n) Unemployment ratio			
	9-2-2. Historical records of energy production and consumption by type of energy resources (in the latest 10 years)	C	O	KSH

10. OTHERS

Items	Data and/or Information	Remarks	Availability	Received from
10-1. Published Statistics	10-1-1. Year book of the Republic of Hungary, etc.	C	O	KSH
10-2. Engineering Consultants, Company in the Republic of Hungary	10-4-1. Pamphlet and other information of the company	A	O	MVM

FTI	Földmérési és Távérzékelési Intézet (Geodetic and Distant Sensing Insitute)	1/252-8222
	Távérzékelési Főosztály (Distant Sensing Main Department)	1/252-8222
	Adat és Térképtári Osztály (Data and Cartographie Departament) 1149 Budapest, Bosnyák tér 5.	1/163-6026
MSZH	Magyar Szabványügyi Hivatal (Hungarian Bureau of Standards)	1/218-5135
	Szabványbolt (Shop of Standards)	1/218-3011
	Hivatal (Bureau) 1091 Budapest, Üllöi út 25.	1/216-5055
MÁFI	Magyar Állami Földtani Intézet (Hungarian National Geological Insitute)	
	Földtani Térképészeti (Geological Cartogrphic Main Department) 1143 Budapest, Stefánia út 14.	1/251-6878
FO	Földrengésjelzö Obszervatórium (Seismological Observatory) 1112 Budapest, Meredek u. 18.	1/166-6592
MNB	Magyar Nemzeti Bank Budapest	
KSH	Központi Statisztikai Hivatal (Central Bureau of statistics) 3527 Miskolc, Katalin u. 1.	46/328-411
Ök.Int	Ökológiai Intézet (Ecological institute) 3525 Miskolc, Kossuth L. u. 13.	46/352-010
MÁV	Magyar Államvasutak (Hungarien State Rail) Árúfuvarozási Osztály (Goods Transporting Department of the Hungarian State Rail) 3530 Miskolc, Szemere B. u. 26.	46/358-402
OMSZ	Országos Meteorológiai Szolgálat (National Meteorogical Service) 3501 Miskolc, Mendikás u.	46/368-706
FH	Földhivatal, megyei, városi (Bureau of Lands, county, city) 3530 Miskolc, Vologda u. 4.	46/358-211

Köz.lg.	Közúti Igazgatóság (Management of Public Roads) 3529 Miskolc, Soltész Nagy K. u. 173.	46/364-333
Önkorm.-ok	Önkormányzatok (Self-Govemments) BAZ megyei (County) 3525 Miskolc, Városház tér 1. Miskolc, városi (city) Miskolc, Városház tér 8. 3770 Sajószentpéter, Béke tér 4. 3700 Kazincbarcika, Fö tér 4.	 46/323-011 46/327-211 48/345-611 48/311-711
ÉVIZIG	Észak-magyarországi Vizügyi Igazgatóság (North Hungarian Management of Waters) 3530 Miskolc, Vörösmarty u. 77.	46/411-411
ÁNTSZ	Állami Népegészségügyi és Tisztiorvosi Szolgálat (National Public Health and Medical Officers Service) (Borsod-Abaúj-Zemplén) 3530 Miskolc, Meggyesalja u. 12.	46/354-611 46/354-468
BNP	Bükki Nemzeti Park Igazgatóság (Management of the National Park of Bükk) 3535 Miskolc, Árpád út 90.	46/334-104
NTÁ	Növényegészségügyi és Talajvédelmi Állomás (megyei) (County-wide Plant Hygiene and Soil Protecting Station) 3526 Miskolc, Blaskovics u. 24.	46/321-233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