

第5章 添付資料

5.1. 事前調査時に使用した文献・資料

表 5.1-1 に今回の調査に先立ち事前に入手した文献・資料を示す。

5.2. 現地調査時に入手した文献・資料

表 5.2-1 に今回の現地調査で入手した文献・資料を示す。

5.3. 事前送付質問状および追加質問状

表 5.3-1 に現地調査に先立ち事前に関係機関へ送付した質問状を示す。

5.4. 事前調査時の電力分野の課題と知的支援

表 5.4-1 に事前調査時の電力分野の課題と知的支援の一覧表を示す。

表5.1-1 事前調査時収集文献・資料

ヴェトナム

資料NO.	表題	雑誌名・著者	頁	発行元(作成者)	資料形式	関連分野		
						政策	事業経営	民生福祉
1	ハノイ電力 1995		21		A4コピー		○	
2	ハノイ電力 1996		20		A4コピー		○	
3	ハノイ電力 1997		22		A4コピー		○	
4	ハノイ電力 1998		23		A4コピー		○	
5	ハノイ電力 1999		18		A4コピー		○	
6	The Master Plan Study on Electric Power Development in Vietnam during the Period from 2001 to 2010 with Consideration to 2020 (Summary Report)		107	The Energy Institute	A4コピー	○	○	
7	Rural Electrification Master Plan Study		68	EVN/WB	A4コピー			○
8	ベトナム社会主義共和国電力セクター調査報告書		171	国際協力銀行	A4コピー	○	○	
9	Country Assistance Plan (2000 - 2002)		34	Asian Development Bank	A4コピー	○	○	
10	Vietnam Electricity Law (non-Official Version)		31	MOI	A4コピー	○		
11	EVNから各配電会社への売電価格		2	EVN/WB	A4コピー		○	
12	ヴェトナム国北部地方予備調査帰国報告会資料		51	JICA鉱工業開発調査部	A4コピー			○
13	ヴェトナム社会主義共和国電力技術者養成プロジェクト事前調査団帰国報告会		46	JICA鉱工業開発調査部	A4コピー			○
14	Annual Report 1999	EVN	39	Electricity of Vietnam	A4コピー		○	
15	Decision on Prime Minister Ratifying the Proposal on Rural Electricity (unofficial translation)	Prime Minister No.22/1999 QD-TTg	5		A4コピー	○		○
16	Inter-Ministerial Circular Guidance on the Implementation of Power Selling Price for Residential Use to the Rural Households		5		A4コピー	○		○
19	Policy on Rural Electrification		5		A4コピー	○		○

表5.2-1 現地入手資料・文献リスト（ヴェトナム社会主義共和国）

資料入手先	資料番号	入手日	資料名	発行年・月	資料タイプ
MOI	MOI-1	Oct.9	Decision of Prime Minister, Ratifying the Proposal on Rural Electricity	Feb. 13, 1999	Copy
	MOI-2	Oct.9	Socialist Republic of Vietnam, Policy on Rural Electrification	-	Copy
MPI	MPI-1	Oct. 9	Ministry of Planning and Investment (組織図)	-	コピー
VINACOAL	VCL-1	Oct. 9	Annual Report (丹羽団長保持)	-	Original
JICA	JIC-1	Oct. 10	Agenda,	Oct. 2,2000	Copy
	JIC-2	Oct. 10	The ADB and Viet Nam's Energy Sector, presented by Kathleen Moktan	Oct 2/3,200	Copy
	JIC-3	Oct. 10	Roundtable on Energy Sector in Vietnam - the Long Term Vision and Strategy, Embassy of Sweden, Hanoi	Oct 2/3,200	Copy
	JIC-4	Oct. 10	Development Strategy for Power Sector in the Period 2010-2020, Mr. Dang Hung, Chairman of Board of Management, Electricity of Vietnam	Oct 2/3,200	Copy
	JIC-5	Oct. 10	Some Issues on Vietnam Energy Development Strategy, Development Strategy Institute, Ministry of Planning and Investment	Oct 2/3,200	Copy
	JIC-6	Oct. 10	Energy and Development, The Long Term View Presentative from the WBG	Oct 2/3,200	Copy
	JIC-7	Oct. 10	Gas - to - Power Projects in Vietnam's Energy Strategy, Fred Shepherd, General Manager, Unocal Vietnam	Oct 2/3,200	Copy
	JIC-8	Oct. 10	Saigon Petro, Speech at the Vietnam Energy Roundtable Meeting, Hanoi - Oct, 02-03,2000	Oct 2/3,200	Copy
	JIC-9	Oct. 10	Energy Sector in Vietnam - Long Term Vision and Strategy "Energy in the next decade", Thomas M. Quigley, Technology Vice President, Gas and Power, BP	Oct 2/3,200	Copy
	JIC-10	Oct. 10	New Challenges, Vietnam's Energy Sector and The World Bank Group	Oct 2/3,200	Copy
	JIC-11	Oct. 10	Initiatives for Vietnam's Power Development and the Role for Natural Gas, Alex Sutiono, Business Department, Unocal Vietnam	Oct 2/3,200	Copy
	JIC-12	Oct. 10	Energy Strategies for Vietnam - the Long Term Vision, Anthony A. Churchill	Oct 2/3,200	Copy
	JIC-13	Oct. 10	State Management on Energy Price, Government Pricing Committee	Oct 2/3,200	Copy
	JIC-14	Oct. 10	The Welcoming Address of Mr. NGO Thuong San, Standing Member of Petrovietnam's Management Board Delivered at the Technical Conference	Oct 2/3,200	Copy
	JIC-15	Oct. 10	Electricity Sector, ESB	Oct 2/3,200	Copy
	JIC-16	Oct. 10	Power Sector Restructuring Policy, Ministry of Mines and Energy August 1998	Oct 2/3,200	Copy
	JIC-17	Oct. 10	Agenda for Workshop on Draft of Renewable Energy Action Plan for Vietnam (REAP), October 10-11, 2000, Hilton Hotel	Oct 10/11,2000	Copy
	JIC-18	Oct. 10	Renewable Energy Action Plan, Draft Summary Report, September 25,2000, World Bank	Sep. 25, 2000	Copy
	JIC-19	Oct. 10	Overview Renewable Energy Action Plan (REAP), Susan Bogach, World Bank	Oct 10/11,2000	Copy
	JIC-20	Oct. 10	Grid-Connected Renewable Electricity, Anil Cabraal, World Bank	Oct 10/11,2000	Copy
EVN	EVN-1	Oct. 11	Annual Report 1999, Electricity of Vietnam	-	Original
EEMC	EEM-1	Oct. 11	Electrical Equipment Manufacturing Company	-	Original
HNPC	HNP-1	Oct.12	Ha Noi Power Company	-	Original
IE	IE-1	Oct.12	Institute of Energy	-	Original
Petrovietnam	PET-1	Oct.13	PV Annual Report 1999	-	Original
JBIC(会計士)	JBC-1	Oct.13	Electricity of Vietnam, Financial Report (2 pages)	Sep. 19,2000	Copy
	JBC-2	Oct.13	Investment Projection	Sep. 19,2000	Copy
	JBC-3	Oct.13	Capacity Balance for Period 2001 - 2005 (2 pages)	Sep. 19,2000	Copy
	JBC-4	Oct.13	Power Generation , Base Situation - Hydro Freequency is 65 % (1page)	Sep. 19,2000	Copy
	JBC-5	Oct.13	Key Ratio Report (1 page)	Sep. 19,2000	Copy
	JBC-6	Oct.13	Demand Forecast (1 page)	-	Copy
ADB	ADB-1	Oct. 17	WB/ADB/MOI Roundtable on Electricity Law and Policy , Summary of Discussion	Sep.26/27, 2000	Copy
HPC	HPC-1	Oct. 18	Vietnam Institute for Water Resources Research	-	Original
	HPC-2	Oct. 18	Outline of Hydropower Center - HPC -	-	Report Copy
	HPC-3	Oct. 20	Water Resources Sector Review	May-96	Report Copy
	HPC-4	Oct. 20	The Law on Water Resources (No.8/1998/QH10 of May 20, 1998)	May 20,1998	Copy
MARD (Kumagai)	MAD-1	Oct. 18	The Law on Water Resources (No.8/1998/QH10 of May 20, 1998)	May 20,1998	Copy
	MAD-2	Oct. 18	水資源に関する法律(ベトナム国)、官報第31号 (51 - 7 - 1998)	-	Copy

表5.3-1 事前送付質問状 (グイエトナム)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		QUESTIONNAIRE/ INFORMATION REQUIRED		Plan Organization : Ministry of Industry
PROJECT NAME: Baseline Survey on Power Sector (South-east Asia)				Ref. No. : Issue Date : August 1, 2000 Revision Date : October 4, 2000

No.	Questionnaire/Information Required	Reply	Remarks
1.	<p>Electricity Law Since 1990s, IBRD and ADB have assisted to prepare legislation in the power fields and the government made up the draft law of power recently. According to our knowledge so far obtained, the law will be submitted to the National Assembly in October 2000. Is the above schedule still valid?</p> <p>We have two copies of the draft Viet Nam Electricity Law. One is as of April 10, 1999 consisting of 69 articles. The other one is obtained through JICA Viet Nam Office on April 5, 2000, consisting of 65 articles. We would like to confirm which one is the final one.</p>		
2.	<p>National Energy Plan in Viet Nam We are informed that IIPS (Institute for Industry Policy & Strategy) will be in charge of preparing the National Energy Plan, which has not been developed. However, we cannot find the IIPS in the organization chart of MOI. Will you kindly inform us of IIPS from viewpoint of Energy Plan?</p>		
3.	<p>Organization for Rural Electrification We have been informed that MOI(EVN) is responsible for rural electrification since March, 1999, while it is said that there are many organizations with local peoples committee as the central figure, and MARD and MOSTE are the window for rural electrification until then. What activities the MOI does or is going to do or how to demarcate the rural electrification? Additionally, will you kindly inform us of the role of Viet Nam Central Bank in the rural electrification.</p>		
4.	<p>Power Trade with Other Countries According to our internal data, Power Trade Agreement was (or is) signed between Viet Nam and Cambodia in 2000. Does MOI plan to carry out the power trade with other countries? If so, please inform us of the planned power trade or give us the list, which includes countries, schedule, interconnecting point in Viet Nam and power trade amount (MW and/or GWh). Concerning the power trade, please inform us of your thinking about the National Energy Security.</p>		

表5.3-1 事前送付質問状 (ヴェイエトナム)

5.	<p>Energy Security and Reserve Margin According to "Power Sector Survey Report (June 2000) by JBIC", MOI(EVN) seems to have an idea of closed power supply system in each region, which means the power demand in the region will be solved by the power supply in the same region. And the above idea is interpreted as the reserve margin shall be set and assured in the region without consideration of whole country level. Concerning the reserve margin, please explain for the basis of the above idea and how much percentages of reserve margin are appreciable?</p>		
6.	<p>Rural Electrification Although we have been informed that MOI(EVN) is responsible for rural electrification since March 1999, the draft Electricity Law stipulates the following responsibilities for the relevant parties: (1) Peoples CommitteesRural electrification planning, and mobilizing a part of investment of capital (2) MOI.....Reviews and approval of plan, and issuance of standards and technical documents Concerning the above responsibilities, who owes the final responsibility to rural electrification in the new law and will the role of MOI be changed again?</p>		
7.	<p>Optimum Development taken into account of Best Combination of Power Resources According to our knowledge, power resources in Viet Nam are imbalance, hydropower and coal-fired thermal plants are concentrated in the northern area, and gas-fired thermal plants concentrated in the southern area. Please inform us of your thinking concerning the best combination of power resources in Viet Nam. In connection with the best combination of power resources, the diversification of the power fuels shall be also considered in parallel. Concerning the diversification of the power fuels, will you inform us of your future projection of the diversification and gas supply in Southwest region of Viet Nam?</p>		
8.	<p>According to EVN data, the following IPP contract negotiations are terminated. - Ormat Geothermal 50 MW - Na Duong Coal-fired 100 MW - Cao Ngan Coal-fired 100 MW Based on the above information, the Viet Nam Government seems to be reluctant for the introduction of IPP. Will you kindly inform us of your thinking about the introduction of IPP or the timing of introduction?</p>		

表5.3-1 事前送付質問状 (ヴェイエトナム)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		Ministry of Planning and Investment	
PROJECT NAME: Baseline Survey on Power Sector (South-east Asia)		Plan Organization : Ministry of Planning and Investment	Ref. No. : August 1, 2000
		Issue Date : August 1, 2000	Revision Date : October 4, 2000
QUESTIONNAIRE/ INFORMATION REQUIRED			

No.	Questionnaire/Information Required	Reply	Remarks
1.	<p>Organization Chart of MPI Will you kindly give us the organization chart of MPI for general information?</p> <p>Assistance Program Formation We acknowledge that MPI plays an important role for formation of the assistance programs requested by the relevant agencies in Viet Nam.</p> <p>Concerning the assistance programs in power sector, will you kindly inform us how to those assistance programs are coming up to MPI and how to arrange the programs with the foreign donors and associated internal organizations.</p> <pre> graph LR PCs --> EVN EVN --> MOI MOI --> MPI MPI <--> F_Donors MPI <--> VNCB[Viet Nam Central Bank] MPI <--> MoF[Ministry of Finance] </pre>		
3.	<p>Required Finance for Rural Electrification According to our understanding, the rural electrification as of June 2000 was 79.7 % for communes level and 70.8 % for final consumers level. The Government of Viet Nam (GON) projects the total required finance amounted to 2,950 Million US\$ up to 2008 to achieve 80 % electrification of final consumers. Will you kindly inform us how to prepare the required finance for the rural electrification?</p>		

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		QUESTIONNAIRE/ INFORMATION REQUIRED	
PROJECT NAME: Baseline Survey on Power Sector (South-east Asia)		Plan Organization : Electricity of Viet Nam	
		Ref. No. :	
		Issue Date : August 1, 2000	
		Revision Date : October 4, 2000	

No.	Questionnaire/Information Required	Reply	Remarks
1.	<p>General Information Concerning the general information of Viet Nam power sector, you are kindly requested to give us the following data: (1) EVN Annual Report (Financial Highlights) for 1997, 1998 and 1999 in English (2) EVN Annual Report (Operation Highlights) for 1997, 1998 and 1999 in English</p>		
2.	<p>Electricity Law Since 1990s, IBRD and ADB have assisted to prepare legislation in the power fields and the government made up the draft law of power recently. According to our knowledge so far obtained, the law will be submitted to the National Assembly in October 2000. Is the above schedule still valid?</p> <p>We have two copies of the draft Viet Nam Electricity Law. One is as of April 10, 1999 consisting of 69 articles. The other one is obtained through JICA Viet Nam Office on April 5, 2000, consisting of 65 articles. We would like to confirm which one is the final one.</p>		
3.	<p>Organization for Rural Electrification We have been informed that MOI(EVN) is responsible for rural electrification since March, 1999, while it is said that there are many organizations with local peoples committee as the central figure, and MARD and MOSTE are the window for rural electrification until then. What activities the MOI does or is going to do or how to demarcate the rural electrification?</p>		
4.	<p>Energy Security and Reserve Margin According to "Power Sector Survey Report (June 2000) by JBIC", MOI(EVN) seems to have an idea of closed power supply system in each region, which means the power demand in the region will be solved by the power supply in the same region. And the above idea is interpreted as the reserve margin shall be set and assured in the region without consideration of whole country level. Concerning the reserve margin, please explain for the basis of the above idea and how much percentages of reserve margin are appreciable?</p>		

<p>5.</p>	<p>Hydropower Development Program Some large scalded dams are constructed and planned as the multipurpose dam in Viet Nam. In view of water resource development, optimum resource allocation seems to be required among the each purpose, such as hydropower, flood control, irrigation, water supply, etc. A consistent hydropower development program in one river basin is deemed to be required for the optimum resource allocation.</p> <p>Will you kindly inform us of your thinking how to develop hydropower and allocate water resource to other purpose in view of consistent development?</p>		
<p>6.</p>	<p>Preparation of New Law concerning the Multipurpose Dam In connection with the above consistent hydropower development, "Law of Specified Multipurpose Dam", which defines the cost allocation and the right of dam operation so on, was established in Japan in view of utilizing water resources more effectively. Will you kindly inform us of your thinking about the necessity of the new law concerning the development of multipurpose dam?</p>		
<p>7.</p>	<p>Emergency Operation for Dams at Flood Concerning the forecast of the rainfall, river inflow and duration at flood, what kinds of techniques are applied? Because we are informed that forecast of river inflow in the northern area in Viet Nam is difficult due to the unstable river inflow. Do you have any dam operation manual in case of emergency such as flood occurrence, and if so, does the current dam operation manual work effectively? Do you have any warning system at flood, and if so, does the current warning system work effectively?</p>		
<p>8.</p>	<p>Rehabilitation and Upgrading Schedule According to "Power Sector Survey Report (June 2000) by IBIC", heat efficiencies of some thermal plants are 20s %. From view of the operating cost saving, some rehabilitation seems to be necessary. And EVN is also aware of the necessity of rehabilitation. Do you have any plans for rehabilitation and/or upgrading of existing and/or retired power stations? If you have, please inform us by written form. If you have any difficulties for the implementation of the rehabilitation, please explain the contents of difficulties.</p>		

9.	<p>Rural Electrification</p> <p>Although we have been informed that MOI(EVN) is responsible for rural electrification since March 1999, the draft Electricity Law stipulates the following responsibilities for the relevant parties:</p> <p>(3) Peoples CommitteesRural electrification planning, and mobilizing a part of investment of capital</p> <p>(4) MOI.....Reviews and approval of plan, and issuance of standards and technical documents</p> <p>Concerning the above responsibilities, who owes the final responsibility to rural electrification in the new law and will the role of EVN be changed again?</p>		
10.	<p>International Accounting System(IAS)</p> <p>According to our understanding, ADB proposed ENV and power companies to adopt the IAS. Have EVN and power companies adopted the IAS?</p> <p>If not, will you explain the reasons, except Viet Nam Accounting System imposed in 1995, why IAS cannot be adopted.</p>		
11.	<p>Financial Status in 1998</p> <p>According to the Income Statement for FY.1998, the dividend amounted to 1,403 Billion VND was paid, of which amount exceeded the earning after tax (EAT) of 1,101 Billion VND.</p> <p>Please explain to whom and why the dividend was paid.</p>		
12.	<p>According to EVN data, the following IPP contract negotiations are terminated.</p> <ul style="list-style-type: none"> - Ormat Geothermal 50 MW - Na Duong Coal-fired 100 MW - Cao Ngan Coal-fired 100 MW <p>Based on the above information, the Viet Nam Government seems to be reluctant for the introduction of IPP. Will you kindly inform us of your thinking about the introduction of IPP or the timing of introduction?</p>		
13.	<p>Water Right in the River Development (Hydropower)</p> <p>Concerning the river development, especially hydropower development, we assume that the water right is always considered in EVN.</p> <p>In connection of the water right, what department is in charge of the water right and how many numbers of staff and their specialty.</p> <p>Will you kindly answer our above questions?</p>		

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		Ha Noi Power Company (HNPC)	
PROJECT NAME: Baseline Survey on Power Sector (South-east Asia)		Plan Organization : Ref. No. :	Ha Noi Power Company (HNPC)
		Issue Date : Revision Date :	August 1, 2000 October 4, 2000
QUESTIONNAIRE/ INFORMATION REQUIRED			

No.	Questionnaire/Information Required	Reply	Remarks
1.	<p>Required Approval by EVN According to our understandings, HNPC is independent company from EVN in respect of financial management. However, some items are required EVN approval. Will you kindly inform us which items are required EVN approval as mentioned below.</p> <ul style="list-style-type: none"> - Distribution expansion/reinforcement plan () - Investment planning for the expansion/reinforcement () - Loan arrangement with domestic and/or foreign financial agencies () - Power Purchase Agreement with IPP () - Request for foreign donors assistance () - HNPC annual budget () - HNPC financial performance report () - Human resource development program of HNPC () - Employment, promotion and retirement of HNPC employees () 		
2.	<p>Blackout in HNPC According our information, numbers of blackout from 1996 to 1999 are as follows:</p> <ul style="list-style-type: none"> - 1996 8 times - 1997 4 times - 1998 9 times - 1999 34 times <p>Concerning the blackout, do you take any countermeasures to improve the reliability of power supply? In connection with the above blackout, does HNPC submit any technical assistance application to EVN or MOI?</p>		

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		QUESTIONNAIRE/ INFORMATION REQUIRED	
PROJECT NAME: Baseline Survey on Power Sector (South-east Asia)		Plan Organization : Institute of Energy	
		Ref. No. :	
		Issue Date : August 1, 2000	
		Revision Date : October 4, 2000	

No.	Questionnaire/Information Required	Reply	Remarks
1.	<p>Organization-Chart-of-IE For general information, please give us one copy of the Organization-Chart of IE.</p>		
2.	<p>Master Plan of T/D Rehabilitation According to our understandings, IE prepares Master Plan of T/D rehabilitation. We are interesting in why IE prepares Master Plan of T/D rehabilitation that seems to be out of your business. Please inform us how to coordinate with PCs and EVN concerning the preparation of Master Plan.</p>		
3.	<p>Rural Power Development Program According to our understandings, IE prepares the rural power development program 2000-2010. On the other hand, EVN prepares the Master Plan Study on Electric Power Development in Viet Nam. We would like to confirm that EVN Master Plan includes IE Master Plan or not.</p>		
4.	<p>Renewable Energy Concerning the renewable energy, will you kindly inform us of your thinking about the utilization of renewable energy in power sector and/or rural electrification?</p>		
5.	<p>National Energy Plan in Viet Nam We are informed that the Energy Plan for the medium and/or long term, which are developed in the other Asian countries such as Philippines and Indonesia, is not developed in Viet Nam. Will you kindly inform us why the National Energy Plan is not developed in Viet Nam?</p>		

表5.3-1 事前送付質問状 (ヴィエトナム)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		QUESTIONNAIRE/ INFORMATION REQUIRED	
PROJECT NAME: Baseline Survey on Power Sector (South-east Asia)		Plan Organization : Electric Equipment Manufacturing Company	
		Ref. No. :	
		Issue Date : August 1, 2000	
		Revision Date : October 4, 2000	

No.	Questionnaire/Information Required	Reply	Remarks
1.	Technical and Financial According to our understandings, EEMC can manufacture and repairs transmission and distribution equipment. In connection with the manufacturing and repairs, do you have technical and financial assistance from others?		
2.	Expansion or Reinforcement of Manufacturing Capacity Do you have any plan to expand or reinforce of manufacturing capacity? If you have, please inform us of your plan.		
3.	Quality Assurance of Production Items Will you kindly inform us how to control the quality of the production items because manufacturing equipment used in EEMC is said to be out of date.		
4.	Financial management We assume that EEMC gets revenue from sales and repairs of transmission and distribution equipment. Can EEMC get profit after income tax?		

表5.3-1 事前送付質問状 (グイエトナム)

<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)</p>		<p>QUESTIONNAIRE/ INFORMATION REQUIRED</p>	
<p>PROJECT NAME: Baseline Survey on Power Sector (South-east Asia)</p>		<p>Plan Organization : Ministry of Science, Technology and Environment</p>	
		<p>Ref. No. :</p>	
		<p>Issue Date : August 1, 2000</p>	
		<p>Revision Date : October 4, 2000</p>	

No.	Questionnaire/Information Required	Reply	Remarks
1.	<p>Environmental Law and Enforcement Ordinance According to the latest power development plan proposed by IE(EVN), hydropowers with large dams are listed till 2010, Dai Thi, Dong Nai and Son La, for example. In addition, big scaled coal-fired thermal powers are also listed. On the other hand, "protection of environment in electric activity" is proposed in the draft Viet Nam Electricity Law.</p> <p>What kind of laws and enforcement ordinance to control adverse environmental impacts due to power development do you have, or are you preparing?</p> <p>According to "Power Sector Survey Report (June 2000), by JBIC", the current Environmental Protection Law is reviewed by MOSTE.</p> <p>What portions does MOSTE focus on the current law? If you have already prepared new Environmental Protection Law (draft), please give us one copy of the text.</p>		
2.	<p>Law and Regulation concerning Nuclear Power Also, introduction of nuclear power has been authorized by the government in 1994 and the construction of nuclear power plant is viewed in 2010~2015. In addition to framing introduction of nuclear power, preparation of nuclear policy, organization and etc., it should be also important to establish laws and regulations to control nuclear development strictly.</p> <p>In this regards, what laws and regulations are you preparing to introduce nuclear power?</p>		

表5.3-1 事前送付質問状 (ブイエトナム)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		QUESTIONNAIRE/ INFORMATION REQUIRED		Plan Organization : (MARD) – Hydro Power Center
PROJECT NAME: Baseline Survey on Power Sector (South-east Asia)				Ref. No. :
				Issue Date : August 1, 2000
				Revision Date : October 4, 2000

No.	Questionnaire/Information Required	Reply	Remarks
1.	<p>Demarcation of Rural Electrification We are informed that HPC (Hydro Power Center) is in charge of the rural electrification under MARD (Ministry of Agriculture and Rural Development). On the other hand, EVN is also in charge of rural electrification under MOI (Ministry of Industry). Will you kindly explain how to demarcate the rural electrification between HPC (MARD) and EVN (MOI).</p>		
2.	<p>Assistance Program for Rural Electrification Concerning the rural electrification by HPC, do you have any assistance program from foreign donors such as JBIC, ADB and World Bank etc.? If so, will you kindly inform us of how to formulate the assistance programs?</p>		
3.	<p>River Code/Act and Water Right According to our experiences, the River Code/Act seems to be essential in view of integrated river basin development. Do you have the River Code? If you have, when the code is imposed. In connection with the river development, is the Water Right applied to or defined?</p>		

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		QUESTIONNAIRE/ INFORMATION REQUIRED		Plan Organization : World Bank
PROJECT NAME: Baseline Survey on Power Sector (South-east Asia)				Ref. No. : Issue Date : August 1, 2000 Revision Date : October 4, 2000

No.	Questionnaire/Information Required	Reply	Remarks
1.	<p>Role of World Bank WB has actively assisted to prepare the law of power in cooperation with ADB, and the law will be issued in near future. According to our knowledge expressed by WB last year, WB will focus on rural electrification, especially in Vung Tau, Ha Long and Vinh.</p> <p>Will you kindly inform us of your thinking concerning the rural electrification in the isolated system?</p> <p>In connection with the rural electrification, we are informed that WB is proceeding the technical assistance (TA) for Action Plan which will be completed in September 2000.</p> <p>Will you kindly give us one copy of the above Action Plan for our reference? In those circumstances, what projects are you proceeding or going to take up in near future?</p>		

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		QUESTIONNAIRE/ INFORMATION REQUIRED		Plan Organization : Asian Development Bank
PROJECT NAME: Baseline Survey on Power Sector (South-east Asia)				Ref. No. :
				Issue Date : August 1, 2000
				Revision Date : October 4, 2000

No.	Questionnaire/Information Required	Reply	Remarks
1.	<p>Role of Asian Development Bank ADB prepared three enforcement ordinances based on the law of power. Followed by those ordinances, we have been informed that ADB is shifting its assistance to power net works and reform of power supply structure and system. What projects are you proceeding or going to take up in near future?</p>		
2.	<p>International Accounting System for Power Sector in Viet Nam We are informed that the ADB proposed EVN and HPC, etc. to adopt the International Accounting System (IAS). In connection with IAS, we would like to know the following matters: (1) Whether ADB follows up the adoption of IAS in Viet Nam Power Sector or not. (2) If IAS has not been adopted by all power companies and EVN, the reasons why they don't adopt IAS.</p>		

表5.4-1 事前調査時の電力分野の課題と知的支援

国名: ヴェトナム		関係機関: 工業省(MOI), 計画・投資省(MPI), 科学技術・環境省(MOSTE), ヴェトナム電力公社(EVN)	
国土面積: 330,000平方km		人口: 77.0百万人(98年) GDP: 272億ドル(98年) 一人当たりGDP: 353ドル(98年)	
発電設備: 5,167 MW(98年)		都市人口: ハノイ(305万人), ホーチミン(92万人: 1998), ハフオン(145万人), タナン(37万人)	
電源構成: 水力55.2%, 火力21.3%, ガスタービン15.8%, ディーゼル7.7%		最大電力: 3,875 MW(98年) 総発電容量: 217億KWh(98年)	
電力分野の課題と知的支援		知的支援展開の可能性と方法	
区分	項目	現状と課題	知的支援展開の可能性と方法
電力行政	○ 電気事業法及び組織改革に関する分析提言 民間資金導入に関する調査分析提言	工業省の下、ヴェトナム電力公社が発電送電を行い、その下部組織として7社により配電を行っている。これらの組織の責任分担、権限、内閣規定、財務等の透明化が求められ、電気事業法の制定に向けて準備中である。	電気事業法(WBのTA)及びその施行令(ADBのTA)に基づく各事業団体の権限を初めとする階梯的の策定及び電気事業運営に関する効率的な組織作りと人材育成。
会社経営	○ 電力会社の経営財務会計制度に関する調査分析提言 電気料金の設定に関する調査分析提言	ヴェトナムでは1995年11月の財務省令で1996年1月以降、ヴェトナムの全ての企業でヴェトナム会計基準が導入された。一方、ADBは電力会社の商業化TAとして、国際会計基準の導入を提言した。現在、EVNは国際会計基準に基づいて財務諸表を作成しているが、他の配電会社は、ヴェトナム会計基準を使っている。国際会計基準の導入は電力部門へ将来海外投資を誘致する上から必要と思われる。 EVNは1998年度決算で1,101億VDの税引後利益を計上しているが、利益剰余金として1,403億VDを出している。EATを上回る配当をなぜ計上しなければならぬのか、財務体質の強化という観点から調査を行う。	ADBに国際標準会計導入提言後のEVN、各PCの動き、反応をヒヤリングする。同時にMOI、EVNに對しても国際標準会計導入に対する意見を聴取する。導入の阻害要因(財務省令のラットナム会計基準以外の)を調査する。例えば会計処理のO/A化の遅れ、費用仕訳項目の未設定等などが阻害要因としてあるなら、支援展開の可能性がある。
最適化計画	○ 電源開発に関する長期計画策定に関する調査分析提言 送電線設備開発長期計画策定に関する調査分析提言 需要の分析と需要想定に関する調査分析提言 資源を考慮した電源のベストミックスに関する調査分析提言 事故率等供給信頼度に関する調査分析提言 系統運用実績の分析評価手法の策定	第5次電力マスタープランで開発主体は水力、C/G及び石炭火力としている。電力の広域運用は部分的なものと見え、原則として北部、中部、南部のそれぞれ地域において電力の需給バランスをとることとしている。この結果、各地域内で不足する電力は隣国からの電力輸入によって補う計画となっている。 国内の電源により需給バランスをとることが、備蓄の効かない電力のセキユリティにとって重要なことと考える。この観点から国内電源の増強と南北電力融通の拡大による需給バランスの確保の可能性について検討することは意義があると考える。	利益配当の意味及びそれを配当に関するEVNの考えをEVNへの質問状やヒヤリングを通じて情報を入力し、内容によっては、日本の電力会社の経営戦略などの支援展開の可能性がある。 国内の火力発電所の熱効率は20~32%で、我が国の重油火力の38%と比べると非常に低い水準となっている。国内の供給力の増強は既設火力の効率アップと新設火力の高効率機の採用が有効である。 我が国はこの画における技術を保有しており技術支援は可能と考える。 南北電力の融通拡大は、国内資源の有効活用により、我が国が大きいと考える。即ち、地区別に一定水準の供給予備力を確保するよりも、国全体として一定水準の供給予備力を確保する方が効率的であるからである。我が国の潮流解析等電力融通に関する技術支援は同国にとって有用と考える。
火力発電技術	○ 火力発電所燃料の最適配分に関する調査分析提言 原油ガス等火力燃料原資の国際的価格を考慮した情勢分析 火力発電所の効率向上に関する調査分析提言 火力発電所の公害防止に関する調査分析提言 火力発電所の安全基準と維持管理基準の策定	同国には3箇所の石炭火力発電所が稼働中であるが、いずれも熱効率が低く(20-30%)、内2箇所は老朽化が進み、満足な運転ができない状況にある。また、順調に運転している重油、軽油、ガスによる6発電所も熱効率は低い(24-32%)。環境対策設備は2箇所の石炭火力に電気集塵機がセットされているのみで、他の火力には設置されていない。火力発電所の効率向上は、資源の有効利用と単位電力当りの大気汚染物質排出量の減少に寄与する。環境対策設備の設置は公害防止対策上必要と考える。	我が国は火力発電設備の効率化と大気汚染物質の排出削減に取組み、資源の有効利用及び公害防止に関する技術を開発してきた。これらの技術に関する支援は同国にとって有用と考える。

表5.4-1 事前調査時の電力分野の課題と知的支援

電力知的支援メニュー区分	項目	現状と課題	知的支援展開の可能性と方法
水力発電技術	<ul style="list-style-type: none"> 包蔵水力の算定と電源開発に及ぼす影響 水系一貫水力発電所開発計画の策定 水力発電所の安全基準と維持管理基準の策定 水力発電設備の環境基準の策定 河川法を中心とした河川管理の概念に関する基準の策定 電源三法を中心とした利益地還元概念の概念 多目的ダムを取り扱いに関する基準の策定 河川測水記録の整備に関する計画の策定 揚水発電所の系統における役割分析 出水時等非常の場合における状態判断基準の策定 	<p>同国の水力発電所はHoa Binh(920MW)を筆頭に100MWを超える大容量のもの5箇所運転中である。更に建設中の100MW以上の発電所が9箇所計画のもの3,600MWのSon La発電所を初め19地点ある。同国における大河川での水力開発は治水、灌漑、防潮といった目的を併せ持っており、発電所単独での水力開発はなされていない。また、開発予定地点も全てが50MW以上となっており、支川を含めたきめの細かな水系一貫開発計画はなされていない。</p> <p>同国の1998年における電源構成は、水力が57.5%で最も大きい。今後の開発計画を早めても大水力の建設計画が目白押しである。電力部門に対する環境規制は1994年に施行された「環境保護法」がベースになっているが、環境基準が完全に整備されてはおらず、その運用も暫定的に行なわれているのが現状である。今後大貯水池を持つ水力発電所を数多く開発していくければならない事を考慮すると、景観、河川生態系の保全を含む自然環境への影響や水没移転、生活再建を含む社会環境への影響等、河川開発に関わる総合的な環境基準の策定が必要である。</p>	<p>我国は水系の一貫開発を数多く経験し、水源の有効活用を図って来た。この過程で河川の運用に際し、流出予測を含む高度なダム間の連携運用を実現してきた。また河川生態系の保全に関する研究も進められ、その成果は現実に河川開発の場に生かされてきている。これらの知見を同国の河川一貫水力発電所開発計画の策定に適用することが有用と考える。</p> <p>我国は発電所の立地に関し、環境影響調査書の作成を行ない、地元住民等の意見を聴取した上で、環境影響調査書の修正を行ない、この結果を建設計画に反映している。調査の内容は多岐に渡り、特に保護の必要な動植物については、その生息に悪影響を及ぼさないよう対策を行なうこととしている。このような我が国の環境影響対策手法の同国水力開発への適用は可能であり、且つ意義あることと考える。</p>
設備維持管理	<ul style="list-style-type: none"> 送電電の安全基準と維持管理基準の策定 給電指令システムの高度化に関する調査分析提言 全系統崩壊を防ぐための保護制御方式の検討 既設発電所設備のリハビリ・アップグレード・ディング事業化策定 	<p>旧ソ連の援助で建設されたLong Bihong 石炭火力、中国の援助で開発されたNinh Binh 石炭火力は、老朽化が進むとともに、援助国の援助停止などにより部品調達が困難となり、満足な発電ができないう状況にある。また、送電系統未整備な中部での地方電化の重要電源であるディーゼルは老朽設備が多い上に燃料供給に難があり、満足な電力供給ができていない。</p> <p>現在地方電化は各地方自治体毎に無計画に実施されている。このため、政府はEVNを地方電化の責任者とする事を計画している。地方電化は政府の重要な施策の一つであり早急な再生可能エネルギーによる地方電化マスタープランの策定が求められている。</p>	<p>我国は古い設備の計画的メンテナンス或はリプレックスにより、安価な電力を生み出してきており、このメンテナンス・リプレックス技術を同国に付与し、一つの事業化を図ることは意義あることと考える。</p>
地方電化	<ul style="list-style-type: none"> 再生可能エネルギーによる地方電化マスタープラン策定 地方電化事業化体制(O&M、制度・組織、財政)レビュー・策定 発電設備の性能向上・コストダウン推進 定着化支援 	<p>先ず再生可能エネルギーのポテンシャル調査が必要である。調査対象、調査項目、調査方法・ポテンシャルマップ作成等についての知的支援が考えられる。対象地域が全国に散在しているため、EVNを柱とする多数の調査チームを編成し、これらのチーム指導、トレーニングも知的支援の一環として実施すべきである。これらの調査結果を基にして作成したポテンシャルマップを活用し、地方電化計画のマスタープランを作成する。</p>	<p>先ず再生可能エネルギーのポテンシャル調査が必要である。調査対象、調査項目、調査方法・ポテンシャルマップ作成等についての知的支援が考えられる。対象地域が全国に散在しているため、EVNを柱とする多数の調査チームを編成し、これらのチーム指導、トレーニングも知的支援の一環として実施すべきである。これらの調査結果を基にして作成したポテンシャルマップを活用し、地方電化計画のマスタープランを作成する。</p>
人材養成	<ul style="list-style-type: none"> 個別専門家派遣、研修受入れによる発電送電設備の計画・修復・維持管理支援 		
新エネルギー	<ul style="list-style-type: none"> 新エネルギー開発導入促進政策の策定支援 CO2削減等地球環境問題アクションプラン推進・策定 		