

Appendix 2 Management and Administration

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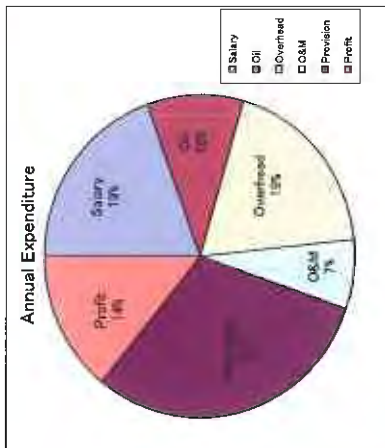
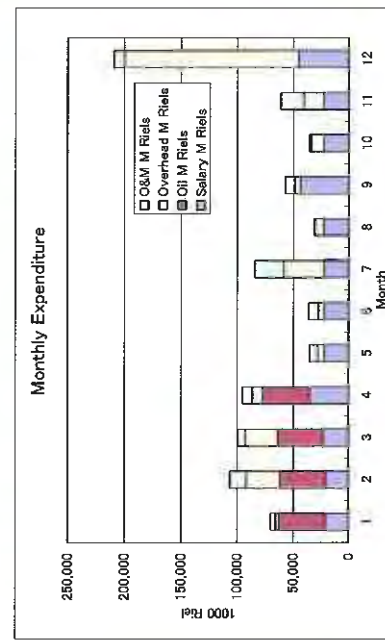
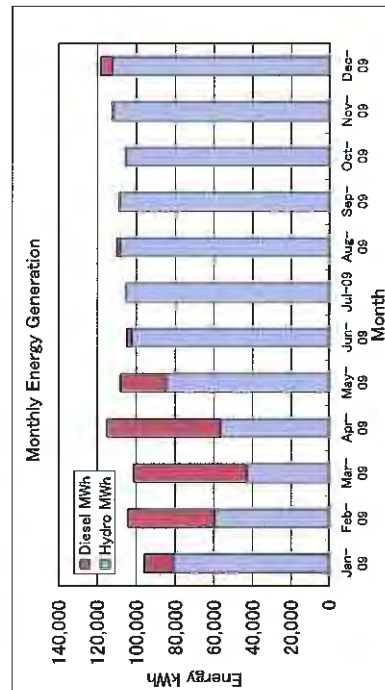
Appendix 2-19 : Billing book

Appendix 2-20 : Annual financial report of EUMP

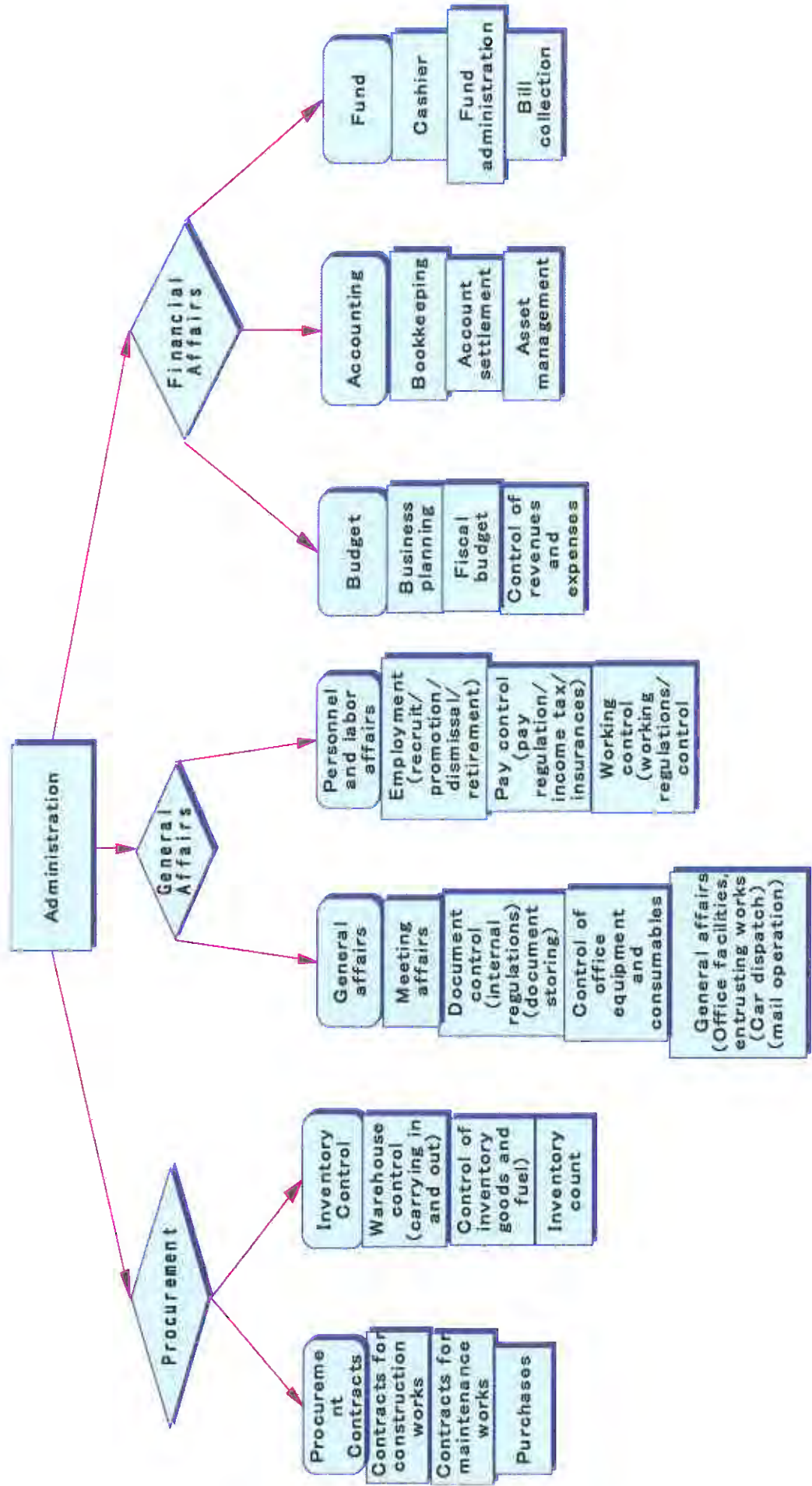
Annual Balance Sheet of Energy and Finance of EUMP in 2009

Exchange Rate 4.200 Riel/US\$
 Oil Price 3.000 Riel/Liter
 Fuel Efficiency 0.31 Liter/kWh
 Tariff 1.633 Riel/kWh
 Profit 14.2%

Date	Generation		Oil Spend Ltr	Consumption E MWh	Tariff Riel/MWh	Revenue M Riel	Salary M Riel	Oil M Riel	Overhead M Riel	O&M M Riel	Provision (Deposit for Future)		Cost Total M Riel	kWh/Cost (Invoice) M Riel	Profit M Riel												
	Hydro MWh	Diesel MWh									Total MWh	Hydro M Riel				O&M M Riel	Total M Riel	Sub-total M Riel									
1 20-Nov-08	83,113	1,331	54,444	413	37,890	31%	1,831	68,958	28,051	49,544	41,038	30,388	148,021	4,940	5,400	10,340	188,360	4,214	-89,701	-131%							
2 20-Dec-08	80,221	3,811	84,032	1,181	59,844	28%	1,852	106,691	28,051	0	38,807	30,388	97,243	7,461	5,400	12,861	110,106	1,840	-3,415	-3%							
3 20-Jan-09	80,894	15,129	96,023	4,690	69,720	27%	1,993	136,158	21,104	41,848	2,594	4,530	70,074	7,523	33,750	41,273	111,348	1,897	24,811	18%							
4 20-Feb-09	59,494	44,684	104,178	13,852	83,554	20%	1,670	138,549	21,104	40,453	30,159	14,266	106,981	5,533	33,750	39,283	145,264	1,739	-10,953	-8%							
5 20-Mar-09	42,767	58,448	101,215	18,119	78,241	23%	1,676	130,413	23,178	40,453	29,041	6,576	99,246	3,977	33,750	37,727	136,973	1,751	-6,560	-5%							
6 20-Apr-09	56,572	58,366	114,938	18,093	89,381	22%	1,672	145,425	34,864	42,406	9,036	8,873	95,178	5,261	33,750	39,011	134,189	1,501	11,236	8%							
7 20-May-09	84,770	23,233	108,003	7,202	87,145	19%	1,672	145,745	22,182	0	6,081	8,819	35,181	7,884	33,750	41,634	76,815	881	64,111	45%							
8 20-Jun-09	102,165	2,753	104,918	1,057	86,396	18%	1,665	143,808	22,199	0	5,067	8,956	36,222	9,501	33,750	43,251	79,473	920	62,756	44%							
9 20-Jul-09	105,240	36	105,276	11	89,548	19%	1,549	138,707	22,175	0	36,163	25,608	83,946	9,787	33,750	43,537	127,483	1,424	7,036	5%							
10 20-Aug-09	108,256	1,544	109,800	602	90,057	18%	1,582	140,696	22,886	0	7,721	716	31,323	10,068	33,750	43,818	75,141	834	58,594	44%							
11 20-Sep-09	108,458	310	109,768	112	91,743	16%	1,558	135,726	43,554	0	5,216	8,537	57,306	10,087	33,750	43,837	101,143	1,102	34,593	25%							
12 20-Oct-09	105,229	85	105,314	32	87,121	17%	1,542	131,337	22,701	0	11,242	1,730	35,673	9,788	33,750	43,536	79,209	909	52,127	40%							
13 20-Nov-09	111,658	363	112,211	127	95,839	18%	1,566	148,078	22,512	0	18,133	20,527	61,172	10,403	33,750	44,153	105,325	1,104	40,793	28%							
14 31-Dec-09	112,498	5,734	118,232	1,950	100,252	15%	1,569	157,247	45,374	0	154,473	9,106	208,954	10,462	33,750	44,212	253,166	2,925	-102,367	-68%							
Y2009	1,076,301	210,515	1,286,816	65,540	1,048,552	15%	1,573	1,657,647	323,933	185,129	314,925	118,341	925,257	100,373	465,000	505,273	1,485,530	1,380	216,118	14.1%							
Total (1000 US\$)															407.62	395.65	77.10	39.32	74.98	27.70	219.11	23.87	96.43	120.30	339.41	0.32	58.22



Appendix 2- 2 : System of Administrative Task



Appendix 2- 3 : Check List for Base Line Survey

Check List

有(have)

無(have not)

1. Internal Regulations

Articles of incorporation/Organization/Meetings

Work division/Powers/Responsibilities

Operating rules(Accounting/General Affairs/Personnel/Procurement)

2. Accounting Books

Journal

General Ledger

Cashbook

Asset Register

3. Account Settlement & other reports

Form of account settlement statements

Form of reporting to EAC

Form of reporting to JCC and relevant authorities

4. Control of Budget & Income and Expenditure

Form of business plan

Form of annual budget

Form of income/expenditure control

Form of cashflow control

5. Metering/Billing/Collection

Form of electricity supply contract (incl. application form)

Form of customer management (customer list)

Form of metering

Form of billing and receipt

6. Personnel

- Form of employment contract
- Form of payroll (salary, personal income tax, insurance)
- Form of attendance sheet

7. General Affairs

- Form of minutes of meeting
- Form of document control
- Form of control of office equipment/furniture & consumables
- Form of contract for office facilities and entrusted works
- Form of business trip (application & order)

8. Procurement

- Form of construction contracts (application-approval-order to work-contract)
- Form of contract for maintenance works (application-approval-order to work-contract)
- Form of purchase (application-approval-contract)

9. Inventory Control

- Form of warehouse control (carrying-in & carrying-out)
- Form of control of stored goods and fuel
- Form of inventory control

List of Things to Do before March 2009

1. Preparation of Attendance Sheet for EUMP's staff (administrative and technical sections)
2. Preparation of Rules and Regulations for:
 - 1) Organization (including the purpose of EUMP, the definition and powers of management board, and organizational chart)
 - 2) Powers and responsibilities: Director, Sub-directors, Section Chiefs
 - 3) Task division of EUMP's personnel
3. Start of book keeping from January 1, 2009: journal and general ledger
4. Investigation of Company Law, Tax Law, Accounting Law, Labor Law

List of Things to Do before November 2009

The Administrative Division must do the following things by the time shown in each item and gives them to the secretary of JICA project team, so that she can make translation and send them to JICA project team in Tokyo.

1. Prepare and authorize the internal regulation for billing system based on the proposed billing system by JICA project team and the actual operation of EUMP. Once prepared, send the internal regulation of billing system to EAC and its English version to JICA project team.

This task has not been done before June, so it must be finished ***before the end of July 2009*** to send to EAC.

2. Establish the internal regulations regarding “Regulation on Organization and Powers and Duties”, “Employment Regulation”, “Disciplinary Code”, “Regulation for Control of the Corporation’s Vehicles” and “Disciplinary Code” as well as “Articles of Incorporation” ***before the end of July 2009***.

3. Prepare the workflow and process description of the tasks of each administration staff, including the explanation of the steps of each task in a similar way to the proposed billing system by JICA project team. Once prepared, send its English version to JICA project team ***before the end of August 2009***.

4. Investigation of Company Law, Tax Law, Accounting Law, Labor Law

This task has not been done either. San Darith is responsible for company law in relation with “Articles of Incorporation”, Ty Soyatra is responsible for Accounting Law to learn whether the accounting method is in compliance with the Accounting Law, Chres Malout is responsible for Tax Law to learn what kinds of taxes shall be paid by EUMP and Im Vichet is responsible for Labor Law in relation with “Employment Regulation”. Once the respective reports have been prepared, give them to the secretary of JICA project team, so that she can make translation and send them to JICA project team in Tokyo ***before the end of July 2009***.

Appendix 2- 6 : Articles of Incorporation

Articles of Incorporation

Section 1 General

(Name of Corporation)

Article 1 This Corporation is named as Electric Unit of Mondul Kiri Province, shortly called EUMP.

(Foundation)

Article 2 This Corporation was founded as a public corporation by the Ministry of Industry Mines and Energy of Cambodian government with its Directive No. 1305 on 26th December 2006 for the purpose stated in the following article.

(Purpose)

Article 3 This Corporation has the purpose of doing the following businesses:

- (1) Generating electric power;
- (2) Transmitting and distributing electric power;
- (3) Supplying electric power to Senmonorom city and nearby areas of Mondul Kiri Province of Cambodia;
- (4) Battery charging;
- (5) Investment in such other businesses as will be approved as necessary for the business of the corporation; and,
- (6) Any other businesses associated with the above businesses.

(Main Offices)

Article 4 The main offices of the Corporation is registered at Senmonorom city of Mondul Kiri Province of Cambodia.

(Organization)

Article 5 The Corporation has the following organizations:

- (1) Joint Steering Committee
- (2) Board

Section 2 Ownership and Operation

(Ownership)

Article 6 The Corporation is owned by Cambodian government.

(Operation)

Article 7 The Corporation shall be operated with financial independence.

Section 3 Joint Steering Committee

(Joint Steering Committee)

Article 8 The Joint Steering Committee (shortly called JSC) is composed of the representatives from: the Ministry of Industry Mines and Energy of Cambodia, Electricity Authority of Cambodia, the Department of Industry Mines and Energy of Mondul Kiri Province, Electricite du Camodge and the Corporation.

(Convocation of a meeting of the Joint Steering Committee)

Article 9 A regular meeting of the Joint Steering Committee shall held in XXXX every year.

An extraordinary meeting may be held as necessary by the motion of any of the members of the Joint Steering Committee. A meeting, regular or extraordinary, shall be convoked by the representative of the Ministry of Industry Mines and Energy.

2 The meeting of the Joint Steering Committee shall be convoked at Senmonorom city or Phnom Penh.

(Chairmanship of a meeting of the Joint Steering Committee)

Article 10 The meeting of the Joint Steering Committee shall be chaired by the representative of the Ministry of Industry Mines and Energy.

(Resolution of the meeting of the Joint Steering Committee)

Article 11 Resolutions of the meeting of the Joint Steering Committee shall be made by majority vote.

(Agenda of the meeting of the Joint Steering Committee)

Article 12 The following issues shall be included in the agenda of the regular meeting of the Joint Steering Committee:

- (1) Appointment and dismissal of the board members of the corporation, when necessary; and,
- (2) Approval of the financial statements of the Corporation
- (3) Revision of the articles of incorporation of the Corporation, when necessary.

Section 4 Board of the Corporation

(Number of the board members)

Article 13 The Corporation has three (3) board members: one (1) Director and two (2) Deputy Directors.

(Appointment and dismissal of the board members)

Article 14 The board members of the Corporation shall be appointed or dismissed by the resolution of the Joint Steering Committee.

(Term of office of the board members)

Article 15 The term of office of the board members shall be three (3) years and may be extended or shortened by the resolution of the Joint Steering Committee.

(Board meeting)

Article 16 A board meeting shall be convoked and chaired by the director as needed.

2 In the absence or disability of the director, other board member shall convoke and chair the board meeting in accordance with the rank order predetermined by the board meeting.

3 Resolutions of the meeting shall be made by unanimous consensus of the board members.

(Agenda of the board meeting)

Article 17 The following issues shall be included in the agenda of the board meeting as needed:

(1) Approval of internal regulations and their improvements and elimination;

(2) Long and mid-term planning;

(3) Decision of important investments;

(4) Approval of annual budget;

(5) Approval of financial statements;

(6) Employment and dismissal of employees of the Corporation; and,

(7) Personnel performance evaluation and salary review.

(Representation of the Corporation)

Article 18 The Corporation shall be represented by the director of the Corporation.

2 The director of the Corporation shall supervise and control the businesses of the Corporation.

3 In the absence or disability of the director, other board member shall substitute the duties of the director in accordance with the rank order predetermined by the board meeting.

Section 5 Accounting

(Accounting year)

Article 18 The accounting year begins on the 1st January and ends on the 31st December every year.

Supplementary Provision

The present Articles of Incorporation shall come into force as from dd/mm/year.

Appendix 2- 7 : Regulation on Organization and Powers and Duties

Regulation on Organization and Powers and Duties

Section 1 General

(Purpose)

Article 1 This regulation establishes the necessary organization for executing the Corporation's businesses and the exercise of powers and duties of each duty position.

Article 2 The organization and its operations shall be aimed to promote the Corporation's business purposes through good partnership of each section of the organization based on their self-imposed responsibilities and business efficiency and streamlining.

Section 2 Top Management

(Director)

Article 3 The Director shall preside over the execution of the Corporation's businesses in line with resolutions of the Corporation's Board.

(Deputy Directors)

Article 4 The Deputy Directors shall assist the Director and act as his proxy when the Director is in absence or disability according to the following order:

First: Deputy Director in charge of Administration Division

Second: Deputy Director in charge of Technical Division.

The Deputy Directors shall be responsible for the execution of duties of their respective Division as Division Manager.

Section 3 Organization for Operations

(Organization for Operations)

Article 5 The Corporation's organization for operations shall have the organization units shown in the Appendix 1 "Organization Chart" attached hereto.

(Duty Position)

Article 6 The Organization for Operations shall have the following duty positions.

Division Manager

Division Head

Section Chief

Group Leader

Group Member

The duty position of each personnel is shown in Appendix 3 "Task Assignment of the Personnel" attached hereto.

(Powers and Duties)

Article 7 Each of the duty positions shall have the powers and duties shown in Appendix 2 "Powers and Duties of Division".

The superiors shall give appropriate commands and directions as needed in the exercise of their assigned duties to their subordinates. The subordinates shall execute their assigned duties according to the commands and directions given by their superiors and shall ask for approval and report the progress and results of the execution of the duties to their superiors. The commands and directions and the approvals and reporting shall be given according to the line of command and control as shown in the Appendix 4 "Line of Command and Control" attached hereto.

(Proxy when in absence or disability)

Article 8 When a superior is in absence or disability, the subordinate designated in advance by such a superior shall act as his proxy.

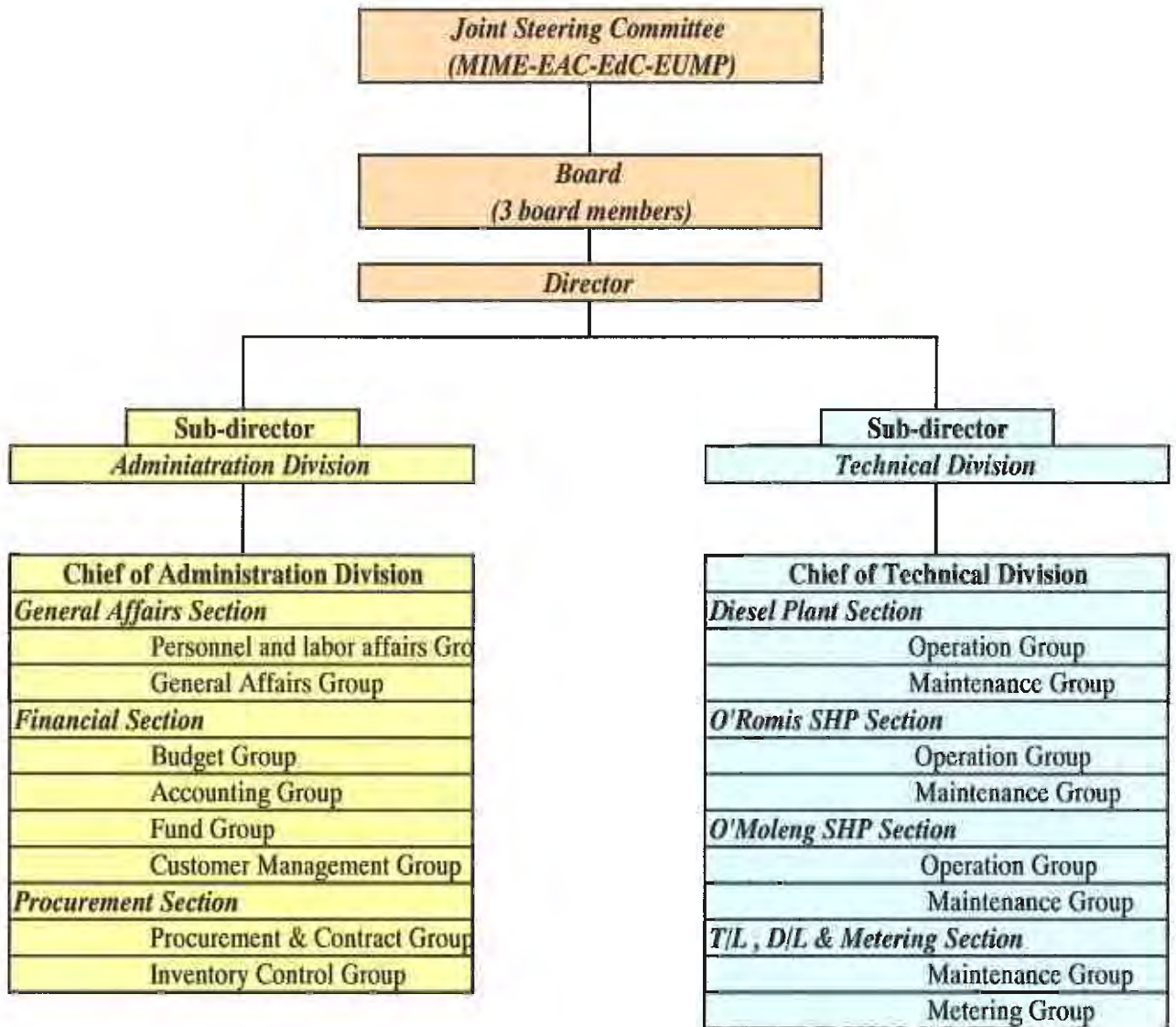
Supplementary Provision

1. This regulation shall come into force as from 1st July 2009.

Appendices:

1. Organization Chart
2. Powers and Duties of Division
3. Task Assignment of the Personnel
4. Line of Command and Control

Organization Chart of EUMP



Appendix 2- 9 : Power and Duty for Administration Division

Administration Division			
Section	Group	Task Code	Task Description
General Affairs Section	Personnel and Labor Affairs Group	AG	
		AGP	
		AGP 1	Employment i) recruit ii) promotion iii) dismissal iv) retirement
		AGP 2	Pay control i) pay regulation ii) pay raise iii) payroll
		AGP 3	Working control i) working regulation ii) attendance sheet
		AGA	
	General Affairs Group	AGA 1	Meeting affairs i) meeting arrangement ii) minutes of meeting
		AGA 2	Document control i) internal regulations ii) filing & storing
		AGA 3	Control of office equipment & consumables i) office equipment & furniture ii) consumables iii) car dispatch
		AGA 4	Safety control i) power plant ii) working safety iii) safety regulation iv) disciplinary code
		AGA 5	Miscellaneous affairs i) entrusting works ii) mail operations iii) public relations iv) others
		AF	
		Financial Section	Budget Group
AFB 1	Business planning i) Long & mid-term planning policy ii) Long & mid-term planning iii) Report to EAC iv) Power rate change		
AFB 2	Fiscal budget i) budgeting policy ii) budgeting		

Administration Division				
Section	Group	Task Code	Task Description	
	Accounting Group	AFB 3	Control of revenues and expenses i) check of receivables & payables ii) examination of expenses	
		AFA		
		AFA 1	Bookkeeping i) journal ii) ledger	
		AFA 2	Account settlement i) Balance sheet ii) Income statement iii) Financial report to MIME	
	Fund Group	AFA 3	Asset management i) Fixed asset register ii) Inventory book	
		AFF		
		AFF 1	Cashier i) cash receipt ii) cash payment iii) cashbook keeping iv) cash safekeeping & bank deposit	
	Customer Management Group	AFF 2	Fund administration i) cash planning ii) borrowing	
		AFC		
		AFC 1	Customer management i) customer book ii) billing book	
	Procurement Section	Procurement Group	AFC 2	Bill collection i) record of meter measurements ii) issue of electricity bill & receipt
			AP	
			APP	
APP 1			Contracts for construction works	
APP 2		Contracts for maintenance works		
APP 3		Purchases		
Inventory Control Group		API		
		API 1	Warehouse control i) warehouse bookkeeping ii) record of carrying-in and - out	
	API 2	Control of inventory goods and fuel i) periodical inventory check ii) inventory count for account closing		

Appendix 2-10 : Power and Duty for Technical Division

Technical Division			
Section	Group	Task Code	Task Description
General Technical Section		TG	
		TG	
		TG 1	General matter i) employment ii) evaluation of staff activities iii) working control iv) safety control v) metering
		TG 2	Document control i) operation records ii) maintenance records iii) fault & emergency records iv) daily, monthly and yearly operation plan
		TG 3	Long & Mid-term plan and budget i) maintenance plan ii) scheduled inspection plan iii) tool & spare parts procurement plan
		TG 4	Asset management i) fixed asset register ii) inventory book iii) maintenance of Administration office building
O' Moleng HP Section		TM	
		TM	Safety and quality control of operation and maintenance work at O'Moleng HP
		TM 1	Working control i) working regulation ii) attendance sheet iii) operators shift schedule
		TM 2	Data/records control i) operation records ii) Water level at Intake weir and Sedimentation iii) maintenance records iv) fault & emergency records v) daily, monthly and yearly operation plan vi) Long & Mid-term Plan
		TM 3	Operation and maintenance i) daily operation ii) daily, monthly and yearly maintenance iii) trouble shooting
		TM 4	Operation of civil facilities i) Intake gate ii) Sand flushing gate
		TM 5	Maintenance of civil facilities i) Removing the garbage in front of the screen ii) Small repairment
		TM 6	Daily, weekly, monthly Patrol for the civil structures i) Concrete structure, gate, penstock, access road and slope protection ii) Safety check around the area (Gate lock, keeping off outsiders, etc.)
		TM 7	Repairment planning of civil facilities

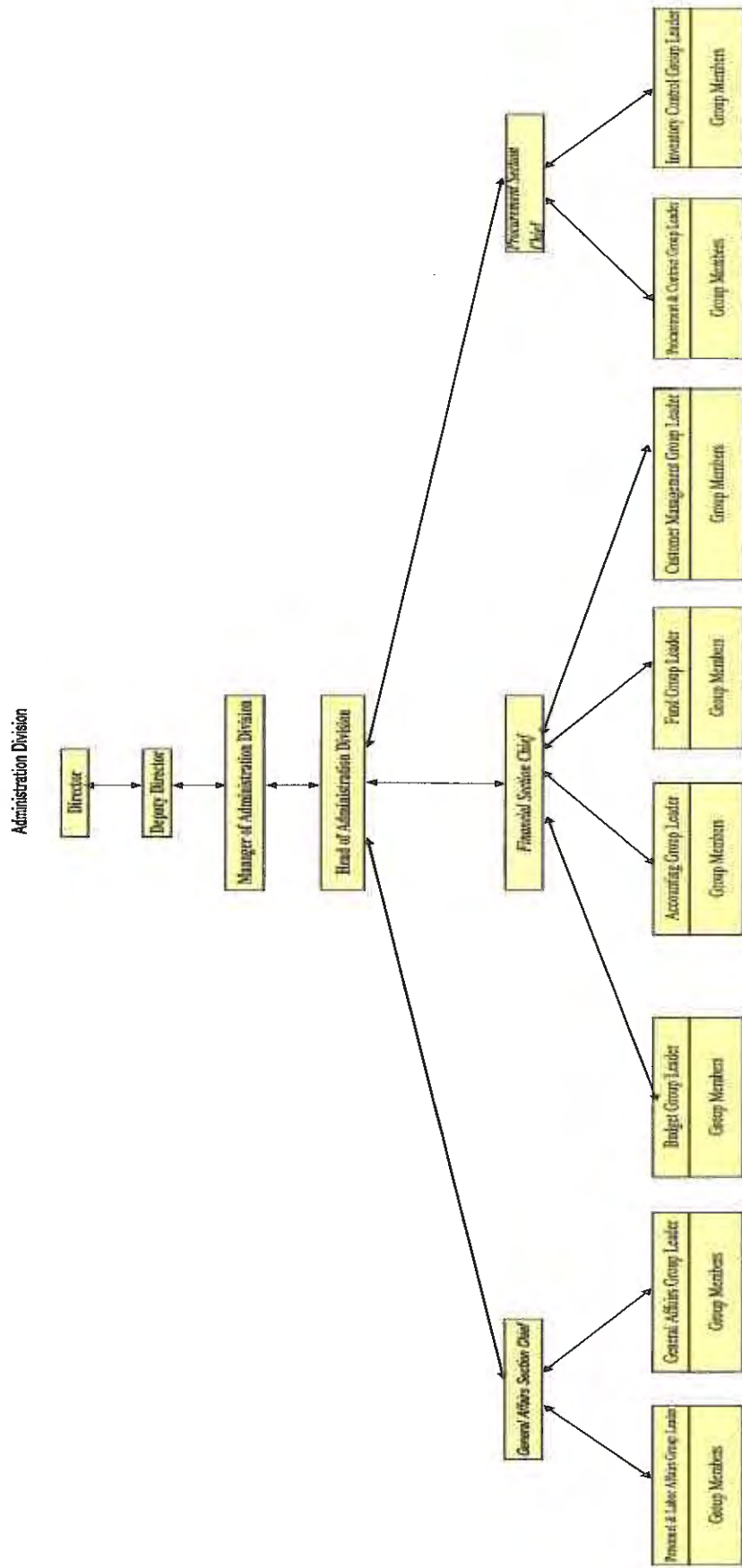
Technical Division			
Section	Group	Task Code	Task Description
O' Romis HP Section		TR	
		TR	Safety and quality control of operation and maintenance work at O' Romis HP
		TR 1	Working control i) working regulation ii) attendance sheet iii) operators shift schedule
		TR 2	Data/records control i) operation records ii) Water level at Intake weir and Water way and Head Tank iii) maintenance records iv) fault & emergency records v) daily, monthly and yearly operation plan vi) Long & Mid-term Plan
		TR 3	Operation and maintenance i) daily operation ii) daily, monthly and yearly maintenance iii) trouble shooting
		TR 4	Operation of civil facilities i) Intake gate ii) Sand flushing gate
		TR 5	Maintenance of civil facilities i) Removing the garbage in front of the screen ii) Small repairment
		TR 6	Daily, weekly, monthly Patrol for the civil structures i) Concrete structure, gate, penstock, access road and slope protection ii) Safety check around the area (Gate lock, keeping off outsiders, etc.)
		TR 7	Repairment planning of civil facilities
Diesel Plant Section		TD	
		TD	Safety and quality control of operation and maintenance work at Diesel Plant
		TD 1	Working control i) working regulation ii) attendance sheet iii) operators shift schedule
		TD 2	Data/records control i) operation records ii) maintenance records iii) fault & emergency records iv) daily, monthly and yearly operation plan
		TD 3	Long & Mid-term plan and budget i) maintenance plan ii) scheduled inspection plan iii) tool & spare parts procurement plan
		TD 4	Operation and maintenance i) daily operation ii) daily, monthly and yearly maintenance iii) trouble shooting
		TD 5	Maintenance of civil and building facilities

Technical Division			
Section	Group	Task Code	Task Description
T/L, D/L and Metering Section		TT	
		TT	Safety and quality control of operation and maintenance work of T/L and D/L facilities
		TT 1	Working control i) working regulation ii) attendance sheet
		TT 2	Planning of T&D activity i) Long & Mid-term Plan, Budget ii) Daily Activity Plan (Operation, Maintenance and Construction)
		TT 3	Check of T&D operation i) Analyzing of operating condition (Load, T&D Loss, Voltage drop) ii) Measuring of Current & Voltage
		TT 4	Scheduled Outage Operation i) Making a switching procedure ii) Notification to customers iii) Ordering switching operations iv) Doing switching operations v) Record of result
		TT 5	Fault Outage Operation i) Decision of the method how to restore ii) Ordering each action to restore iii) Searching and restoration of fault iv) Record of result
		TT 6	Maintenance of T&D facilities i) Patrol & inspection ii) Record of result iii) Negotiation with owner of obstruct close to T&D line iv) Control of spare parts v) Maintaining of working tools
		TT 7	Customer's request or claim i) interruption of power supply ii) abnormal voltage iii) Wh Meter broken iv) Wh Meter checking
		TT 8	Construction of T&D facilities i) Making a specification of constructions ii) Constructing iii) Supervising construction work iv) Inspection of the result v) Revising Facility book
	TT 9	Customer contract issues i) Technical review of supply application ii) Connection work iii) Metering iv) Delivery of invoices v) Temporary disconnection & re-connection vi) Removal of Wh meter from ex-customers	

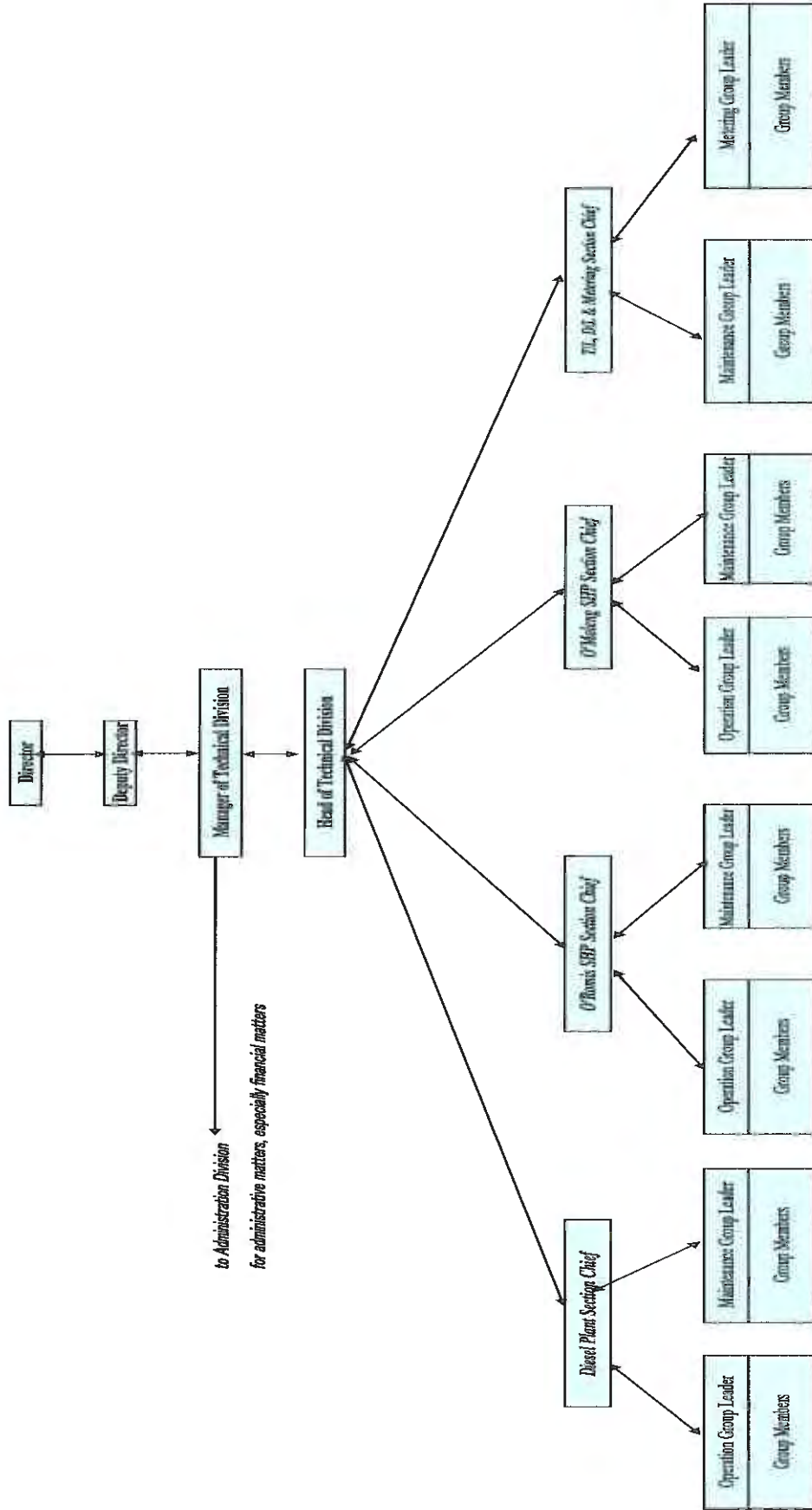
Appendix 2-11 : Line of Command and Control

Line of Command and Control

Commands/Directions and approval requests/reporting must follow this line of command and control



Technical Division



Appendix 2-12 : Employment Regulation

Employment Regulation

Chapter 1 General

(Purpose)

Article 1 This regulation stipulates the working conditions of the personnel of the Corporation.

(Classification of the Personnel)

Article 2 The following is the classification of the personnel of the Corporation:

- (1) Director
- (2) Deputy Director
- (3) Division Manager
- (4) Division Head
- (5) Section Chief
- (6) Group Leader
- (7) Staff I
- (8) Staff II
- (9) Staff III

(Application or Notification)

Article 3 When an application or notification is necessary according to this regulation, such application or notification shall be made in the prescribed form.

(Relation with Law)

Article 4 Where there is no stipulation in this regulation or there is some infringement on the relevant laws of Cambodia, such law shall be obeyed.

Chapter 2 Personnel Affairs

(Employment)

Article 5 A newly-employed person shall submit to the Division Manager of Administration the following documents:

- (1) Curriculum vitae
- (2) Certificate of academic background and/or qualification
- (3) Other document for personnel control

(Suspension of Employment)

Article 6 If an employee falls into one of the following causes, he or she shall be ordered to suspension of employment.

- (1) 3 months or longer absence from work due to accident or sickness not related with work: 1-year suspension of
employment
- (2) Public service for 3 months or longer:
Same period of public service
- (3) Punitive suspension of employment:
Same period of punitive suspension of
employment
- (4) 3 months or longer absence from work due to his or her personal
circumstances: period determined by the Corporation
- (5) Unclear situation of life or death or whereabouts
- (6) Other special reason: period determined by the Corporation

(Resumption of Employment)

Article 7 The employee under the suspension of employment shall notify his or her resumption of employment to the Division Manager of Administration.

(Compulsory Retirement Age)

Article 8 The compulsory retirement age is 60 years old, provided that this age may be extended for a determined period when the Corporation deems necessary.

(Retirement)

Article 9 If an employee falls into one of the following causes, he or she shall be deemed to do retirement.

- (1) Application for retirement due to his or her personal circumstances
 - (2) When the period of suspension of employment due to (1), (4) or (5) of Article 6 ends.
 - (3) When the compulsory retirement age is reached.
 - (4) When he or she dies.
2. In the case of (1), the employee shall make an application of retirement 2 weeks ahead indicating the day and reason of retirement to the Division Manager of Administration. He or she shall obey the instructions given by his or her superiors

including handover of his or her tasks.

3. In the case of (3), the day of retirement shall be the end of the month to which the day of the compulsory retirement age belongs.

4. In the case of (4), he or she shall be removed from the register of the Corporation.

(Dismissal)

Article 10 If the employee falls into one of the following causes, he or she shall be dismissed:

- (1) When he or she receives punitive dismissal;
- (2) When he or she is deemed to be unable to continue work because of considerable physical or mental disability;
- (3) When the Corporation falls into unavoidable circumstances.

Chapter 3 Working Rules

(Working Discipline)

Article 11. The employees shall observe the rules and regulations and the order of the Corporation and shall perform their duties according to their superiors.

(Confidentiality)

Article 12. The employees may not disclose confidential information to any others, whether it has relations with their duties, during the period of their employment and after their retirement.

(Types of Working)

Article 13. The types of working are: Normal work and Shift work.

(Working Hours)

Article 14. The working hours are as shown in the table below.

Types of working		Working hours	Starting time	Closing time	Break time
Normal work		8 hours/day 176 hours/month	7:00	17:00	11:00-13:00
Shift work	Shift 1	9 hours/day	7:00	16:00	
	Shift 2	5 hours/day	16:00	21:00	
	Shift 3	10 hours/day	21:00	7:00	
		180 hours/month			

When the employees come to the office and leave the office, they shall record the arrival and departure time in the attendance sheet.

(Holiday)

Article 15. The followings are holidays.

(1) Sunday

(2) Public holidays

Notwithstanding the foregoing, the Corporation may order employees to work in holidays.

(Overtime and holiday work)

Article 16. When deemed necessary for the Corporation, the Corporation may order employees to work overtime or in holidays.

(Late Arrival and Early Departure)

Article 17. When an employee arrives one hour or less later than the starting time, this shall be deemed to be late arrival. When an employee leaves the office two hours or earlier than the closing time, this shall be deemed to be early departure.

2. Three times of late arrival or early departure shall be deemed to be one work absence.
3. If an employee wishes to do late arrival or early departure, he or she shall ask his or her superior for it beforehand. Otherwise, because of unavoidable circumstances, he or she shall notify it to the superior without delay.
4. In the case of disaster, traffic accident or other cause of force majeure, late arrival or early departure may be treated as attendance of work.

(Half-holiday)

Article 18. When an employee works only for half of the working hours, this shall be deemed to be half-holiday. Two half-holidays shall be deemed to be one work absence.

(Work Absence)

Article 19. When an employee wishes work absence or half-holiday, he or she shall ask his or her superior for it with its reason beforehand. Otherwise, because of unavoidable circumstances, he or she shall notify it to the superior without delay.

2. If work absence continues for more than five days, a medical certificate shall be submitted to the superior.

(Work Absence without Notice)

Article 20. If an employee is absent from work without asking for it beforehand or without post notification, this shall be deemed to be work absence without notice.

(Long work absence)

Article 21. If work absence continues for more than a month, the period of such work absence shall be counted including holidays within.

2. An employee who was absent from work for more than one month resumes his or her attendance but become absent again within ten days because of the same reason, the periods of long work absence shall be combined.

(Paid Leave)

Article 22. The annual paid leave is 20 days. The unused paid leave may be carried over to the next year.

2. When an employee wishes to take a paid leave, he or she shall notify it to his or her superior beforehand. If the superior consider it necessary to change the timing and period of the asked paid leave on account of smooth business of the Corporation, such timing and period may be changed.

Chapter 4 Salary and Allowances

(Salary)

Article 23. The salary of the employees shall be stipulated in the pay scale determined by the Corporation.

(Retirement Allowance)

Article 24. When an employee retires or is dismissed, retirement allowance may be paid according to the pay scale determined by the Corporation.

(Travelling Expense)

Article 25. When an employee is order to do business trip, travelling expense shall be paid as follows.

Chapter 5 Compensation

(Accident Compensation)

Article 26. When an employee may receives compensation for injury, sickness or death because of work according to the determination of the Corporation.

2. When an employee causes damage to body and/or property of others, compensation shall be paid according to the determination of the Corporation, provided that such damage is not due to willful misconduct or gross negligence of the employee.

Supplementary Provision

This regulation shall come into effect as from 1st July 2009

**Appendix 2-13 : Regulation for Control of
the Corporation's Vehicles**

Regulation for Control of the Corporation's Vehicles

(Purpose)

Article 1 This regulation stipulates the matters regarding the control and operation of the vehicles owned by the Corporation.

(Definition of Vehicles)

Article 2 In this regulation, vehicle means any cars, trucks, and motorcycles, whether owned or leased by the Corporation for its conduct of business.

(Controller)

Article 3 The general control shall be exercised by the Manager of Administration Division and the routine control shall be exercised by the General Affairs Section.

(Control Book of vehicles)

Article 4 The General Affairs Section shall prepare a control book of vehicles to register all vehicles with the following descriptions:

- (1) Type of vehicle, major repairs with cost and cause of repair
- (2) Main purpose of use of vehicle
- (3) Major repairs: date of repair, part of repair, cost and cause of repair
- (4) Date of inspection of vehicle
- (5) Date of retirement or selling-out of vehicle
- (6) Record of accidents
- (7) Insurance
- (8) Tax

(Custody of Key)

Article 5 The key of vehicles shall be in the custody of the General Affairs Group. The key may not be taken out without permission of the Section Chief of General Affairs.

(Permission of Use of Vehicle)

Article 6 Before an employee uses a vehicle, he or she shall submit a permission of use of vehicle to his or her superior for approval and then shall submit it to the General Affairs Section for approval by the Manager of Administration Division. Immediately after use of vehicle, he or she shall return the vehicle to the designated parking lot of the Corporation and

shall return the key together with the permission.

(Inspection of Vehicle)

Article 7 Vehicles shall be inspected and kept in good conditions. When the driver finds some trouble or poor maintenance, he or she shall report it to the General Affairs Section.

In the case of trouble due to carelessness or rude driving of the driver, all or part of the repair cost may be charged to the driver.

(Driving of Vehicle)

Article 8 Driving shall be conducted in compliance with law.

(2) Driving shall be permitted only to the designated drivers

(3) When an accident occurs, the driver shall take measures stipulated by law and inform the Manager of Administration Division and the General Affairs Section for instruction.

(4) When an accident occurs, no private settlement may be done personally without consultation with the Corporation.

(Private Use of Vehicle)

Article 9 No use of vehicle shall be permitted for commuting to work or private use except when permission is given by superior.

(Responsibility for fines)

Article 10 When an employee violates traffic law and fines are imposed on him or her, the Corporation shall not assume any responsibility for it.

(Punition)

Article 11 When an employee cause an accident of vehicle, such an employee shall be given punishment according to the Discipline Code of the Corporation. If compensatory payment are made by the Corporation, the Corporation may claim indemnity for it to the person responsible for the accident.

Supplementary Provision

This regulation shall come into effect as from 1st July 2009.

Appendix 2-14 : Disciplinary Code

Disciplinary Code

(Purpose)

Article 1 This Code is to stipulate punishment on employees of the Corporation.

Article 2 Punition shall be determined in a cautious manner and processed without delay by the board of the Corporation.

(Cause for punition)

Article 3 Punishment shall be given for one of the causes enumerated below:

- (1) Poor attendance to work such as prolonged absence without permission;
- (2) Disturb order and debase morale of the Corporation;
- (3) Profiteering by use of duty position or through work of the Corporation;
- (4) Leakage of confidential information of the Corporation;
- (5) Willful acts or gross negligence causing disbenefit or damage to the Corporation;
- (6) Acts causing damage to the reputation or loss of credibility of the Corporation;
- (7) Poor supervision on subordinate; and,
- (8) Other acts violating the regulations of the Corporation.

(Category of punition)

Article 4 Punition shall fall into the following five categories and determined by the importance of the causing act:

- (1) Reprimand: caution for future;
- (2) Pay cut: monthly reduction of salary at a fixed rate for a period of one month to six months;
- (3) Suspension of attendance: daily suspension of attendance to work for a period;
- (4) Punitive suspension of employment: monthly suspension of employment for a period of one month to three months;
- (5) Punitive dismissal: Immediate dismissal

(Criteria for punition)

Article 5 The criteria for punition shall be as shown in the Annexes 1 and 2 attached hereto.

(Record of punition)

Article 6 Punition shall be recorded officially.

(Deletion of recorded punishment)

Article 7 Recorded punishment may be deleted from official record of the Corporation if the employee receiving the punishment works in a diligent manner and with a high achievement for a considerable period.

Supplementary Provision

This code shall come into effect as from 1st June 2009.

Annex 1: Criteria for Punition

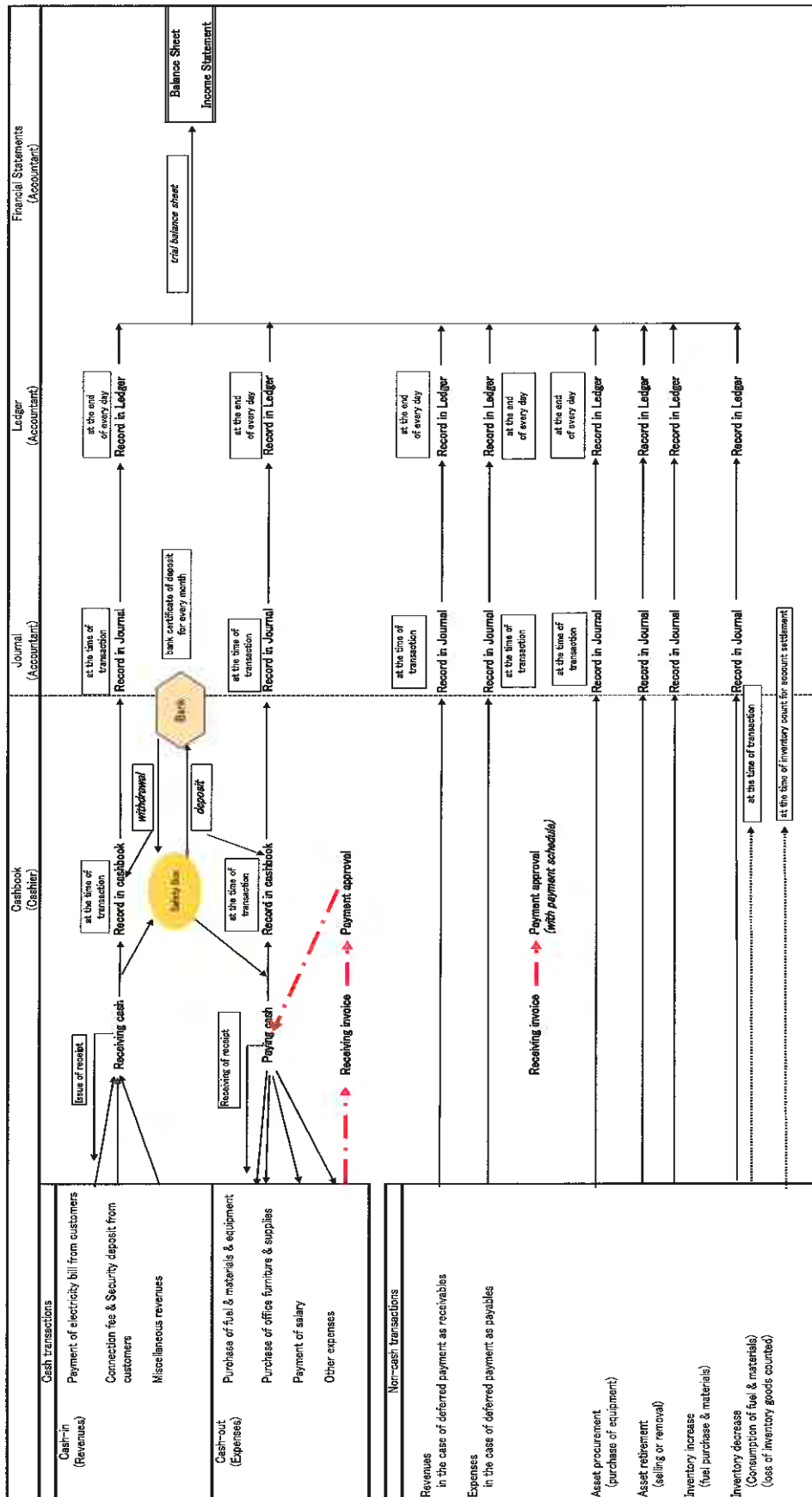
Cause for Punition		Punition
1. Violation of regulations, poor work performance		Reprimand or pay cut according to the degree of breach of discipline Suspension of attendance in the case of important breach
2. Fraudulent handling of money or property of the Corporation	by accident or negligence by negligent conduct of work by fraudulent handling	Reprimand Reprimand or pay cut
3. Fraudulent procurement of money or property of the Corporation	by fraud by abstraction	Dismissal Dismissal or suspension of attendance Suspension of attendance, pay cut or reprimand
4. Bribery	by common bribery in the case of small sum or other relievable considerations	Dismissal, suspension of attendance or pay cut Suspension of attendance, pay cut or reprimand
5. Credibility	by common act to lose credibility of the Corporation by act leading to the considerable loss of credibility of the Corporation	Reprimand Suspension of attendance or dismissal
6. Poor supervision	by common poor supervision by considerably poor supervision	Reprimand Pay cut
7. Violation of traffic law	See the Annex 2 for detail	Reprimand, pay cut, suspension of attendance or dismissal

Annex 2: Criteria for punishment due to violation of traffic law

Cause for punishment		Punition
1. Accident causing bodily injury or death by unlicensed or drinking driving		Dismissal or suspension of attendance for 6 months or less
2. Accident causing property damage by unlicensed or drinking driving		Suspension of attendance for 6 months or less
3. Unlicensed and drinking driving		Suspension of attendance for 4 months or less
4. Unlicensed driving exceeding the legal maximum speed		Suspension of attendance for 3 months or less
5. Unlicensed driving		Pay out for 3 months or less; 1-month suspension of attendance or reprimand
6. Drinking driving exceeding the legal maximum speed		Suspension of attendance for 6 months or less
7. Drinking driving		1-month suspension of attendance or pay cut for 3 months or less
8. Driving exceeding the legal maximum speed	50km/hr or more 30km/hr to 50km/hr less than 30km/hr	Pay out for 1 month or reprimand
9. Violation of either of the above causing malicious accident		Reprimand or light reprimand
10. Willful failure to report of the above causing malicious accident		Light reprimand or warning
11. Other malicious violation and accident than the above		Dismissal
12. Accident by gross negligence due to other cause than the above		1-month suspension of attendance or pay cut for 3 months or less
13. Accident by carelessness due to other cause than the above		Dismissal or suspension of attendance for 2 months or less
14. Willful failure to report of other violations or accidents than the above		Pay out for 1 month or reprimand
15. Ride together knowing the drinkin driving of the driver		Light reprimand or warning
16. Drinking driving causing death or serious injury, failing to aid victims		Light reprimand or warning
		1-month suspension of attendance or pay cut for 3 months or less
		Dismissal or suspension of attendance for 6 months or less

Appendix 2-15 : General Work Flow for Accounting Works

General Accounting Workflow



Appendix 2-16 :List of Things to Do before February 2010

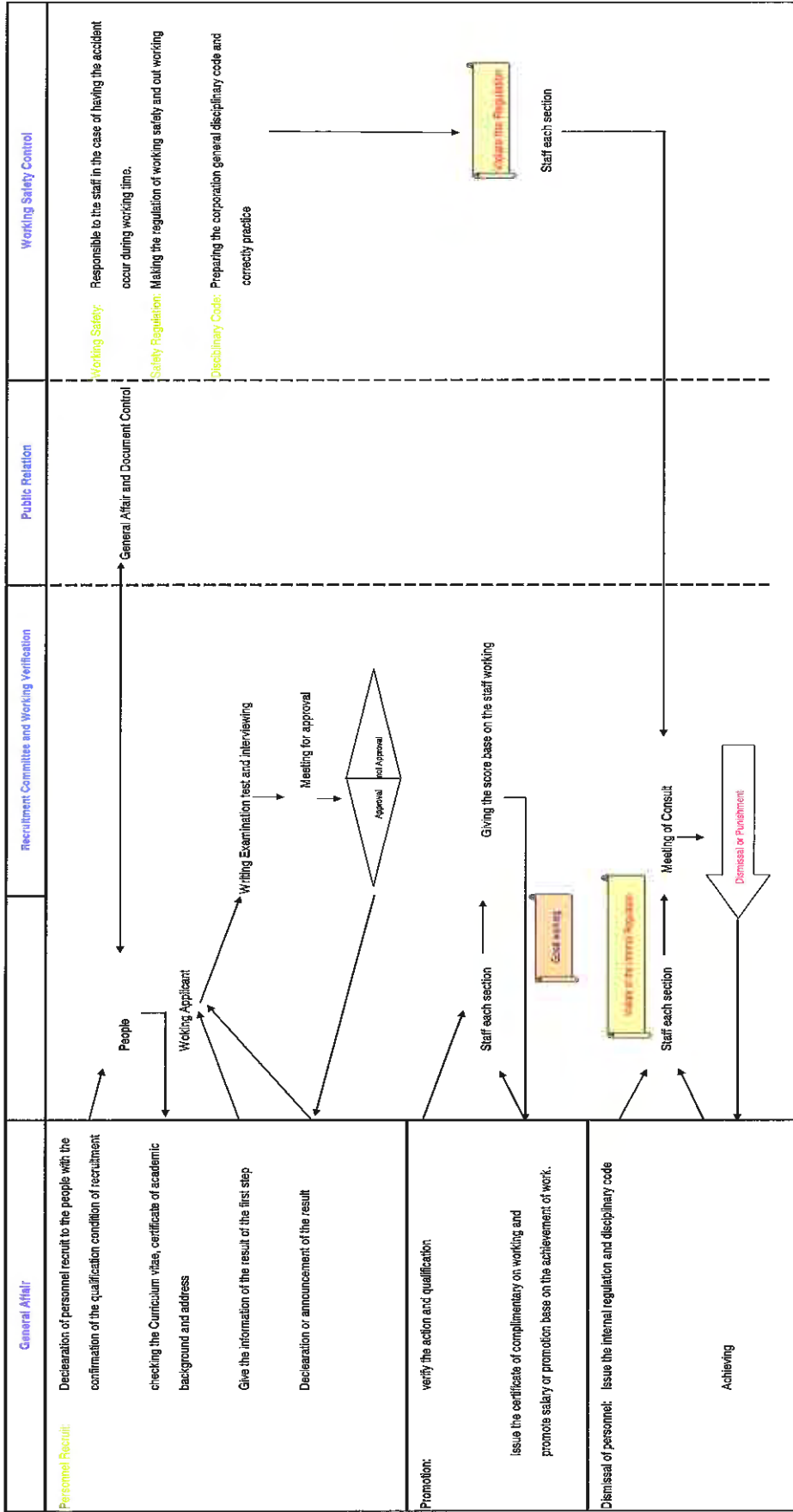
List of Things to Do before February 2010

The Administrative Division must do the following things by the time shown in each item and gives them to the secretary of JICA project team, so that she can make translation and send them to JICA project team in Tokyo.

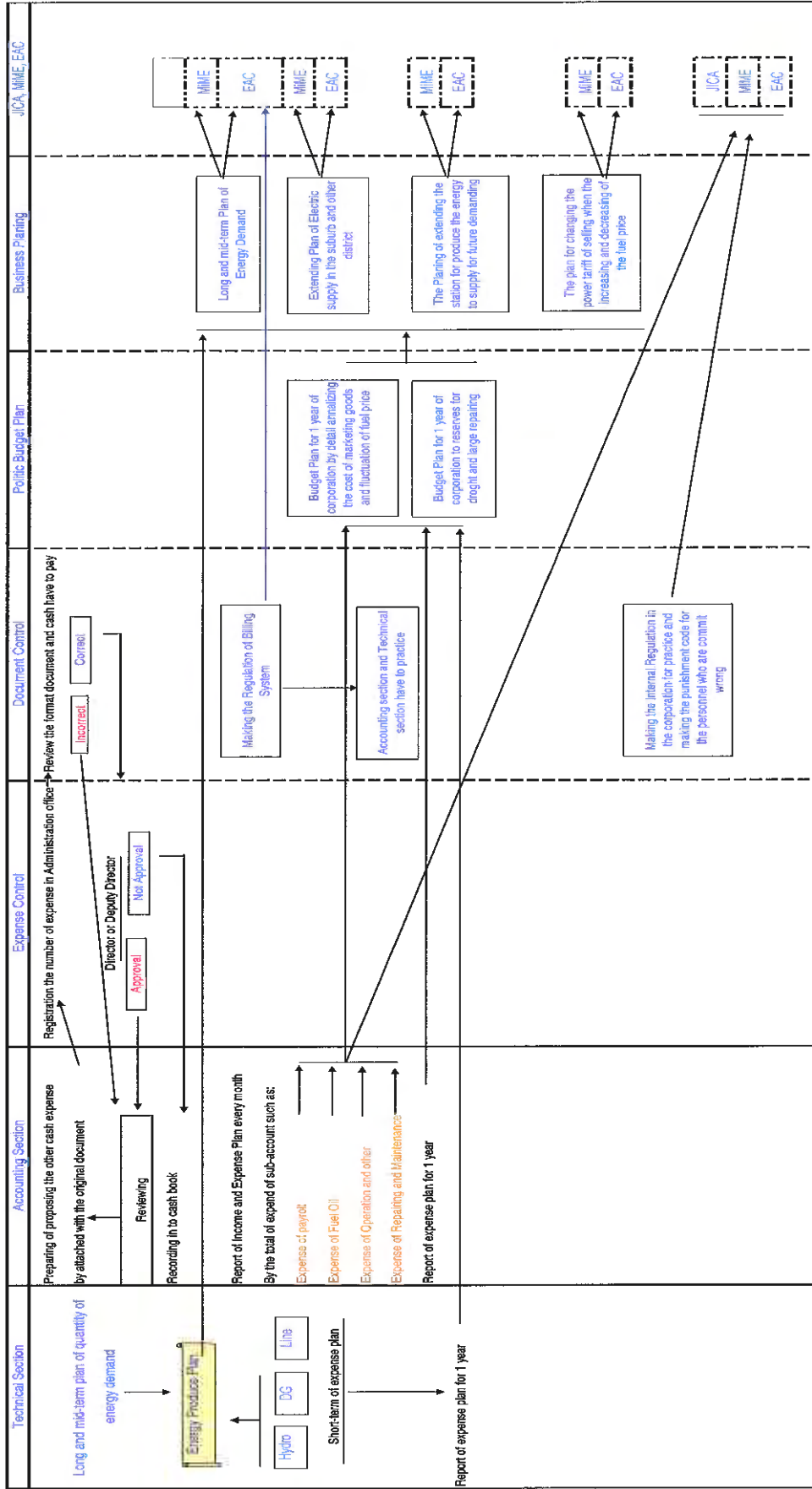
1. Authorize and issue the internal regulations regarding “”Billing System”, “Regulation on Organization and Powers and Duties”, “Employment Regulation”, “Disciplinary Code”, and “Regulation for Control of the Corporation’s Vehicles” as well as “Articles of Incorporation” in early December 2009.
2. Make inventory count of the warehouse together with the technical staff in December to be reflected in the balance sheet of EUMP as of the end of December.
3. Introduce a permanent salary system together with overtime payment system to replace the temporary salary system to start from January 2010.
4. Consider temporary payment for traveling expenses and make a decision in December.
5. Make analysis of incomes and expenses of 2009 and prepare annual budget for 2010 in December to start from January 2010.

Appendix 2-17 : Work Flow of Each Administration Staffs

San Darith
Dep-Director in charge of Administration and Accounting Section
Worktow (Administration)

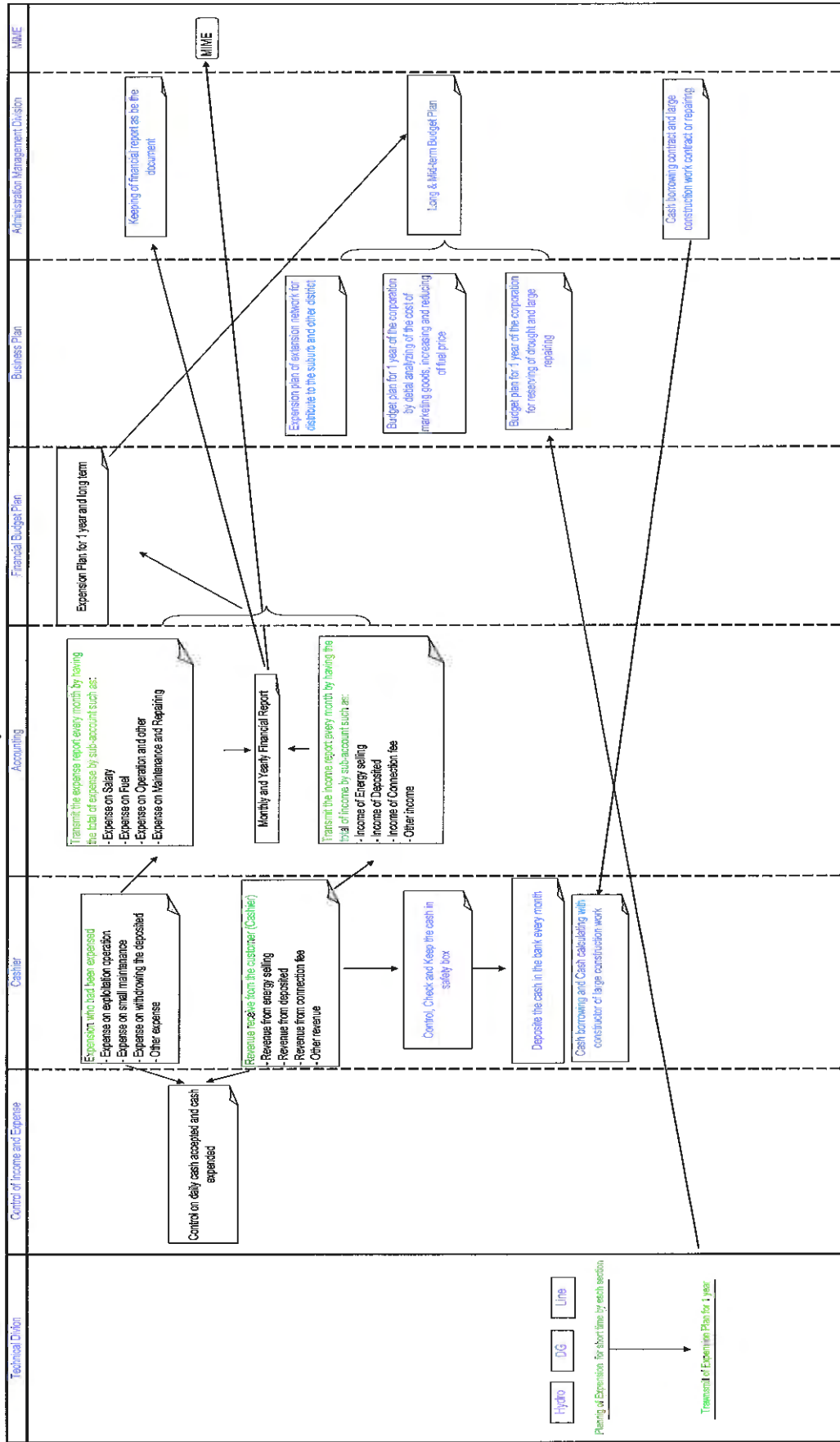


San Darth
Dep-Director In charge of Administration and Accounting Section
Workflow (Accounting)

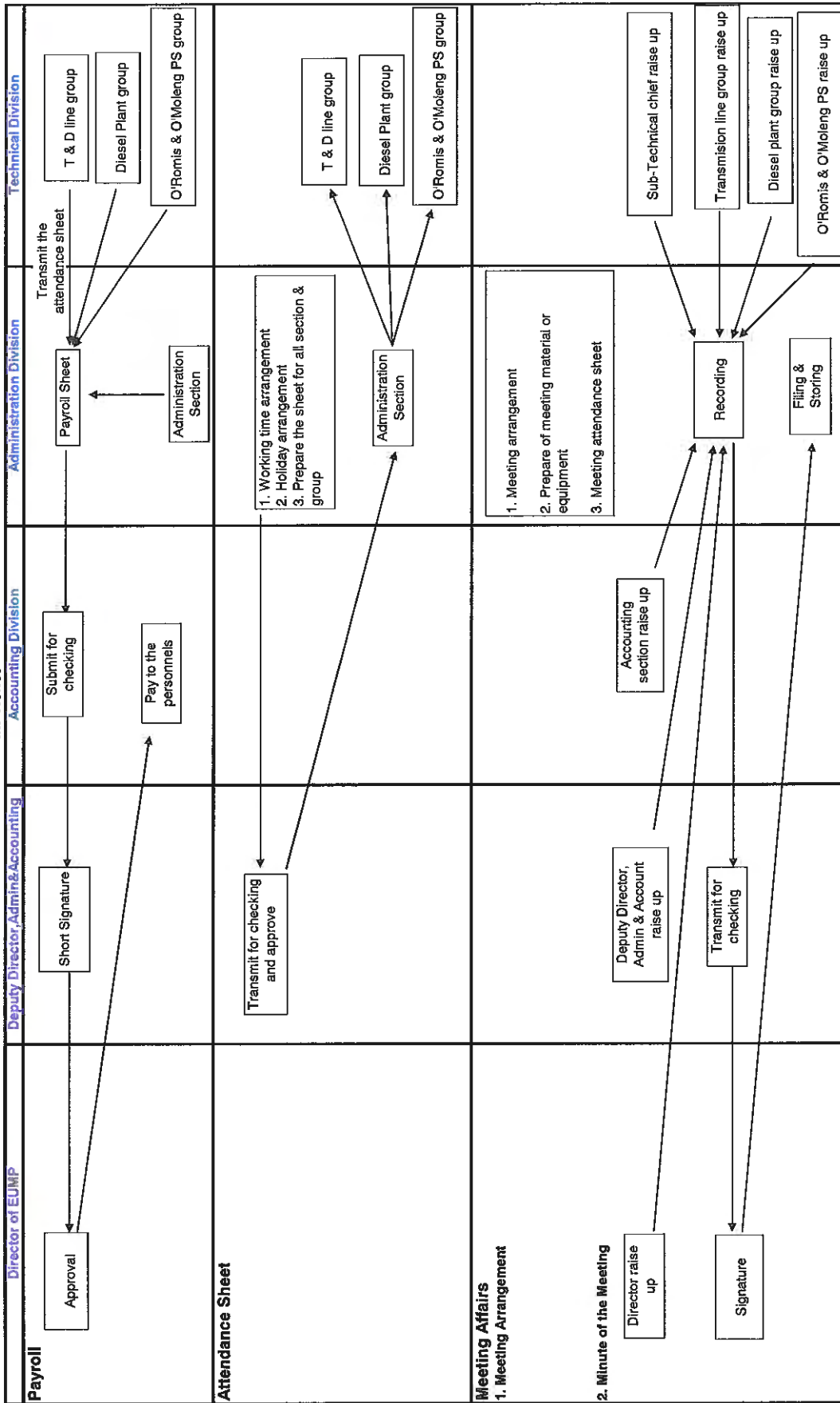


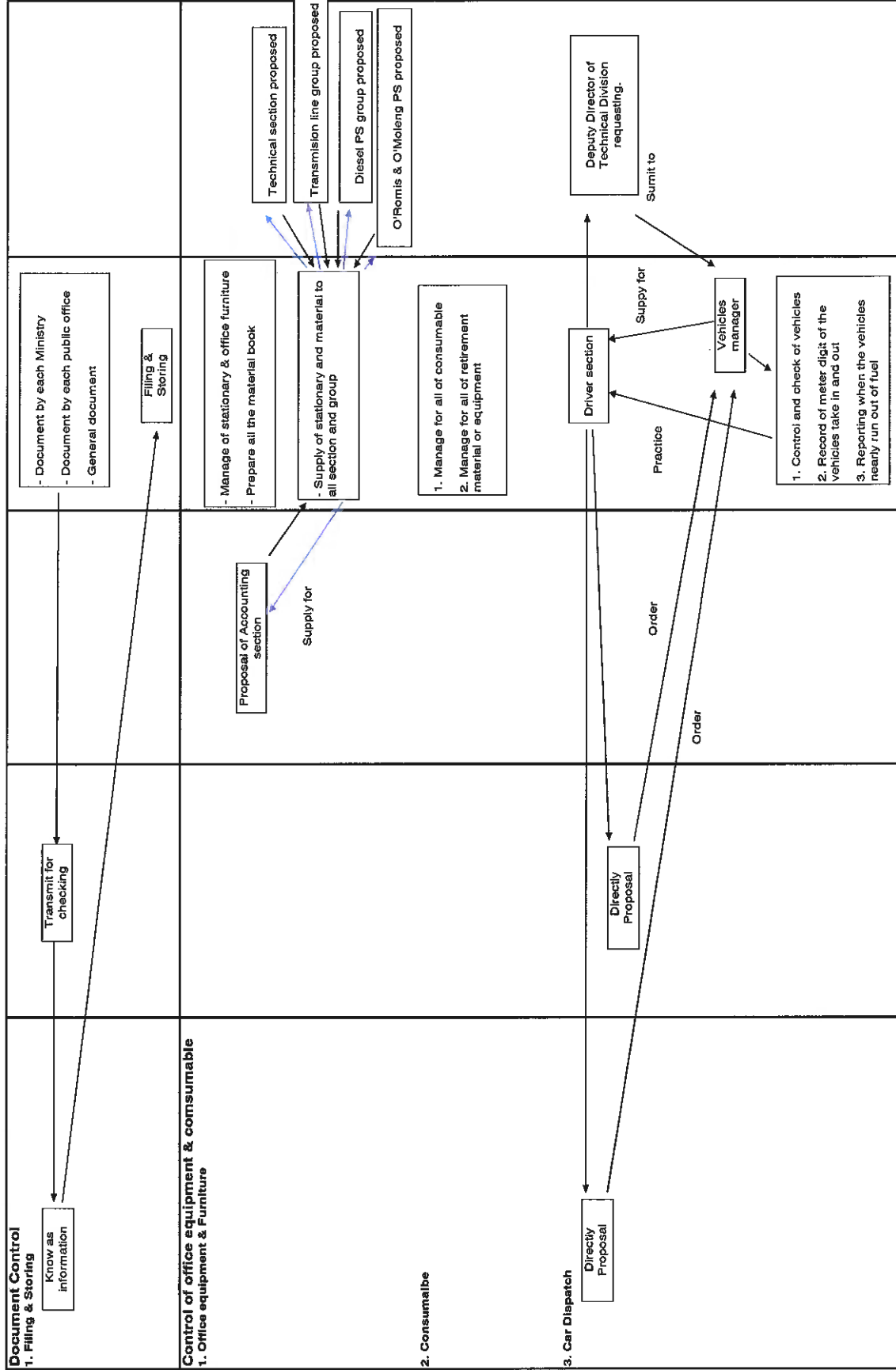
Workflow of Accounting Chief

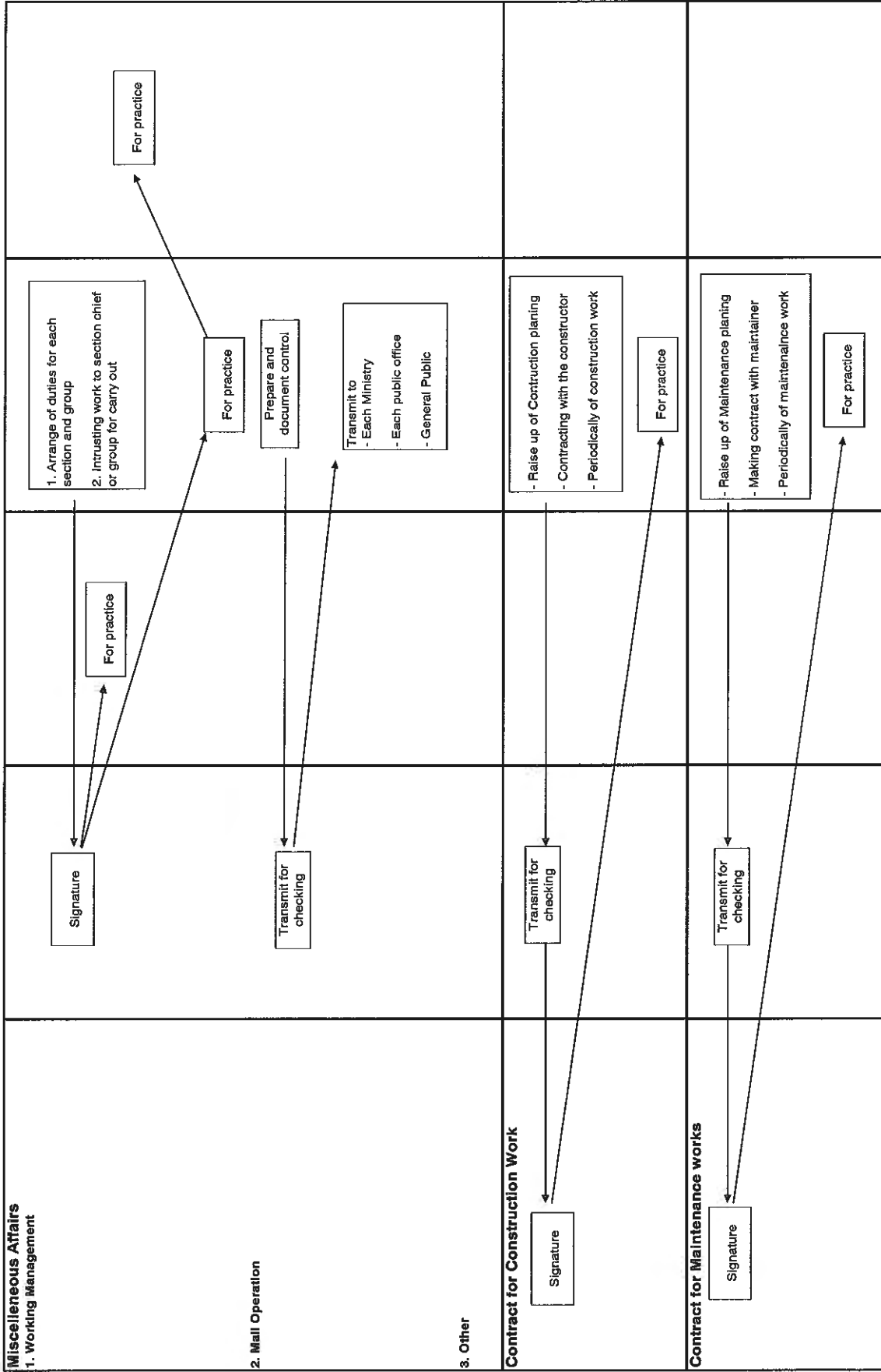
Mr. Pong Sarnmak



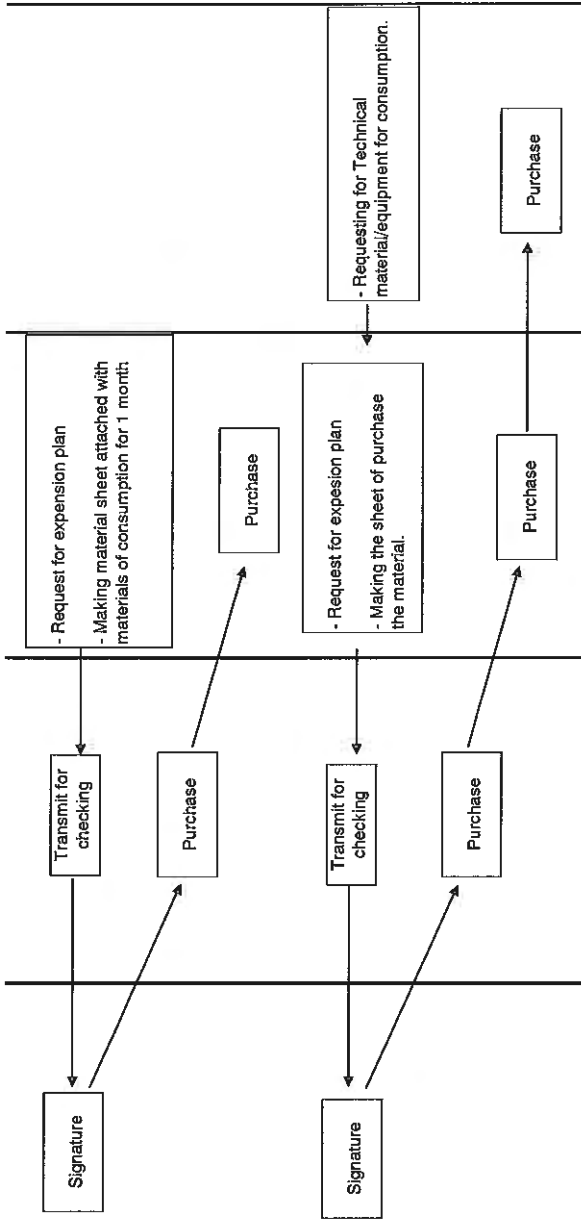
Workflow of Administration and Procurement Section Im Vichet



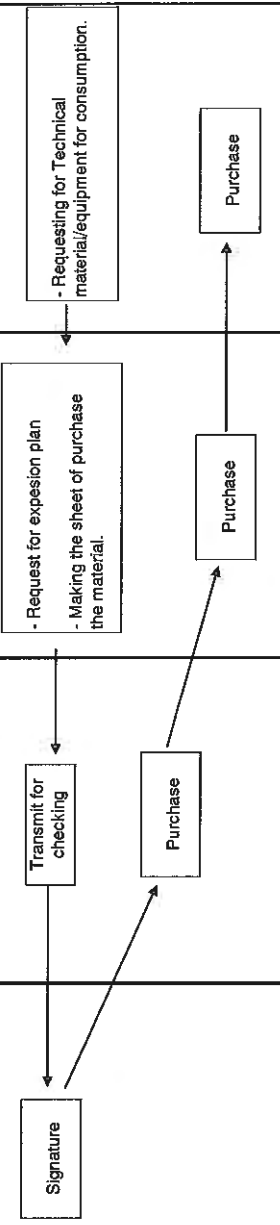


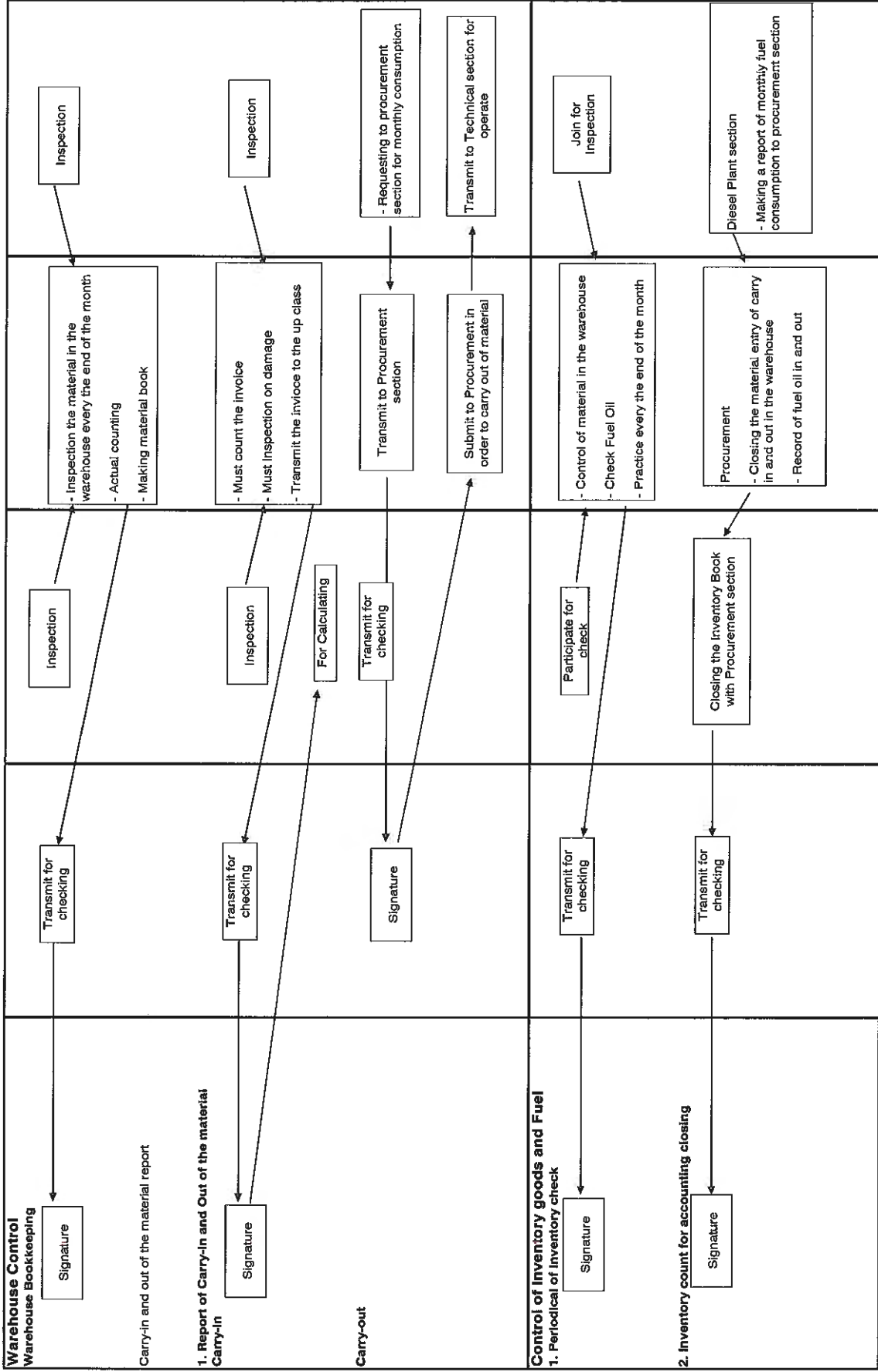


Purchases
Purchase of Stationary

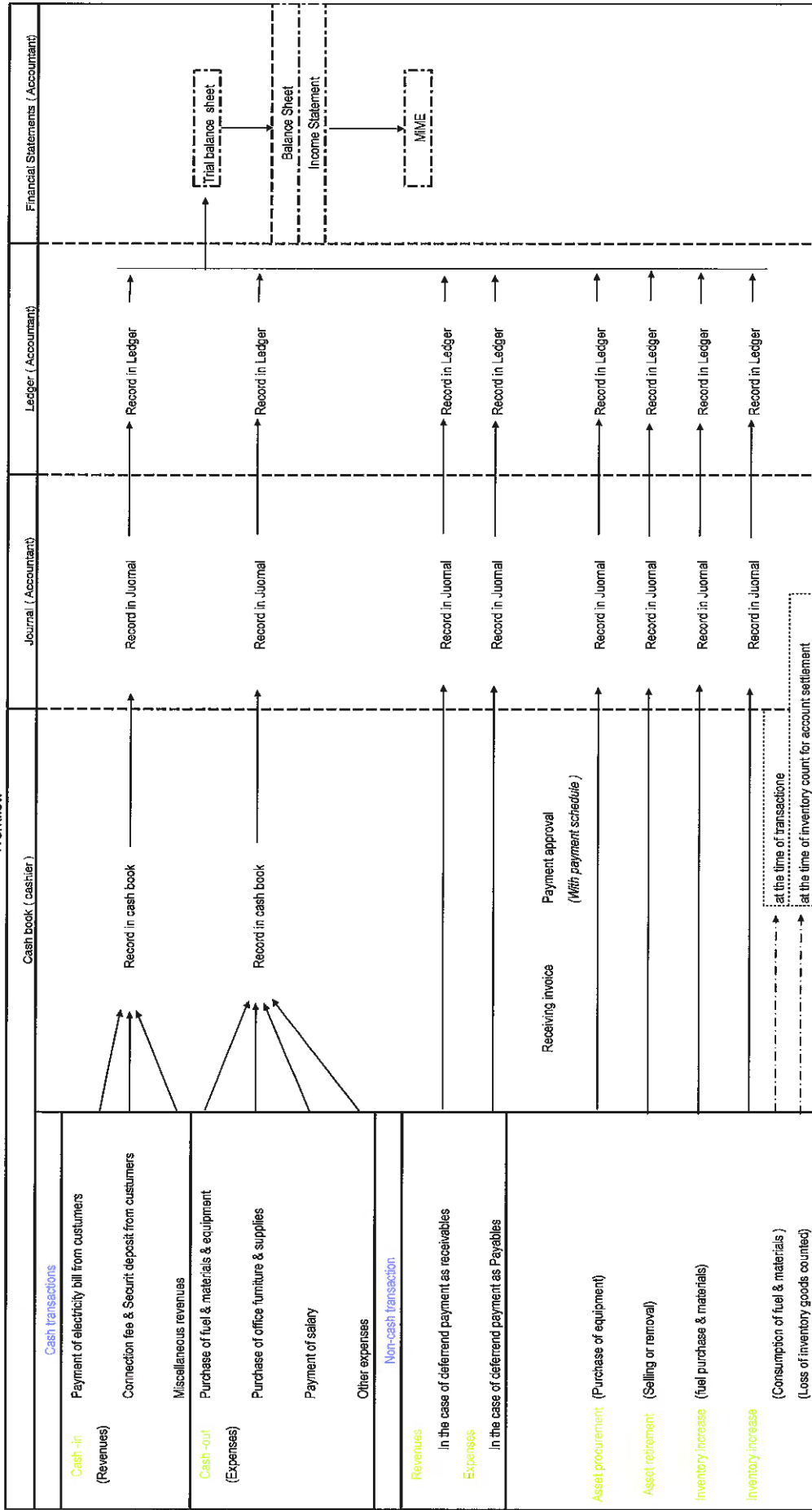


Purchase of Technical equipment



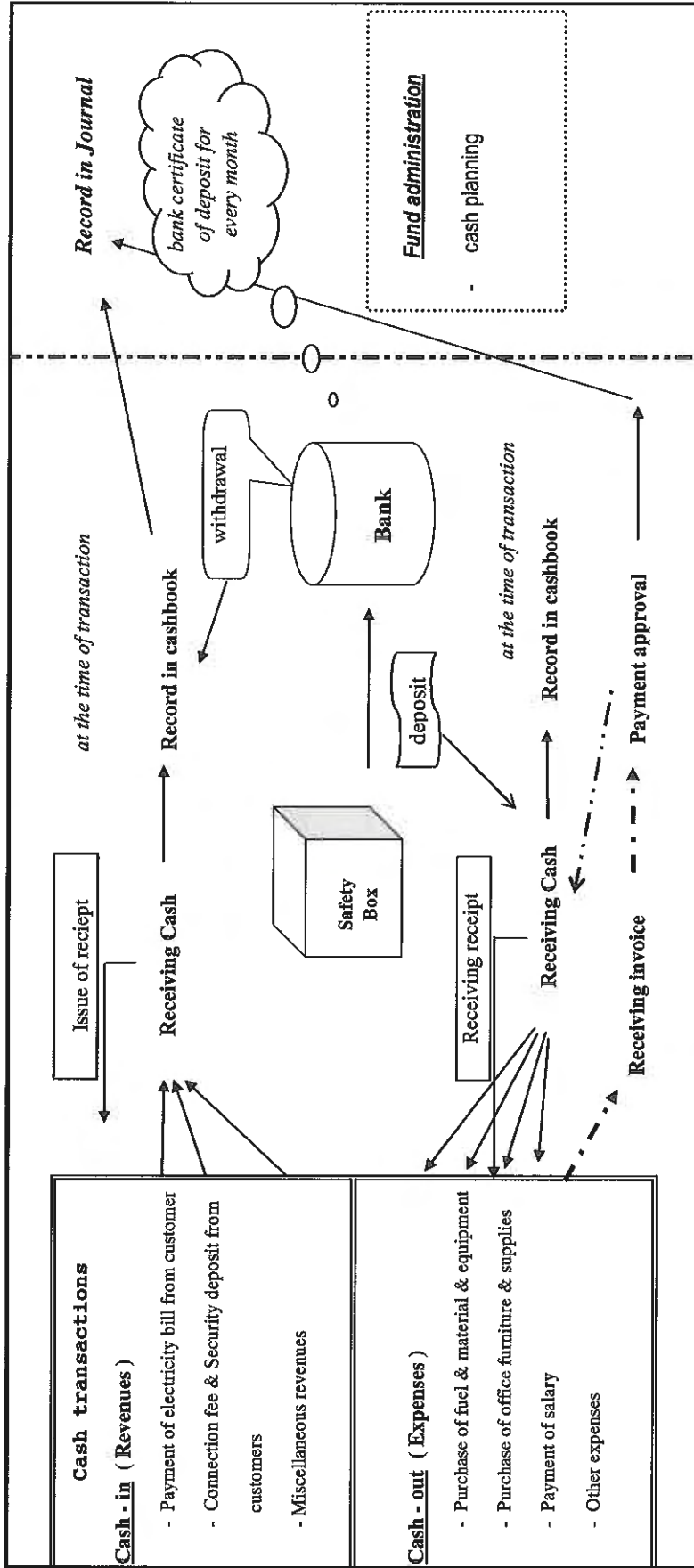


Ty Suyatra
Assistant Accounting
Workflow



GENERAL ACCOUNTING WORKFLOW

CHRES M. MOUD



List of Things to Do through September 2010

The Administrative Division must do the following things in each item and gives them to the secretary of JICA project team, so that she can make translation and send them to JICA project team in Tokyo. It is to be noted that the monthly reports mentioned below must be sent to JICA project team before the end of the first week of the respective next month.

1. Accounting Report for 2009 (for MIME & EAC)
2. Monthly report of budget execution: comparison between the budget and actual revenues and expenses showing the percentage of execution for each budget item
3. Monthly report of Balance Sheet and Income Statement
4. Monthly report of the amount of cash on hand to (must be actually counted) and bank deposit (must be evidenced by bank certificate): these amounts must be checked with the corresponding items of the Balance Sheet
5. Monthly record of warehouse control: if something is purchased and carried in to the warehouse, it must be recorded about its name, quantity and amount of money paid and if something is carried out of the warehouse, it must be recorded about its name, quantity and recorded amount of money; and, such transactions must be entered in the Balance Sheet.

Appendix 2-19 : Billing book (Example : Data of June 2009)



ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

5

មន្ទីរទស្សនាមាតុភូមិ និងថាវកលទេសចរណ៍

ផ្នែកគណនេយ្យទូទាត់

អគ្គនាយកដ្ឋានវិទ្យុស្ថាន

Bill Management Section

របាយការណ៍សរុបតួចការបេក្យវិភាគប្រចុងអតិថិជនតាមត្រច់ស្រប្រចាំខែ (ឆ្នាំ ២០០៩)

លេខត្រច់ស្រប Number of Transformer	ចំនួនអតិថិជន Total of Customers	ចំនួនគីឡូវ៉ាត់ Total of Kw/h	ចំនួនប្រាក់សរុប Total Income	ចំនួនប្រាក់បំណុល Total of Outstanding Balance	ចំនួនប្រាក់បញ្ចេញ Total Invoice	ចំនួនប្រាក់បញ្ចេញ Total Invoice Issue
P-01	28	5633	9,911,600 R	7	2	26
P-02	26	4751	8,170,000 R	6	1	25
P-03	23	518	836,800 R	1	1	22
P-04	52	4980	8,521,200 R	7	1	51
P-04 H	1	1835	2,936,000 R	0	0	1
P-05	35	1971	3,153,600 R	0	1	34
P-06	30	1768	2,828,800 R	0	1	29
P-07	20	1605	2,734,400 R	2	0	20
P-08	16	905	1,534,400 R	1	0	16
P-09	30	1968	3,167,000 R	1	1	29
P-10	10	1045	1,745,200 R	1	0	10
P-11	37	5244	8,744,200 R	3	0	37
P-12	13	991	1,652,200 R	4	1	12
P-13	6	604	1,043,600 R	2	0	6
P-14	46	3601	6,083,200 R	4	2	44
P-15	41	4756	8,131,200 R	4	0	41
P-16	263	18155	29,953,200 R	13	4	259
P-17	40	3572	6,002,800 R	3	2	38
P-18	8	311	497,600 R	0	0	8
P-19	75	3012	4,877,400 R	3	2	73
P-20	45	1795	2,894,200 R	1	0	45
P-21	30	991	1,585,600 R	0	0	30
P-22	19	1087	1,748,000 R	1	0	19
P-23	17	586	937,600 R	0	0	17
P-24	5	194	310,400 R	0	0	5
P-25	10	901	1,566,800 R	1	0	10
P-26	12	448	716,800 R	0	0	12
P-27	10	254	406,400 R	0	0	10
P-28	5	71	113,600 R	0	0	5
P-29	32	2096	3,483,600 R	3	0	32
P-30	26	1219	1,950,400 R	0	0	26
P-31	20	2200	3,829,600 R	3	0	20
P-32	31	1302	2,083,200 R	0	0	31
P-33	19	875	1,413,800 R	1	1	18
P-34	16	3212	5,139,200 R	0	0	16
P-35	11	738	1,180,800 R	0	1	10
Street-Light	1	972	1,555,200 R	0	0	1
P- 36 OR 066	2	230	368,000 R	0	0	2
Total	1111	86396	143,807,600 R	72	21	1090

ប្រធានគណនេយ្យ

ថ្ងៃទី

ខែ

ឆ្នាំ ២០០៩

គណនេយ្យទូទាត់

Appendix 2-20 : Annual Financial Report of EUMP (A part of Example)

DEPARTMENT OF INDUSTRY MINE & ENERGY

KINGDOM OF CAMBODIA

ELECTICITY UNIT OF MONDULKIRI

BALANCE SHEET

NATION RELIGION KING

PROVINCE (E U M P)

At 31st December 2009

rîs

	ASSETS		THIS YEAR			LAST YEAR	EQUITY & LIABILITIES		THIS YEAR	LAST YEAR
			GROSS	DEPRECIATION	NET					
FIX ASSET	Land	211	2,000,000,000		2,000,000,000	2,000,000,000.00		110	180,651,940	
	Building	213	23,595,616,800	1,376,158,934	22,219,457,866	23,394,701,866				
	Generators	2151	9,934,606,000	1,159,016,866	8,775,589,134	9,769,049,734	Profit This Year	120	978,700,461	180,651,940
	Transmis&Distri.Line	2154	13,057,932,000	475,940,267	12,581,991,733	12,988,008,533	Equipment Subvention	131	49,051,784,000	49,051,784,000
	Transport Equipment	2182	578,632,000	54,963,067	523,668,933	463,260,133	Subvention/Transfert To			
	Informatiic Equipment	2183	18,153,000	199,200	17,953,800	996,000	Result Account	139	-3,066,359,259	-437,993,734
	Office Equipment	2184	13,902,950	80,925	13,822,025	809,250				
		2751	41,500,000		41,500,000	41,500,000				
	TOTAL		49,240,342,750	3,066,359,259	46,173,983,491	48,658,325,516	TOTAL EQUITY		47,144,777,142	48,794,442,206
CURRENT ASSET		3221	40,459,632		40,459,632	48,285,283	Deposit Receive	1655	146,720,000	108,920,000
		3222	23,585,280		23,585,280	4,062,850				
	Clients	411	121,051,100		121,051,100	56,130,800				
	Cash in Bank	512	826,121,970		826,121,970	68,572,860				
	Cash in Transit	531	88,669,669		88,669,669	45,153,947				
	Temporarily Borrow	534	1,200,000		1,200,000	22,830,950				
	Charge to be spread over several period	481	16,426,000		16,426,000					
		TOTAL		1,117,513,651	0	1,117,513,651	245,036,690	TOTAL LIABILITIES		146,720,000
TOTAL ASSETS			50,357,856,401	3,066,359,259	47,291,497,142	48,903,362,206	EQUITY & LIABILITIES		47,291,497,142	48,903,362,206

DIRECTOR OF ELECTRICITY UNIT OF MONDULKIRI
MINE AND ENERGY & EUMP
PROVINCE (EUMP)

INCOME STATEMENT
OF MONDULKIRI PROVINCE
Dated 31st December 2009

Mondulhiri, the 31st January 2010
Accountant

EXPENSE				REVENUE			
Account	Number	Amount	Year 2008	Account	Number	Amount	Year 2008
				PRODUCTION INCOME			
Combustibles Purchases	60221	165,158,339.00	48,543,173.00	Sales of goods purchased	707	1,713,442,000.00	179,522,800.00
Material & maintenances	60222	38,514,996.00	10,582,500.00	Incomes for service	706	20,260,000.00	125,280,000.00
Change in stock of combustible	603221	7,825,651.00	-48,285,283.00		7083	10,956,000.00	
Change in stock of Mat.&mainte	603222	-19,522,430.00	-4,062,850.00				
Supplies & repairs of equipment	6063	86,353,039.00	4,719,900.00				
Supplies for administrative service	6064	26,730,360.00	8,621,100.00	Total I		1,744,658,000.00	304,802,800.00
Other material & supplies	6068	27,404,850.00	15,328,400.00	EXCEPTIONAL INCOME			
General sub-contract work	611	4,761,800.00	25,135,000.00	Portion of invest. relating to			
Repairs & maintenances	615	6,284,070.00	938,150.00	the period & transferred to			
Public relation, advertising & document	623	27,829,500.00	200,000.00	income	777	2,628,365,525.00	437,993,734.00
Transport of goods	624	9,887,579.00	2,402,470.00				
Mission & reception	625	62,287,785.00	2,035,600.00				
Telecommunication & postage	626	11,167,250.00	471,500.00				
Transport tax	63514	150,000.00	150,000.00				
Wages	6411	266,844,600.00	42,031,200.00				
Orther bonus	6414	36,977,950.00	14,070,000.00				
Fringe benefits	647	5,001,500.00	1,270,000.00				
Tax on mining & quarryings	651	2,300,700.00					
Tangible assets	681	2,628,365,525.00	437,993,734.00				
		3,394,323,064.00	562,144,594.00	TOTAL II		2,628,365,525.00	437,993,734.00
Profit for the year	120	978,700,461.00	180,651,940.00	Loss for the year	129		
Total		4,373,023,525.00	742,796,534.00	Total		4,373,023,525.00	742,796,534.00

DIRECTOR OF DEPARTMENT OF INDUSTRY MINE
AND ENERGY & EUMP

DIRECTOR OF ELECTRICITY UNIT
OF MONDULKIRI PROVINCE

Mondulhiri, January 31st 2010
Accountant

Appendix 3 Civil Work Structures

- Appendix 3-1 : Flow measurement**
- Appendix 3-2 : Format of flow measurement and example of record**
- Appendix 3-3 : Example of the operation record(O’Romis Daily record)**
- Appendix 3-4 : O’Romis power station access path Restoration work of landslide**
- Appendix 3-5 : O’Romis power station Reinforcement work for pole foundation**
- Appendix 3-6 : O’Romis power station access path Installation work of drainpipe**
- Appendix 3-7 : O’Romis power station Improvement work of the drainage system**

Flow measurement

At the manhole point of the waterway of O’Romis power station, flow measurement was done four times of various water levels to improve the accuracy of the water h-Q curve.

Measurement was done under the instruction of JICA team through the OJT training over and over again.



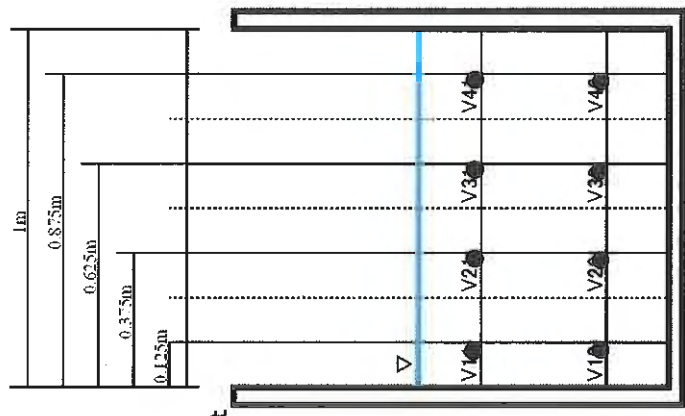
Format of flow measurement and example of record (measured on 15th Dec, 2009)

Format - 2

O'Romis Waterway water flow measurement record sheet (Two Points Method)

Date 15 DEC, 2009

$0.5m < D < 0.8m$



D= 0.63 m

V11= 1.09 m/s V31= 1.25 m/s

V12= 1.11 m/s V32= 1.23 m/s

V21= 1.28 m/s V41= 1 m/s

V22= 1.19 m/s V42= 1.05 m/s

V1= (V11+V12)/2= 1.102 m/s

V2= (V21+V22)/2= 1.235 m/s

V3= (V31+V32)/2= 1.238 m/s

V4= (V41+V42)/2= 1.025 m/s

Q= 0.25 × D × (V1+V2+V3+V4)
= 0.724 m³/s

Example of the operation record(O'Romis Daily record)

※Water level data is recorded together with the operation record on the same sheet as below

Daily Operation Record (Hydropower) Name of PS: O'Romis DATE: 1 / June / 2009 Weather: (F)

Times	Generator(V)		Hz	Speed	Press Mpa	GV	kW	Var	Generator(A)			Cosφ	Line(V)			kW	GMH	SWH	Temperature(°C)						Water Level of Head Tank	Water Level of Inflow Weir	Water Level of SB	Water Level of Waterway					
	RS	ST							TR	R	S		T	R	S				T	1	2	3	4	5					6				
1:00	400	400		50	1,001	2.5	160	0				1	400			80	37383.6	24945.1							10								
2:00	400	400		50	1,001	2.5	130	0				1	400			80										10							
3:00	400	400		50	1,001	2.5	130	0				1	400			75										10							
4:00	400	400		50	1,001	2.5	130	0				1	400			75										10							
5:00	400	400		50	1,001	2.5	140	0				1	400			75										10							
6:00	400	400	400	50	1,001	2.5	100	0	140	140	140	1	400	400	400	100	37422.4	24985.3	140	140	140	30	31	38	39	40	25	10	0.97	0.99	0.80		
7:00	400	400		50	1,001	2.5	110	0				1	400			110										10							
8:00	400	400		50	1,001	2.5	160	0				1	400			130										-2							
9:00	400	400		50	1,001	2.5	170	0				1	400			140										5							
10:00	400	400		50	1,001	2.5	125	0				1	400			125										5							
11:00	400	400		50	1,001	2.5	125	0				1	400			125										10							
12:00	400	400	400	50	1,001	2.5	125	0	180	180	180	1	400	400	400	125	37508.4	25060.4	180	180	180	34	36	42	42	50	29	10	0.97	0.99	0.80		
13:00	400	400		50	1,001	2.5	170	0				1	400			120										3							
14:00	400	400		50	1,001	2.5	170	0				1	400			125										5							
15:00	400	400		50	1,001	2.5	180	0				1	400			130										5							
16:00	400	400		50	1,001	2.5	185	0				1	400			150										1							
17:00	400	400		50	1,001	2.5	180	0				1	400			130										7							
18:00	400	400	400	50	1,001	2.5	160	0	230	230	220	1	400	400	400	160	37506.5	25139.6	230	230	220	33	38	41	41	51	23	7	0.97	0.99	0.80		
19:00	400	400		50	1,001	2.5	180	0				1	400			180										7							
20:00	400	400		50	1,001	2.5	160	0				1	400			180										7							
21:00	400	400		50	1,001	2.5	160	0				1	400			160										7							
22:00	400	400		50	1,001	2.5	160	0				1	400			115										7							
23:00	400	400		50	1,001	2.5	140	0				1	400			95										7							
24:00	400	400		50	1,001	2.5	140	0				1	400			80	37699.5	25220.7								10							

Approved by Deputy Director
Technical and Operation Div.
Signature: _____

Confirmed by Chief
T & O Division
Signature: _____

Name of Operators
(1) _____ (2) _____ (3) _____

Total Running Hours:
(1) _____ (2) _____ (3) _____

Note: 1)

Note: 1)

Note: 1)

Appendix 3-4 オロミス発電所アクセスパス 崩壊土砂取り除き作業
オロミス発電所アクセスパス 崩壊土砂取り除き作業



○工事前

降雨等により、斜面の土砂がアクセスパス上に流入

2009年9月8日撮影



○工事中

バックホウで土砂を取り除き

2009年9月23日撮影



○工事後

仕上がり状況の確認

2009年9月23日撮影

Appendix 3-5 オロミス発電所 水槽付近電柱の根固め作業
オロミス発電所 水槽付近電柱の根固め作業



○工事前

降雨により、雨水が電柱の根元の地面を洗い流すように流れている。

2009年9月8日撮影



○工事後

電柱の根元をコンクリートで固めた。

2009年12月7日撮影

Appendix 3-6 オロミス発電所 アクセスパス横断水路設置
オロミス発電所 アクセスパス横断水路設置



○工事前
測量中の状況

2009年9月22日撮影



○工事中
掘削中の状況

2009年9月23日



○工事後
完成後の状況

2009年12月7日撮影



(出口側)

Appendix 3-7 オロミス発電所 水路側溝の改良
オロミス発電所 水路側溝の改良



○工事前

溝に泥が堆積し、雨水が溢れている

2009年6月18日撮影



○工事中

接続部の素掘り側溝を拡幅

2009年9月13日撮影



○工事後

土砂取り除き、接続部の改良

2009年9月13日撮影

Appendix 4 Generation Facilities

- Appendix 4-1: Energy consumption records (yearly)
- Appendix 4-2: Daily operation records (sample)
- Appendix 4-3: Daily load curves (rainy and dry seasons)
- Appendix 4-4: Event and fault records (sample)
- Appendix 4-5: Periodic Inspection (2009/May, June)
- Appendix 4-6: Periodic Inspection (2009/Nov, Dec)

Summary of the Energy Consumption

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Nov. 2008	21-Oct	465	60	15	32	54%	773	1.662	0.77	23.184	50
	22-Oct	495	110	35	57	52%	1,368	2.764	1.37	41.04	83
	23-Oct	499	115	35	63	55%	1,512	3.030	2.88	45.36	91
	24-Oct	515	115	40	60	52%	1,440	2.796	4.32	43.2	84
	25-Oct	533	125	35	62	50%	1,488	2.792	5.81	44.64	84
	26-Oct	548	125	38	66	53%	1,584	2.891	7.39	47.52	87
	27-Oct	548	130	35	63	48%	1,512	2.759	8.90	45.36	83
	28-Oct	574	133	35	66	50%	1,584	2.760	10.49	47.52	83
	29-Oct	574	135	40	71	53%	1,704	2.969	12.19	51.12	89
	30-Oct	595	135	32	67	50%	1,608	2.703	13.80	48.24	81
	31-Oct	595	130	35	64	49%	1,536	2.582	15.34	46.08	77
	1-Nov	620	135	30	71	53%	1,704	2.748	17.04	51.12	82
	2-Nov	638	140	30	67	48%	1,608	2.520	18.65	48.24	76
	3-Nov	642	160	30	82	51%	1,968	3.065	20.62	59.04	92
	4-Nov	673	155	35	74	48%	1,776	2.639	22.39	53.28	79
	5-Nov	682	147	33	67	46%	1,608	2.358	24.00	48.24	71
	6-Nov	689	140	30	69	49%	1,656	2.403	25.66	49.68	72
	7-Nov	699	145	35	72	50%	1,728	2.472	27.38	51.84	74
	8-Nov	715	150	30	74	49%	1,776	2.484	29.16	53.28	75
	9-Nov	720	150	30	70	47%	1,680	2.333	30.84	50.4	70
10-Nov	748	170	40	76	45%	1,824	2.439	32.66	54.72	73	
11-Nov	756	165	40	83	50%	1,992	2.635	34.66	59.76	79	
12-Nov	760	175	35	80	46%	1,920	2.526	36.58	57.6	76	
13-Nov	762	180	35	82	46%	1,968	2.583	38.54	59.04	77	
14-Nov	764	175	42	86	49%	2,064	2.702	40.61	61.92	81	
15-Nov	766	175	40	85	49%	2,040	2.663	42.65	61.2	80	
16-Nov	768	190	40	88	46%	2,112	2.750	44.76	63.36	83	
17-Nov	776	190	40	92	48%	2,208	2.845	46.97	66.24	85	
18-Nov	776	195	45	95	49%	2,280	2.938	49.25	68.4	88	
19-Nov	776	200	45	94	47%	2,256	2.907	51.50	67.68	87	
20-Nov	776	195	40	98	50%	2,352	3.031	53.86	70.56	91	

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	21-Nov	776	200	50	96	48%	2,304	2,969	56.16	69.12	89
	22-Nov	776	195	45	95	49%	2,280	2,938	58.44	68.4	88
	23-Nov	776	195	45	95	49%	2,280	2,938	60.72	68.4	88
	24-Nov	779	200	45	95	48%	2,280	2,927	63.00	68.4	88
	25-Nov	779	205	50	97	47%	2,328	2,988	65.33	69.84	90
	26-Nov	781	205	50	103	50%	2,472	3,165	67.80	74.16	95
	27-Nov	784	205	50	103	50%	2,472	3,153	70.27	74.16	95
	28-Nov	792	215	50	102	47%	2,448	3,091	72.72	73.44	93
	29-Nov	801	215	45	104	48%	2,496	3,116	75.22	74.88	93
	30-Nov	810	200	50	104	52%	2,496	3,081	77.71	74.88	92
	1-Dec	820	215	55	104	48%	2,496	3,044	80.21	74.88	91
	2-Dec	824	220	55	110	50%	2,640	3,204	82.85	79.2	96
	3-Dec	826	225	55	108	48%	2,592	3,138	85.44	77.76	94
	4-Dec	828	215	60	114	53%	2,736	3,304	88.18	82.08	99
	5-Dec	830	230	55	114	50%	2,736	3,296	90.91	82.08	99
	6-Dec	832	230	50	119	52%	2,856	3,433	93.77	85.68	103
	7-Dec	835	218	55	115	53%	2,760	3,305	96.53	82.8	99
	8-Dec	842	235	65	119	51%	2,856	3,392	99.38	85.68	102
	9-Dec	842	225	60	116	52%	2,784	3,306	102.17	83.52	99
	10-Dec	844	230	62	123	53%	2,952	3,498	105.12	88.56	105
	11-Dec	844	215	60	113	53%	2,712	3,213	107.83	81.36	96
	12-Dec	846	235	55	124	53%	2,976	3,518	110.81	89.28	106
	13-Dec	853	230	70	131	57%	3,144	3,686	113.95	94.32	111
	14-Dec	853	240	70	125	52%	3,000	3,517	116.95	90	106
	15-Dec	853	235	65	121	51%	2,904	3,404	119.86	87.12	102
	16-Dec	856	235	38	112	48%	2,688	3,140	122.54	80.64	94
	17-Dec	856	240	65	122	51%	2,928	3,421	125.47	87.84	103
	18-Dec	856	230	65	120	52%	2,880	3,364	128.35	86.4	101
	19-Dec	856	225	60	119	53%	2,856	3,336	131.21	85.68	100
	20-Dec	856	243	60	122	50%	2,928	3,421	134.14	87.84	103
	21-Dec	856	220	70	119	54%	2,856	3,336	136.99	85.68	100
	22-Dec	856	230	65	117	51%	2,808	3,280	139.80	84.24	98
	23-Dec	951	245	55	118	48%	2,834	2,980	142.63	85.02	89
	24-Dec	951	267	60	131	49%	3,142	3,304	145.78	94.26	99

Dec. 2008

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	25-Dec	951	251	60	131	52%	3,154	3,317	148.93	94.62	99
	26-Dec	951	257	60	130	50%	3,108	3,268	152.04	93.24	98
	27-Dec	951	235	65	124	53%	2,984	3,138	155.02	89.52	94
	28-Dec	951	258	65	127	49%	3,043	3,200	158.07	91.29	96
	29-Dec	958	258	60	129	50%	3,094	3,230	161.16	92.82	97
	30-Dec	960	259	70	133	51%	3,188	3,321	164.35	95.64	100
	31-Dec	962	267	70	146	55%	3,512	3,651	167.86	105.36	110
	1-Jan	962	262	65	138	53%	3,321	3,452	171.18	99.63	104
	2-Jan	962	246	60	127	52%	3,053	3,174	174.23	91.59	95
	3-Jan	965	230	60	122	53%	2,922	3,028	177.16	87.66	91
	4-Jan	967	221	65	126	57%	3,015	3,118	180.17	90.45	94
	5-Jan	969	250	75	137	55%	3,283	3,388	183.45	98.49	102
	6-Jan	970	252	70	133	53%	3,182	3,280	186.64	95.46	98
	7-Jan	970	234	60	124	53%	2,970	3,062	189.61	89.10	92
	8-Jan	970	243	65	125	51%	2,999	3,092	192.60	89.97	93
	9-Jan	972	246	60	125	51%	3,002	3,088	195.61	90.06	93
	10-Jan	975	249	60	131	53%	3,139	3,219	198.75	94.17	97
	11-Jan	978	244	55	130	53%	3,118	3,188	201.86	93.54	96
	12-Jan	978	237	60	125	53%	2,988	3,055	204.85	89.64	92
	13-Jan	978	248	60	127	51%	3,050	3,119	207.90	91.50	94
	14-Jan	980	244	60	129	53%	3,099	3,162	211.00	92.97	95

Jan, 2009

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	15-Jan	980	242	68	132	55%	3,171	3,236	214.17	95.13	97
	16-Jan	980	255	65	131	51%	3,147	3,211	217.32	94.41	96
	17-Jan	986	251	70	132	53%	3,164	3,209	220.48	94.92	96
	18-Jan	986	256	70	136	53%	3,268	3,314	223.75	98.04	99
	19-Jan	989	244	65	132	54%	3,167	3,202	226.92	95.01	96
	20-Jan	989	236	65	131	55%	3,143	3,178	230.06	94.29	95
	21-Jan	1021	263	66	133	51%	3,192	3,126	233.25	95.76	94
	22-Jan	1021	256	70	144	56%	3,446	3,375	236.70	103.38	101
	23-Jan	1021	251	75	147	59%	3,528	3,455	240.23	105.84	104
	24-Jan	1021	240	75	135	56%	3,229	3,163	243.46	96.87	95
	25-Jan	1021	264	70	145	55%	3,473	3,402	246.93	104.19	102
	26-Jan	1021	295	75	149	51%	3,583	3,509	250.51	107.49	105
	27-Jan	1021	307	90	157	51%	3,758	3,681	254.27	112.74	110
	28-Jan	1023	278	85	155	56%	3,719	3,635	257.99	111.57	109
	29-Jan	1023	262	75	149	57%	3,575	3,495	261.56	107.25	105
	30-Jan	1023	258	70	139	54%	3,324	3,249	264.89	99.72	97
	31-Jan	1023	276	70	133	48%	3,196	3,124	268.08	95.88	94
	1-Feb	1023	261	60	129	49%	3,093	3,024	271.18	92.79	91
	2-Feb	1023	270	60	132	49%	3,158	3,087	274.33	94.74	93
	3-Feb	1023	238	67	135	57%	3,241	3,168	277.58	97.23	95
	4-Feb	1023	247	63	135	55%	3,234	3,161	280.81	97.02	95
	5-Feb	1023	250	75	140	56%	3,353	3,278	284.16	100.59	98
	6-Feb	1023	258	65	137	53%	3,294	3,220	287.46	98.82	97
	7-Feb	1026	267	75	140	52%	3,358	3,273	290.81	100.74	98
	8-Feb	1026	257	80	147	57%	3,536	3,446	294.35	106.08	103
	9-Feb	1026	262	80	146	56%	3,497	3,408	297.85	104.90	102
	10-Feb	1026	257	75	148	57%	3,541	3,451	301.39	106.23	104
	11-Feb	1026	263	75	152	58%	3,637	3,545	305.03	109.11	106
	12-Feb	1026	262	0	146	56%	3,498	3,409	308.52	104.94	102
	13-Feb	1026	273	46	140	51%	3,362	3,277	311.89	100.86	98
	14-Feb	1028	280	99	156	56%	3,733	3,631	315.62	111.99	109
	15-Feb	1028	259	90	152	59%	3,647	3,547	319.27	109.40	106
	16-Feb	1028	270	85	151	56%	3,620	3,521	322.88	108.60	106
	17-Feb	1028	271	85	145	54%	3,480	3,385	326.36	104.40	102

Feb. 2009

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	18-Feb	1028	255	75	146	57%	3,501	3,406	329.87	105.03	102
	19-Feb	1028	277	80	148	53%	3,556	3,459	333.42	106.68	104
	20-Feb	1028	272	0	106	39%	2,544	2,475	335.97	76.32	74
	21-Feb	1033	281	90	155	55%	3,723	3,604	339.69	111.69	108
	22-Feb	1033	268	101	162	60%	3,889	3,765	343.58	116.67	113
	23-Feb	1033	268	108	166	62%	3,980	3,853	347.56	119.40	116
	24-Feb	1033	287	95	152	53%	3,639	3,523	351.20	109.17	106
	25-Feb	1033	273	95	145	53%	3,472	3,361	354.67	104.16	101
	26-Feb	1033	274	0	119	43%	2,856	2,765	357.53	85.68	83
	27-Feb	1033	262	80	147	56%	3,529	3,416	361.05	105.87	102
	28-Feb	1033	251	80	147	59%	3,528	3,415	364.58	105.84	102
	1-Mar	1033	248	80	149	60%	3,572	3,458	368.15	107.16	104
	2-Mar	1033	248	80	148	60%	3,560	3,437	371.70	106.50	103
	3-Mar	1033	266	70	147	55%	3,535	3,422	375.24	106.05	103
	4-Mar	1033	266	75	147	55%	3,531	3,418	378.77	105.93	103
	5-Mar	1033	265	75	143	54%	3,429	3,320	382.20	102.87	100
	6-Mar	1033	261	85	151	58%	3,622	3,506	385.82	108.66	105
	7-Mar	1037	269	95	150	56%	3,594	3,466	389.42	107.82	104
	8-Mar	1037	258	110	153	59%	3,677	3,546	393.09	110.31	106
	9-Mar	1037	265	95	156	59%	3,738	3,605	396.83	112.14	108
	10-Mar	1037	286	85	158	55%	3,788	3,653	400.62	113.64	110
	11-Mar	1037	283	88	165	58%	3,963	3,822	404.58	118.89	115
	12-Mar	1037	268	95	161	60%	3,872	3,734	408.45	116.16	112
	13-Mar	1037	272	95	160	59%	3,837	3,700	412.29	115.11	111
	14-Mar	1046	272	90	153	56%	3,670	3,509	415.96	110.10	105
	15-Mar	1046	258	80	145	56%	3,478	3,325	419.44	104.34	100
	16-Mar	1046	253	81	149	59%	3,569	3,412	423.01	107.07	102
	17-Mar	1046	268	85	152	57%	3,654	3,493	426.66	109.62	105
	18-Mar	1046	275	80	155	56%	3,713	3,550	430.37	111.39	106
	19-Mar	1046	271	85	157	58%	3,758	3,593	434.13	112.74	108
	20-Mar	1046	285	80	158	56%	3,799	3,632	437.93	113.97	109
	21-Mar	1052	277	90	156	56%	3,750	3,565	441.68	112.50	107
	22-Mar	1052	265	95	163	62%	3,914	3,720	445.60	117.42	112
	23-Mar	1052	285	90	166	58%	3,991	3,794	449.59	119.73	114

Mar. 2009

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	24-Mar	1052	265	95	161	61%	3,868	3,677	453.45	116.04	110
	25-Mar	1052	274	85	160	58%	3,834	3,644	457.29	115.02	109
	26-Mar	1052	270	85	151	56%	3,612	3,433	460.90	108.36	103
	27-Mar	1052	277	85	159	57%	3,807	3,619	464.71	114.21	109
	28-Mar	1055	272	95	161	59%	3,863	3,662	468.57	115.89	110
	29-Mar	1055	267	100	157	59%	3,759	3,563	472.33	112.77	107
	30-Mar	1055	265	90	152	57%	3,639	3,449	475.97	109.17	103
	31-Mar	1059	250	92	147	59%	3,529	3,332	479.50	105.87	100
	1-Apr	1059	248	83	141	57%	3,373	3,185	482.87	101.19	96
	2-Apr	1059	223	78	136	61%	3,258	3,076	486.13	97.74	92
	3-Apr	1059	237	83	136	57%	3,263	3,081	489.39	97.89	92
	4-Apr	1059	250	81	133	53%	3,182	3,005	492.57	95.46	90
	5-Apr	1059	239	81	139	58%	3,327	3,142	495.90	99.81	94
	6-Apr	1059	240	87	150	63%	3,607	3,406	499.51	108.21	102
	7-Apr	1062	262	70	149	57%	3,566	3,358	503.07	106.98	101
	8-Apr	1062	259	93	153	59%	3,679	3,464	506.75	110.37	104
	9-Apr	1062	276	90	151	55%	3,626	3,414	510.38	108.78	102
	10-Apr	1062	280	83	148	53%	3,563	3,355	513.94	106.89	101
	11-Apr	1062	263	85	147	56%	3,530	3,324	517.47	105.90	100
	12-Apr	1062	285	100	150	53%	3,599	3,389	521.07	107.97	102
	13-Apr	1062	302	95	168	56%	4,032	3,797	525.10	120.96	114
	14-Apr	1070	325	125	186	57%	4,454	4,163	529.56	133.62	125
	15-Apr	1070	333	105	181	54%	4,345	4,061	533.90	130.35	122
	16-Apr	1070	292	110	172	59%	4,134	3,864	538.04	124.02	116
	17-Apr	1070	291	110	167	57%	4,002	3,740	542.04	120.06	112
	18-Apr	1070	302	105	164	54%	3,932	3,675	545.97	117.96	110
	19-Apr	1070	250	90	145	58%	3,470	3,243	549.44	104.10	97
	20-Apr	1070	265	75	142	54%	3,405	3,182	552.84	102.15	95
	21-Apr	1071	260	90	151	58%	3,621	3,381	556.47	108.63	101
	22-Apr	1071	294	80	154	52%	3,698	3,453	560.16	110.94	104
	23-Apr	1071	284	105	161	57%	3,852	3,597	564.02	115.56	108
	24-Apr	1071	260	95	148	57%	3,543	3,308	567.56	106.29	99
	25-Apr	1071	260	90	149	57%	3,572	3,335	571.13	107.16	100
	26-Apr	1071	265	90	146	55%	3,506	3,274	574.64	105.18	98

Apr. 2009

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
May, 2009	27-Apr	1071	268	85	156	58%	3,736	3,488	578.37	112.08	105
	28-Apr	1075	293	90	152	52%	3,651	3,396	582.02	109.53	102
	29-Apr	1075	259	85	150	58%	3,589	3,339	585.61	107.67	100
	30-Apr	1078	235	90	154	65%	3,684	3,417	589.30	110.52	103
	1-May	1078	263	95	155	59%	3,721	3,452	593.02	111.63	104
	2-May	1078	258	80	144	56%	3,444	3,195	596.46	103.32	96
	3-May	1078	286	80	144	50%	3,460	3,210	599.92	103.80	96
	4-May	1078	266	80	144	54%	3,454	3,204	603.38	103.62	96
	5-May	1078	281	85	148	53%	3,555	3,298	606.93	106.65	99
	6-May	1078	279	75	146	52%	3,502	3,249	610.43	105.06	97
	7-May	1083	267	90	149	56%	3,571	3,297	614.00	107.13	99
	8-May	1083	295	85	157	53%	3,772	3,483	617.78	113.16	104
	9-May	1083	277	80	150	54%	3,590	3,315	621.37	107.70	99
	10-May	1083	252	85	148	59%	3,540	3,269	624.91	106.20	98
	11-May	1083	269	80	145	54%	3,488	3,221	628.39	104.64	97
	12-May	1083	285	85	158	55%	3,796	3,505	632.19	113.88	105
	13-May	1083	275	100	163	59%	3,908	3,608	636.10	117.24	108
	14-May	1089	275	90	152	55%	3,663	3,354	639.75	109.58	101
	15-May	1089	291	90	145	50%	3,488	3,203	643.24	104.64	96
	16-May	1089	265	80	137	52%	3,295	3,026	646.53	98.85	91
	17-May	1089	265	90	140	53%	3,354	3,080	649.89	100.62	92
	18-May	1089	275	70	144	52%	3,450	3,168	653.34	103.50	95
	19-May	1089	240	80	139	58%	3,335	3,062	656.67	100.05	92
	20-May	1089	272	80	145	53%	3,477	3,193	660.15	104.31	96
	21-May	1092	257	80	142	55%	3,397	3,111	663.55	101.91	93
	22-May	1092	263	85	145	55%	3,470	3,178	667.02	104.10	95
	23-May	1092	260	80	137	53%	3,280	3,004	670.30	98.40	90
	24-May	1092	265	70	135	51%	3,245	2,972	673.54	97.35	89
	25-May	1092	250	75	140	56%	3,365	3,082	676.91	100.95	92
	26-May	1092	270	75	145	54%	3,475	3,182	680.38	104.25	95
27-May	1092	250	80	144	58%	3,460	3,169	683.84	103.80	95	
28-May	1100	275	80	142	52%	3,410	3,100	687.25	102.30	93	
29-May	1100	290	80	143	49%	3,434	3,122	690.69	103.02	94	
30-May	1100	255	80	140	55%	3,350	3,045	694.04	100.50	91	

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Jun. 2009	31-May	1100	272	80	141	52%	3,374	3,067	697.41	101.22	92
	1-Jun	1100	275	75	140	51%	3,368	3,062	700.78	101.04	92
	2-Jun	1100	268	75	141	52%	3,376	3,069	704.15	101.28	92
	3-Jun	1100	265	75	141	53%	3,389	3,081	707.54	101.67	92
	4-Jun	1100	140	75	137	98%	3,294	2,995	710.84	98.82	90
	5-Jun	1100	250	70	137	55%	3,285	2,986	714.12	98.55	90
	6-Jun	1100	250	75	131	52%	3,138	2,853	717.26	94.14	86
	7-Jun	1103	255	85	140	55%	3,355	3,042	720.61	100.65	91
	8-Jun	1103	260	80	140	54%	3,365	3,051	723.98	100.95	92
	9-Jun	1103	270	80	144	53%	3,455	3,132	727.43	103.65	94
	10-Jun	1103	277	80	149	54%	3,587	3,252	731.02	107.61	98
	11-Jun	1103	255	80	142	56%	3,415	3,096	734.44	102.45	93
	12-Jun	1103	265	80	145	55%	3,490	3,164	737.93	104.70	95
	13-Jun	1103	280	80	141	50%	3,385	3,069	741.31	101.55	92
	14-Jun	1110	270	90	143	53%	3,440	3,099	744.75	103.20	93
	15-Jun	1110	255	85	142	56%	3,405	3,068	748.16	102.15	92
	16-Jun	1110	240	75	143	59%	3,423	3,084	751.58	102.69	93
	17-Jun	1110	255	75	144	57%	3,465	3,122	755.04	103.95	94
	18-Jun	1110	250	90	148	59%	3,558	3,205	758.60	106.74	96
	19-Jun	1110	255	40	144	56%	3,456	3,114	762.06	103.68	93
	20-Jun	1110	255	75	136	53%	3,270	2,946	765.33	98.10	88
	21-Jun	1110	260	75	133	51%	3,200	2,883	768.53	96.00	86
	22-Jun	1110	260	85	146	56%	3,505	3,158	772.03	105.15	95
	23-Jun	1110	260	80	149	57%	3,565	3,212	775.60	106.95	96
	24-Jun	1110	260	85	150	58%	3,610	3,252	779.21	108.30	98
	25-Jun	1110	275	95	154	56%	3,705	3,338	782.91	111.15	100
	26-Jun	1110	240	85	150	63%	3,610	3,252	786.52	108.30	98
	27-Jun	1110	270	90	141	52%	3,380	3,045	789.90	101.40	91
	28-Jun	1110	240	85	135	56%	3,250	2,928	793.15	97.50	88
	29-Jun	1110	270	80	148	55%	3,560	3,207	796.71	106.80	96
	30-Jun	1112	255	90	151	59%	3,630	3,264	800.34	108.90	98
1-Jul	1112	265	85	147	56%	3,530	3,174	803.87	105.90	95	
2-Jul	1112	270	70	146	54%	3,505	3,152	807.38	105.15	95	
3-Jul	1112	255	70	144	57%	3,460	3,111	810.84	103.80	93	

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Jul. 2009	4-Jul	1112	288	70	142	49%	3,413	3,069	814.25	102.38	92
	5-Jul	1112	250	80	138	55%	3,300	2,968	817.55	99.00	89
	6-Jul	1112	260	75	141	54%	3,380	3,039	820.93	101.40	91
	7-Jul	1116	270	70	145	54%	3,480	3,118	824.41	104.40	94
	8-Jul	1116	265	75	148	56%	3,545	3,177	827.96	106.35	95
	9-Jul	1116	255	80	149	58%	3,580	3,208	831.54	107.40	96
	10-Jul	1116	270	85	151	56%	3,620	3,244	835.16	108.60	97
	11-Jul	1116	285	80	149	52%	3,580	3,208	838.74	107.40	96
	12-Jul	1116	280	85	150	54%	3,607	3,232	842.34	108.21	97
	13-Jul	1116	260	90	152	58%	3,645	3,266	845.99	109.35	98
	14-Jul	1119	260	75	147	56%	3,525	3,150	849.51	105.75	95
	15-Jul	1119	280	85	154	55%	3,690	3,298	853.20	110.70	99
	16-Jul	1119	255	85	154	60%	3,695	3,302	856.90	110.84	99
	17-Jul	1119	265	85	150	57%	3,600	3,217	860.50	108.00	97
	18-Jul	1119	265	80	141	53%	3,380	3,020	863.88	101.40	91
	19-Jul	1119	250	75	136	54%	3,265	2,918	867.14	97.95	88
	20-Jul	1119	270	80	143	53%	3,425	3,061	870.57	102.74	92
	21-Jul	1122	270	75	144	53%	3,460	3,084	874.03	103.80	93
	22-Jul	1122	250	75	145	58%	3,470	3,093	877.50	104.10	93
	23-Jul	1122	270	70	140	52%	3,370	3,003	880.87	101.10	90
	24-Jul	1122	280	75	147	52%	3,525	3,142	884.39	105.75	94
	25-Jul	1122	275	75	141	51%	3,390	3,021	887.78	101.70	91
	26-Jul	1122	265	90	150	56%	3,590	3,200	891.37	107.70	96
	27-Jul	1122	270	90	150	56%	3,605	3,213	894.98	108.14	96
28-Jul	1128	260	75	145	56%	3,490	3,094	898.47	104.70	93	
29-Jul	1128	250	80	146	58%	3,500	3,103	901.97	105.00	93	
30-Jul	1128	220	85	144	65%	3,450	3,059	905.42	103.50	92	
31-Jul	1128	260	75	143	55%	3,420	3,032	908.84	102.60	91	
Aug. 2009	1-Aug	1128	255	75	141	55%	3,390	3,005	912.23	101.70	90
	2-Aug	1128	240	75	139	58%	3,345	2,965	915.57	100.35	89
	3-Aug	1128	250	75	147	59%	3,525	3,125	919.10	105.75	94
	4-Aug	1128	265	70	148	56%	3,555	3,152	922.65	106.65	95
	5-Aug	1128	279	85	156	56%	3,750	3,324	926.40	112.50	100
	6-Aug	1128	270	80	156	58%	3,736	3,312	930.14	112.08	99

Sept. 2009

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	7-Aug	1132	260	80	153	59%	3,660	3,233	933.80	109.80	97
	8-Aug	1132	285	85	154	54%	3,685	3,255	937.48	110.55	98
	9-Aug	1132	245	90	150	61%	3,590	3,171	941.07	107.70	95
	10-Aug	1132	270	85	146	54%	3,505	3,096	944.58	105.15	93
	11-Aug	1132	260	80	152	59%	3,653	3,227	948.23	109.58	97
	12-Aug	1132	270	85	153	57%	3,670	3,242	951.90	110.10	97
	13-Aug	1132	275	85	151	55%	3,635	3,211	955.53	109.04	96
	14-Aug	1137	275	80	154	56%	3,695	3,250	959.23	110.84	97
	15-Aug	1137	250	80	143	57%	3,430	3,017	962.66	102.90	90
	16-Aug	1137	265	75	144	54%	3,455	3,039	966.11	103.64	91
	17-Aug	1137	250	80	129	52%	3,093	2,720	969.21	92.79	82
	18-Aug	1137	280	60	134	48%	3,222	2,834	972.43	96.66	85
	19-Aug	1137	255	85	151	59%	3,618	3,182	976.05	108.54	95
	20-Aug	1137	265	80	153	58%	3,679	3,236	979.73	110.37	97
	21-Aug	1140	255	75	148	58%	3,550	3,114	983.28	106.50	93
	22-Aug	1140	270	90	148	55%	3,540	3,105	986.82	106.20	93
	23-Aug	1140	270	85	143	53%	3,420	3,000	990.24	102.60	90
	24-Aug	1140	270	80	148	55%	3,540	3,105	993.78	106.20	93
	25-Aug	1140	285	75	151	53%	3,615	3,171	997.39	108.45	95
	26-Aug	1140	275	90	149	54%	3,585	3,145	1,000.98	107.55	94
	27-Aug	1140	265	90	153	58%	3,680	3,228	1,004.66	110.40	97
	28-Aug	1148	260	70	145	56%	3,485	3,036	1,008.14	104.55	91
	29-Aug	1148	275	85	147	54%	3,532	3,077	1,011.67	105.96	92
	30-Aug	1148	255	80	140	55%	3,355	2,922	1,015.03	100.65	88
	31-Aug	1149	265	80	148	56%	3,550	3,090	1,018.58	106.50	93
	1-Sep	1149	260	80	153	59%	3,683	3,205	1,022.26	110.48	96
	2-Sep	1149	270	75	152	56%	3,650	3,177	1,025.91	109.50	95
	3-Sep	1150	270	75	134	50%	3,218	2,798	1,029.13	96.54	84
	4-Sep	1150	260	85	154	59%	3,689	3,208	1,032.82	110.66	96
	5-Sep	1150	270	85	159	59%	3,810	3,313	1,036.63	114.30	99
	6-Sep	1150	265	80	154	58%	3,690	3,209	1,040.32	110.70	96
	7-Sep	1150	275	75	157	57%	3,760	3,269	1,044.08	112.80	98
	8-Sep	1150	275	80	158	58%	3,800	3,304	1,047.88	114.00	99
	9-Sep	1151	275	75	157	57%	3,770	3,275	1,051.65	113.10	98

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	10-Sep	1151	285	75	153	54%	3,670	3,188	1,055.32	110.10	96
	11-Sep	1151	270	80	153	57%	3,680	3,197	1,059.00	110.40	96
	12-Sep	1151	275	85	145	53%	3,478	3,022	1,062.47	104.34	91
	13-Sep	1151	280	80	146	52%	3,505	3,045	1,065.98	105.15	91
	14-Sep	1151	260	80	145	56%	3,490	3,032	1,069.47	104.70	91
	15-Sep	1151	265	70	143	54%	3,425	2,975	1,072.89	102.74	89
	16-Sep	1152	250	75	141	56%	3,380	2,934	1,076.27	101.40	88
	17-Sep	1152	260	75	133	51%	3,200	2,778	1,079.47	96.00	83
	18-Sep	1152	220	80	126	57%	3,030	2,630	1,082.50	90.90	79
	19-Sep	1152	245	70	130	53%	3,110	2,700	1,085.61	93.30	81
	20-Sep	1152	230	85	131	57%	3,155	2,739	1,088.77	94.64	82
	21-Sep	1152	240	75	134	56%	3,225	2,799	1,091.99	96.75	84
	22-Sep	1152	250	75	139	56%	3,330	2,891	1,095.32	99.90	87
	23-Sep	1154	260	80	143	55%	3,440	2,991	1,098.76	103.20	89
	24-Sep	1154	280	80	143	51%	3,425	2,968	1,102.19	102.74	89
	25-Sep	1155	265	80	150	57%	3,595	3,113	1,105.78	107.85	93
	26-Sep	1155	260	85	141	54%	3,375	2,922	1,109.16	101.25	88
	27-Sep	1156	275	80	149	54%	3,580	3,097	1,112.74	107.40	93
	28-Sep	1156	285	70	157	55%	3,760	3,252	1,116.50	112.80	98
	29-Sep	1156	270	84	137	51%	3,294	2,849	1,119.79	98.82	85
	30-Sep	1156	255	80	154	60%	3,695	3,196	1,123.49	110.84	96
	1-Oct	1156	265	70	144	54%	3,465	2,997	1,126.95	103.95	90
	2-Oct	1157	270	70	142	53%	3,415	2,952	1,130.37	102.45	89
	3-Oct	1157	250	75	139	55%	3,325	2,874	1,133.69	99.75	86
	4-Oct	1157	265	75	143	54%	3,440	2,973	1,137.13	103.20	89
	5-Oct	1157	260	80	142	55%	3,405	2,943	1,140.54	102.15	88
	6-Oct	1161	255	80	142	56%	3,400	2,928	1,143.94	102.00	88
	7-Oct	1161	260	75	142	55%	3,415	2,941	1,147.35	102.45	88
	8-Oct	1162	275	70	143	52%	3,430	2,952	1,150.78	102.90	89
	9-Oct	1162	280	80	143	51%	3,440	2,960	1,154.22	103.20	89
	10-Oct	1163	265	70	143	54%	3,435	2,954	1,157.66	103.05	89
	11-Oct	1163	280	70	144	51%	3,446	2,963	1,161.10	103.38	89
	12-Oct	1163	280	75	148	53%	3,540	3,044	1,164.64	106.20	91
	13-Oct	1163	285	80	147	51%	3,520	3,027	1,168.16	105.60	91

Oct 2009

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	14-Oct	1164	285	75	148	52%	3,555	3,054	1,171.72	106.65	92
	15-Oct	1164	265	75	149	56%	3,580	3,075	1,175.30	107.40	92
	16-Oct	1164	280	80	154	55%	3,685	3,166	1,178.98	110.55	95
	17-Oct	1164	290	80	156	54%	3,745	3,217	1,182.73	112.35	97
	18-Oct	1165	280	80	154	55%	3,695	3,172	1,186.42	110.84	95
	19-Oct	1165	295	75	157	53%	3,760	3,227	1,190.18	112.80	97
	20-Oct	1165	275	90	156	57%	3,745	3,215	1,193.93	112.35	96
	21-Oct	1165	290	80	159	55%	3,825	3,283	1,197.75	114.75	98
	22-Oct	1165	295	90	156	53%	3,745	3,215	1,201.50	112.35	96
	23-Oct	1165	280	85	156	56%	3,740	3,210	1,205.24	112.20	96
	24-Oct	1165	270	85	149	55%	3,570	3,064	1,208.81	107.10	92
	25-Oct	1165	310	85	144	47%	3,460	2,970	1,212.27	103.80	89
	26-Oct	1165	315	80	114	36%	2,735	2,347	1,215.00	82.04	70
	27-Oct	1165	310	70	102	33%	2,439	2,094	1,217.44	73.17	63
	28-Oct	1165	265	80	147	56%	3,537	3,036	1,220.98	106.11	91
	29-Oct	1166	280	80	145	52%	3,460	2,985	1,224.46	104.40	90
	30-Oct	1166	285	80	148	52%	3,555	3,049	1,228.01	106.65	91
	31-Oct	1166	320	80	152	47%	3,640	3,122	1,231.65	109.20	94
	1-Nov	1166	300	90	160	53%	3,850	3,302	1,235.50	115.50	99
	2-Nov	1166	280	86	150	54%	3,606	3,093	1,239.11	108.18	93
	3-Nov	1166	280	80	150	54%	3,600	3,087	1,242.71	108.00	93
	4-Nov	1167	270	75	140	52%	3,365	2,883	1,246.07	100.94	86
	5-Nov	1167	285	70	149	52%	3,570	3,059	1,249.64	107.10	92
	6-Nov	1167	280	80	154	55%	3,685	3,158	1,253.33	110.55	95
	7-Nov	1167	300	90	158	53%	3,795	3,252	1,257.12	113.85	98
	8-Nov	1170	325	85	162	50%	3,888	3,323	1,261.01	116.64	100
	9-Nov	1171	275	80	152	55%	3,655	3,121	1,264.66	109.65	94
	10-Nov	1171	310	75	155	50%	3,720	3,177	1,268.38	111.60	95
	11-Nov	1171	285	85	160	56%	3,835	3,275	1,272.22	115.05	98
	12-Nov	1171	300	95	165	55%	3,960	3,382	1,276.18	118.80	101
	13-Nov	1173	285	80	156	55%	3,750	3,197	1,279.93	112.50	96
	14-Nov	1173	290	90	154	53%	3,690	3,146	1,283.62	110.70	94
	15-Nov	1173	285	75	149	52%	3,575	3,048	1,287.19	107.24	91
	16-Nov	1173	300	80	159	53%	3,820	3,256	1,291.01	114.60	98

Nov. 2009

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	17-Nov	1173	305	80	160	53%	3,850	3,282	1,294.86	115.50	98
	18-Nov	1173	315	80	160	51%	3,840	3,274	1,298.70	115.20	98
	19-Nov	1175	290	80	158	54%	3,780	3,217	1,302.48	113.40	97
	20-Nov	1175	290	70	154	53%	3,690	3,140	1,306.17	110.70	94
	21-Nov	1178	295	80	149	51%	3,585	3,043	1,309.76	107.55	91
	22-Nov	1178	305	65	155	51%	3,710	3,149	1,313.47	111.30	94
	23-Nov	1178	295	70	153	52%	3,670	3,115	1,317.14	110.10	93
	24-Nov	1178	295	70	155	53%	3,730	3,166	1,320.87	111.90	95
	25-Nov	1178	305	85	160	52%	3,835	3,255	1,324.70	115.05	98
	26-Nov	1178	300	80	157	52%	3,760	3,192	1,328.46	112.80	96
	27-Nov	1180	300	75	160	53%	3,848	3,261	1,332.31	115.44	98
	28-Nov	1180	310	75	155	50%	3,725	3,157	1,336.04	111.74	95
	29-Nov	1180	310	70	152	49%	3,644	3,088	1,339.68	109.32	93
	30-Nov	1180	320	65	160	50%	3,837	3,252	1,343.52	115.11	98
	1-Dec	1180	336	80	171	51%	4,109	3,482	1,347.63	123.26	104
	2-Dec	1181	344	85	170	49%	4,085	3,459	1,351.71	122.54	104
	3-Dec	1181	320	80	176	55%	4,213	3,567	1,355.92	126.39	107
	4-Dec	1181	330	85	168	51%	4,041	3,422	1,359.96	121.23	103
	5-Dec	1181	325	85	164	50%	3,930	3,328	1,363.89	117.90	100
	6-Dec	1182	319	85	164	51%	3,941	3,334	1,367.84	118.22	100
	7-Dec	1182	299	90	169	56%	4,050	3,426	1,371.89	121.50	103
	8-Dec	1182	357	80	162	45%	3,884	3,286	1,375.77	116.52	99
	9-Dec	1182	340	90	163	48%	3,922	3,318	1,379.69	117.66	100
	10-Dec	1182	318	85	163	51%	3,902	3,301	1,383.59	117.06	99
	11-Dec	1182	304	85	166	55%	3,977	3,364	1,387.57	119.30	101
	12-Dec	1182	340	85	167	49%	4,019	3,400	1,391.59	120.56	102
	13-Dec	1185	313	85	168	54%	4,026	3,397	1,395.61	120.78	102
	14-Dec	1185	333	85	173	52%	4,149	3,501	1,399.76	124.47	105
	15-Dec	1185	327	85	177	54%	4,247	3,584	1,404.01	127.40	108
	16-Dec	1185	310	90	177	57%	4,243	3,581	1,408.25	127.29	107
	17-Dec	1185	308	90	173	56%	4,148	3,500	1,412.40	124.44	105
	18-Dec	1187	308	90	172	56%	4,116	3,468	1,416.52	123.48	104
	19-Dec	1187	327	95	170	52%	4,068	3,427	1,420.59	122.04	103
	20-Dec	1187	288	90	168	58%	4,033	3,398	1,424.62	120.99	102

Dec. 2009

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	21-Dec	1188	327	85	173	53%	4,146	3,490	1,428.76	124.38	105
	22-Dec	1189	320	90	173	54%	4,141	3,483	1,432.91	124.23	104
	23-Dec	1189	312	80	171	55%	4,103	3,451	1,437.01	123.08	104
	24-Dec	1190	303	95	172	57%	4,128	3,469	1,441.14	123.84	104
	25-Dec	1190	303	90	173	57%	4,163	3,498	1,445.30	124.88	105
	26-Dec	1190	313	85	170	54%	4,090	3,437	1,449.39	122.70	103
	27-Dec	1190	344	90	176	51%	4,231	3,555	1,453.62	126.93	107
	28-Dec	1191	326	85	178	55%	4,271	3,586	1,457.89	128.12	108
	29-Dec	1191	338	80	175	52%	4,189	3,517	1,462.08	125.67	106
	30-Dec	1191	330	80	171	52%	4,096	3,439	1,466.18	122.88	103
	31-Dec	1191	355	85	186	52%	4,469	3,752	1,470.64	134.06	113
	1-Jan	1191	342	110	199	58%	4,785	4,018	1,475.43	143.55	121
	2-Jan	1194	390	100	202	52%	4,856	4,067	1,480.29	145.68	122
	3-Jan	1194	324	110	193	60%	4,642	3,888	1,484.93	139.26	117
	4-Jan	1194	319	100	181	57%	4,336	3,631	1,489.26	130.08	109
	5-Jan	1194	329	100	183	56%	4,399	3,684	1,493.66	131.97	111
	6-Jan	1194	320	90	178	56%	4,266	3,573	1,497.93	127.98	107
	7-Jan	1194	325	90	188	58%	4,501	3,770	1,502.43	135.03	113
	8-Jan	1196	302	85	185	61%	4,449	3,720	1,506.88	133.47	112
	9-Jan	1197	296	90	185	63%	4,442	3,711	1,511.32	133.26	111
	10-Jan	1997	302	110	184	61%	4,415	2,211	1,515.73	132.44	66
	11-Jan	1198	312	100	182	58%	4,366	3,644	1,520.10	130.98	109
	12-Jan	1198	316	95	187	59%	4,478	3,738	1,524.58	134.34	112
	13-Jan	1200	370	90	194	52%	4,648	3,873	1,529.23	139.44	116
	14-Jan	1200	327	100	193	59%	4,634	3,862	1,533.86	139.02	116
	15-Jan	1200	353	90	193	55%	4,622	3,852	1,538.48	138.66	116
	16-Jan	1200	350	100	191	54%	4,577	3,814	1,543.06	137.30	114
	17-Jan	1200	365	100	197	54%	4,727	3,939	1,547.79	141.80	118
	18-Jan	1200	320	105	192	60%	4,608	3,840	1,552.39	138.24	115
	19-Jan	1201	343	90	196	57%	4,710	3,922	1,557.10	141.30	118
	20-Jan	1201	319	95	186	58%	4,472	3,723	1,561.58	134.16	112
	21-Jan	1201	310	85	187	60%	4,490	3,738	1,566.07	134.70	112
	22-Jan	1203	303	90	182	60%	4,368	3,631	1,570.43	131.04	109
	23-Jan	1203	339	95	185	55%	4,438	3,689	1,574.87	133.13	111

Jan. 2010

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	24-Jan	1203	331	100	194	59%	4,656	3,870	1,579.53	139.68	116
	25-Jan	1203	337	95	182	54%	4,367	3,630	1,583.89	131.00	109
	26-Jan	1204	347	85	188	54%	4,510	3,746	1,588.40	135.30	112
	27-Jan	1204	325	100	191	59%	4,594	3,815	1,593.00	137.82	114
	28-Jan	1204	322	90	188	58%	4,503	3,740	1,597.50	135.09	112
	29-Jan	1204	316	105	192	61%	4,612	3,830	1,602.11	138.36	115
	30-Jan	1204	337	100	196	58%	4,697	3,901	1,606.81	140.90	117
	31-Jan	1204	330	100	192	58%	4,617	3,835	1,611.43	138.51	115
	1-Feb	1204	320	105	184	58%	4,426	3,676	1,615.85	132.78	110
	2-Feb	1204	321	100	190	59%	4,564	3,791	1,620.42	136.92	114
	3-Feb	1204	324	100	186	57%	4,464	3,708	1,624.88	133.92	111
	4-Feb	1205	350	110	195	56%	4,682	3,885	1,629.56	140.46	117
	5-Feb	1205	319	100	189	59%	4,540	3,768	1,634.10	136.20	113
	6-Feb	1205	330	95	195	59%	4,678	3,882	1,638.78	140.34	116
	7-Feb	1205	335	100	193	58%	4,638	3,849	1,643.42	139.14	115
	8-Feb	1205	346	95	194	56%	4,647	3,856	1,648.06	139.41	116
	9-Feb	1206	325	105	194	60%	4,651	3,857	1,652.72	139.53	116
	10-Feb	1207	330	110	194	59%	4,658	3,859	1,657.37	139.74	116
	11-Feb	1207	329	110	192	58%	4,607	3,817	1,661.98	138.20	115
	12-Feb	1207	342	105	192	56%	4,616	3,824	1,666.60	138.48	115
	13-Feb	1207	320	115	192	60%	4,612	3,821	1,671.21	138.36	115
	14-Feb	1207	402	105	202	50%	4,842	4,012	1,676.05	145.26	120
	15-Feb	1207	376	145	219	58%	5,258	4,356	1,681.31	157.74	131
	16-Feb	1207	355	140	217	61%	5,197	4,306	1,686.50	155.91	129
	17-Feb	1207	355	126	212	60%	5,087	4,214	1,691.59	152.60	126
	18-Feb	1208	336	120	203	60%	4,860	4,023	1,696.45	145.80	121
	19-Feb	1209	327	110	199	61%	4,786	3,959	1,701.24	143.58	119
	20-Feb	1209	326	100	201	62%	4,831	3,996	1,706.07	144.93	120
	21-Feb	1209	325	128	188	58%	4,505	3,726	1,710.57	135.14	112
	22-Feb	1209	336	120	184	55%	4,425	3,660	1,715.00	132.75	110
	23-Feb	1209	322	112	193	60%	4,637	3,835	1,719.63	139.10	115
	24-Feb	1209	334	100	194	58%	4,645	3,842	1,724.28	139.35	115
	25-Feb	1209	315	110	200	64%	4,805	3,974	1,729.08	144.14	119
	26-Feb	1209	321	108	197	61%	4,733	3,915	1,733.82	141.98	117

Feb. 2010

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Mar. 2010	27-Feb	1209	332	105	190	57%	4,570	3,780	1,738.39	137.10	113
	28-Feb	1209	319	123	193	61%	4,632	3,831	1,743.02	138.96	115
	1-Mar						-				
	2-Mar						-				
	3-Mar						-				
	4-Mar						-				
	5-Mar						-				
	6-Mar						-				
	7-Mar						-				
	8-Mar						-				
	9-Mar						-				
	10-Mar						-				
	11-Mar						-				
	12-Mar						-				
	13-Mar						-				
	14-Mar						-				
	15-Mar						-				
	16-Mar						-				
	17-Mar						-				
	18-Mar						-				
19-Mar						-					
20-Mar						-					

Daily Operatoin Record(Diesel Power) DATE: 31 / 03 / 2009 Weather:

Time	Generator(V)			Hz	Speed	KW	Cosφ	GWH	Name of Diesel Generator(A)			Bus (V)	Bus (A)	DC	Engine Temp(oc)			Gen.Temp(OC)			49GV	49GW	Room (oc)	Vo meter
	RS	ST	TR						R	S	T				V	A	LO	J.W	Ex	38G				
1:00	401	401	401	50	998	89	0.97	13893.2	55	56	56	400		110	0.99	84.5	65.0	2352	45.6	46.5	46.0	46.3	27	4122.1
2:00	400	400	400	50	997	83	0.96	13595.9	43	43	43	400		110	0.99	84.0	64.0	226.9	45.1	46.1	45.6	45.9	27	4124.1
3:00	400	400	400	50	992	22	0.91	13894.1	45	47	46	400		110	0.99	84.1	63.1	221.0	44.3	45.5	45.0	45.3	28	4105.8
4:00	401	401	401	50	995	36	0.91	13902.4	50	55	54	400		110	0.99	84.2	63.6	207.9	44.6	45.1	44.6	44.9	28	4127.3
5:00	401	401	401	50	995	42	0.90	13906.6	67	67	67	400		110	0.99	84.6	64.9	241.5	44.3	45.0	44.5	44.8	27	4129.2
6:00	401	401	401	50	994	97	0.89	13913.7	149	150	151	400		110	0.99	86.1	68.9	271.6	44.0	45.6	45.1	45.3	28	4131.7
7:00	401	401	401	50	996	85	0.85	13913.0	146	144	150	400		110	0.99	86.3	68.8	295.0	44.6	46.2	46.2	46.5	28	4134.5
8:00	401	401	401	50	995	80	0.81	13931.4	125	122	128	400		110	0.99	86.2	68.6	285.5	44.5	46.4	46.9	47.2	28	4137.5
9:00	401	401	401	50	994	90	0.81	13930.6	136	137	135	400		110	0.99	86.7	68.9	298.2	44.5	46.8	47.3	47.6	27	4140.2
10:00	401	401	401	50	992	100	0.81	13910.2	169	172	160	400		110	0.99	87.2	69.1	311.0	44.4	47.4	47.4	47.7	28	4143.4
11:00	401	401	401	50	993	90	0.81	13950.8	118	119	119	400		110	0.99	87.2	68.9	304.1	44.3	47.5	47.5	47.8	29	4146.7
12:00	401	401	401	50	992	77	0.81	13955.8	118	110	118	400		110	0.99	86.8	69.1	290.5	44.3	47.5	47.5	47.8	29	4149.6
13:00	401	401	401	50	992	65	0.81	13975.2	107	109	114	400		110	0.99	87.2	69.2	290.5	44.3	47.5	47.5	47.8	29	4151.9
14:00	401	401	401	50	992	82	0.81	13986.2	127	128	128	400		110	0.99	87.2	69.2	290.5	44.3	47.5	47.5	47.8	29	4154.6
15:00	401	401	401	50	991	87	0.81	13991.9	138	138	138	400		110	0.99	87.2	69.2	290.5	44.3	47.5	47.5	47.8	29	4157.5
16:00	401	401	401	50	990	91	0.81	13999.4	140	139	139	400		110	0.99	87.1	69.2	300.3	44.9	47.9	47.9	48.2	30	4160.0
17:00	401	401	401	50	992	112	0.81	14000.0	174	173	172	400		110	0.99	87.1	69.2	315.2	44.1	48.1	48.1	48.4	29	4163.1
18:00	401	401	401	50	993	155	0.81	14000.0	230	231	231	400		110	0.99	87.1	69.2	333.8	44.2	48.1	48.1	48.4	29	4166.0
19:00	401	401	401	50	994	200	0.81	14000.0	303	303	303	400		110	0.99	87.1	69.2	357.1	44.3	48.1	48.1	48.4	29	4169.0
20:00	401	401	401	50	994	194	0.81	14000.0	296	296	296	400		110	0.99	87.1	69.2	351.5	44.3	48.1	48.1	48.4	29	4172.0
21:00	401	401	401	50	994	140	0.81	14000.0	208	208	208	400		110	0.99	87.1	69.2	336.5	44.3	48.1	48.1	48.4	29	4175.0
22:00	401	401	401	50	995	87	0.81	14000.0	136	136	136	400		110	0.99	87.1	69.2	300.3	44.3	48.1	48.1	48.4	29	4178.0
23:00	401	401	401	50	994	62	0.81	14000.0	96	95	95	400		110	0.99	87.1	69.2	273.1	44.3	48.1	48.1	48.4	29	4181.0
24:00	401	401	401	50	993	48	0.81	14101.1	68	68	68	400		110	0.99	87.1	69.2	249.9	44.3	48.1	48.1	48.4	29	4184.0

Approved by Deputy director Total Running Hours: 1146.8
 Technical ant Operation Div (1) (2) (3)
 Signature: Name of Operators
Note: 1) Note: 1)

Daily Operation Record (Hydropower)

Name of PS: O'Ronia

DATE: 31/10/31

2008 Weather:

Time	Generator(V)		Hz	Speed	Prms		MW	Var	Generator(A)		Cos φ	Line(V)		MW	OMV	SMV	Line(A)		Temperature(°C)						Water Level of Head Tank	Water Level of Inlets	Water Level of EB	Water Level of Water way						
	RS	ST			TH	Nph			OV	R		S	T				R	S	T	1	2	3	4	5					6					
100	400			50	1001	2.5	70	60	0	80		1	400		280831	172632	80			47	28	39			47	25				7.7				
200	400			50	1001	2.5	70	60	0	80		1	400		280887	17168.8	80			48	28	39			48	25								
300	400			50	1001	2.5	70	60	0	80		1	400		280946	17374.8	80			49	28	39			49	26								
400	400			50	1001	2.5	70	60	0	80		1	400		281004	17780.5	80			47	28	39			48	26								
500	400			50	1001	2.5	70	60	0	80		1	400		281060	17786.9	80			47	28	39			48	26								
600	400			50	1001	2.5	70	60	0	80		1	400		281120	17790.1	80			48	28	39			48	26								
700	400			50	1001	2.5	70	60	0	80		1	400		281178	17797.9	80			30	31	40			49	26								
800	400			50	1001	2.5	70	60	0	90		1	400		281236	17807.7	90			30	31	40			49	26								
900	400			50	1001	2.5	70	60	0	90		1	400		281298	17809.9	90			30	31	40			49	26								
1000	400			50	1001	2.5	70	60	0	90		1	400		281371	17815.8	90			31	32	41			49	27								
1100	400			50	1001	2.5	70	60	0	90		1	400		281407	17820.9	90			32	33	41			47	28								
1200	400			50	1001	2.5	70	60	0	90		1	400		281483	17826.9	90			33	34	42			46	28								
1300	400			50	1001	2.5	70	60	0	90		1	400		281525	17832.7	90			33	34	42			47	28								
1400	400			50	1001	2.5	70	60	0	90		1	400		281584	17838.6	90			38	38	42			48	29								
1500	400			50	1001	2.5	70	60	0	90		1	400		281645	17844.5	90			33	35	42			48	29								
1600	400			50	1001	2.5	70	60	0	90		1	400		281793	17859.5	90			33	35	42			48	29								
1700	400			50	1001	2.5	70	60	0	90		1	400		281760	17865.0	90			30	33	41			48	29								
1800	400			50	1001	2.5	70	60	0	90		1	400		281823	17872.6	90			31	32	41			47	27								
1900	400			50	1001	2.5	66	55	0	90		1	400		281872	17867.6	90			31	32	41			47	28								
2000	400			50	1001	2.5	66	55	0	90		1	400		281928	17874.1	90			30	31	40			45	27								
2100	400			50	1001	2.5	66	55	0	90		1	400		281990	17879.3	90			29	30	40			45	27								
2200	400			50	1001	2.5	66	55	0	80		1	400		282036	17887.8	80			29	30	39			44	26								
2300	400			50	1001	2.5	60	50	0	65		1	400		282009	17909.0	65			29	30	39			44	26								
2400	400			50	1001	2.5	60	50	0	70		1	400		282140	17941.7	70			29	30	39			44	26								

Approved by Deputy Director
 Technical and Operation Div.
 Signature: _____

Confirmed by Chief
 T & O Division.
 Signature: _____

Name of Operators
 (1) _____
 (2) _____

Total Running Hours: 38040 → 38270
 001048144 (4)

Note: 1) _____
 Note: 1) _____
 (5)

Daily Operatoin Record (hydroPower) **Time of PS: O'moleng** **Date 30 / 03 / 2009** **Wather**

Time	Generator(V)		Hz	Speed	press		KV	Var	Generator(A)			Cosφ	Line(V)			KW	GWH	SWH	Line(A)						Vo meter	Watter level of intake													
	RS	ST			TR	Mpa			GV	R	S		T	R	S				T	R	S	T	1	2			3	4	5	6									
1:00	400	400	400	50	1000	0.19	31	55	0	90	90	95	0.95	400	400	400	50	29255.3	46150.6	70	70	75	75	36	35	41	36	35	41										
2:00	400	400	400	50	1000	0.19	31	55		90		0.95				50																							
3:00	400	400	400	50	1000	0.19	31	55	0	90	90	0.97	400	400	400	50																							
4:00	400	400	400	50	1000	0.18	31	55	0	90	90	0.97	400	400	400	50																							
5:00	400	400	400	50	1000	0.19	34	70	-5	105	105	0.94	400	400	400	60																							
6:00	400	400	400	50	1000	0.19	41	110	-2	100	100	1.00	400	400	400	105	29290.7	46182.1	150	150	150	150	90	87	111	90	87	111											
7:00	400	400	400	50	1000	0.19	42	110	-9	110	110	1.00	400	400	400	90																							
8:00	400	400	400	50	1000	0.19	40	90	0	120	120	0.99	400	400	400	80																							
9:00	400	400	400	50	1000	0.19	44	105	0	150	150	0.99	400	400	400	100																							
10:00	400	400	400	50	1000	0.19	50	130	0	185	185	0.99	400	400	400	125																							
11:00	400	400	400	50	1000	0.19	54	115	0	90	90	0.99	400	400	400	130	28375	46230.5	150	150	150	150	36	37	40	36	37	40											
12:00																																							
13:00																																							
14:00																																							
15:00																																							
16:00																																							
17:00																																							
18:00																																							
19:00																																							
20:00																																							
21:00																																							
22:00																																							
23:00																																							
24:00																																							

→ 10:54

Approved by Deputy Director _____ Confirmed by Chief _____ Total Running Hours 3538.8 hours

Technical and Operation Div _____ T&O Division _____ (1) _____ (2) _____

Signature _____ (3) _____ (4) _____

Note1)

Note2)

Note3)

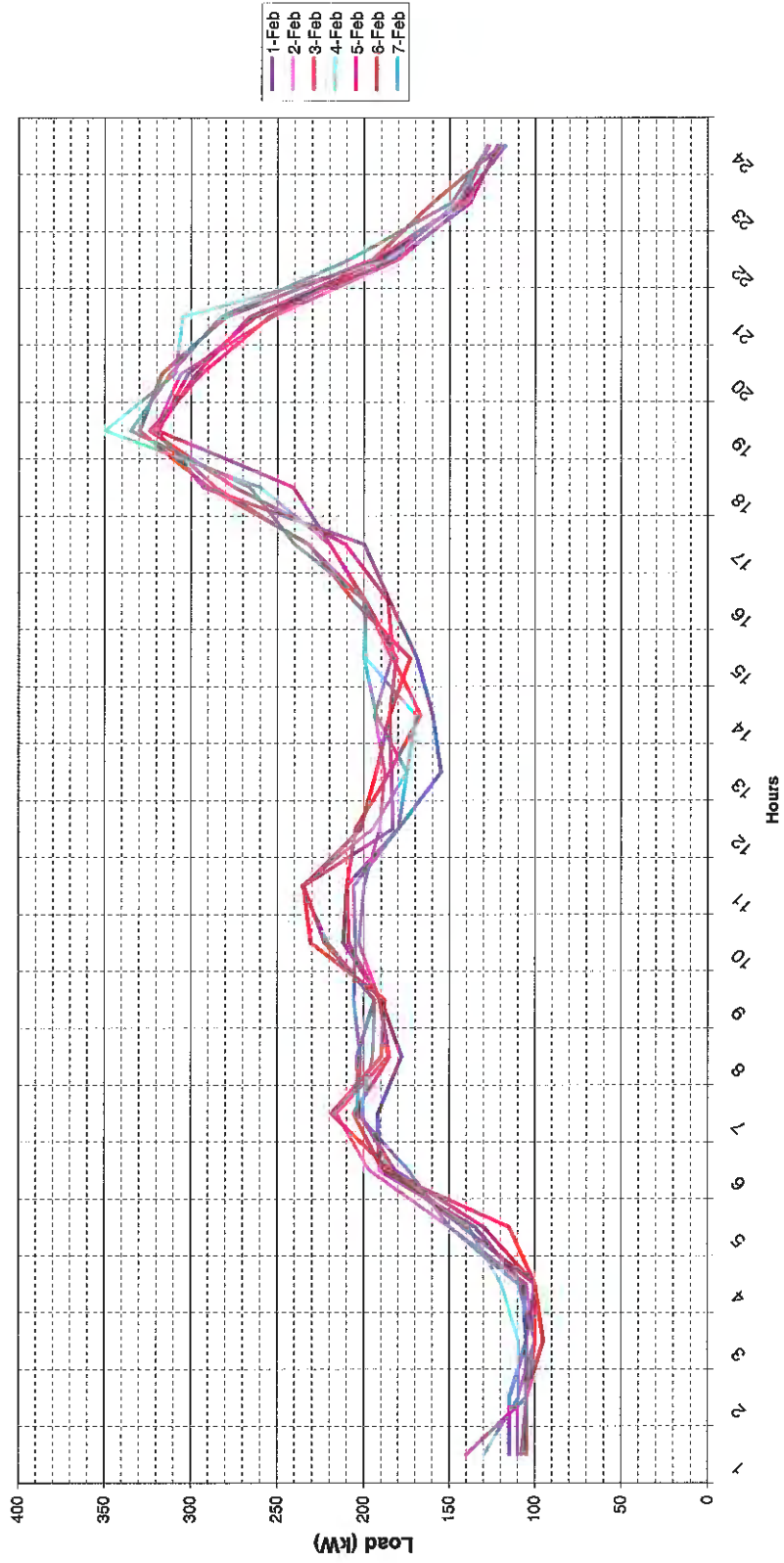
Appendix 4-3

Daily Load Curve, Report February, 2010

	1-Feb			2-Feb			3-Feb			4-Feb			5-Feb			6-Feb			7-Feb		
	Hydro	DG	Total	Hydro	DG	Total	Hydro	DG	Total	Hydro	DG	Total	Hydro	DG	Total	Hydro	DG	Total	Hydro	DG	Total
1:00	115		115	110		110	105		105	130		130	140		140	105		105	108		108
2:00	115		115	110		110	105		105	110		110	105		105	105		105	105		105
3:00	105		105	100		100	100		100	110		110	105		105	95		95	100		100
4:00	50	57	107	105		105	100		100	120		120	100		100	100		100	110		110
5:00	50	85	135	150		150	115		115	94		94	130		130	142		142	150		150
6:00	50	141	191	50	147	197	50	139	189	45	139	184	40	142	182	40	145	185	40	134	174
7:00	50	142	192	50	166	216	50	156	206	45	157	202	50	153	203	40	179	219	40	164	204
8:00	40	138	178	50	136	186	40	145	185	45	150	195	50	154	204	40	150	190	40	162	202
9:00	50	140	190	40	151	191	40	151	191	45	149	194	40	154	194	50	138	188	40	166	206
10:00	50	162	212	40	163	203	50	159	209	45	176	221	40	183	223	50	181	231	40	165	205
11:00	50	160	210	40	160	200	50	160	210	45	191	236	40	195	235	40	195	235	40	166	206
12:00	100	80	180	40	151	191	40	165	205	45	150	195	40	143	183	40	162	202	40	140	180
13:00	155		155	90	98	188	40	145	185	175		175	85	99	184	90	103	193	40	135	175
14:00	160		160	90	104	194	90	77	167	170		170	85	100	185	90	95	185	90	103	193
15:00	40	129	169	90	94	184	90	93	183	50	149	199	95	86	181	90	83	173	90	110	200
16:00	50	135	185	90	110	200	90	96	186	50	150	200	45	154	199	40	166	206	40	159	199
17:00	50	150	200	40	193	233	40	171	211	50	170	220	50	170	220	40	192	232	40	200	240
18:00	100	193	293	40	246	286	40	235	275	50	210	260	50	191	241	40	250	290	90	176	266
19:00	100	220	320	90	231	321	90	234	324	120	230	350	100	219	319	90	240	330	110	225	335
20:00	100	197	297	90	216	306	90	204	294	100	209	309	90	212	302	90	227	317	110	202	312
21:00	90	176	266	40	213	253	40	215	255	90	215	305	40	223	263	40	240	280	100	183	283
22:00	40	150	190	40	140	180	40	153	193	40	145	185	40	142	182	40	155	195	40	169	209
23:00	40	103	143	40	100	140	40	103	143	40	106	146	50	88	138	40	120	160	40	109	149
24:00	40	78	118	120		120	40	88	128	40	87	127	40	82	122	120		120	40	87	127
Maximum	160	220	320	150	246	321	115	235	324	175	230	350	140	223	319	142	250	330	150	225	335
Minimum	40	57	105	40	94	100	40	77	100	40	87	110	40	82	100	40	83	95	40	87	100
Average	75	139	184	73	157	190	66	152	186	75	160	195	69	152	189	69	168	195	70	156	193
Energy	1790	2636	4426	1745	2819	4564	1575	2889	4464	1805	2877	4682	1650	2890	4540	1657	3021	4678	1683	2955	4638
Daily Load Factor	40%	60%	100%	38%	62%	100%	35%	65%	100%	38%	61%	100%	36%	64%	100%	35%	65%	100%	36%	64%	100%
Daily Load Factor			58%			59%			57%			56%			59%			59%		58%	
User No			1204			1204			1204			1205			1205			1205			
Monthly Assumed /C/			110			114			111			117			113			116			
Monthly Assumed Total			79,403			81,879			80,065			83,926			81,361			83,855			83,138

1st-week

Daily Load Curve,
February 2010



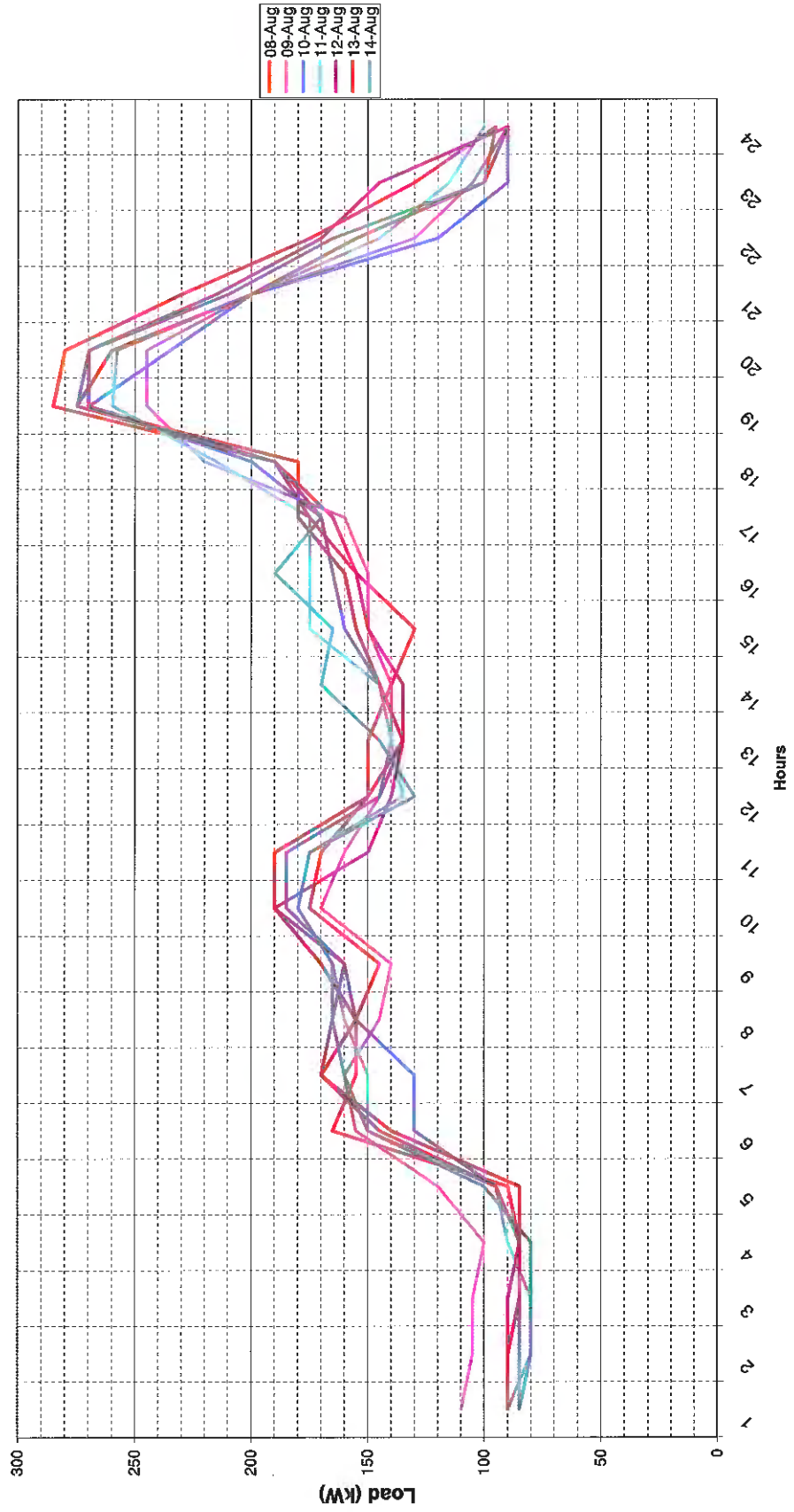
Appendix 4-3

Daily Load Curve, Report August, 2009

	8-Aug			9-Aug			10-Aug			11-Aug			12-Aug			13-Aug			14-Aug		
	Hydro	DG	Total	Hydro	DG	Total	Hydro	DG	Total	Hydro	DG	Total	Hydro	DG	Total	Hydro	DG	Total	Hydro	DG	Total
1:00	90	0	90	110	0	110	85	0	85	90	0	90	90	0	90	90	0	90	85	0	85
2:00	90	0	90	105	0	105	85	0	85	80	0	80	90	0	90	90	0	90	80	0	80
3:00	90	0	90	105	0	105	85	0	85	80	0	80	90	0	90	90	0	90	85	0	85
4:00	85	0	85	100	0	100	85	0	85	90	0	90	85	0	85	85	0	85	85	0	85
5:00	90	0	90	120	0	120	95	0	95	95	0	95	95	0	95	95	0	95	85	0	85
6:00	165	0	165	155	0	155	130	0	130	150	0	150	145	0	145	140	0	140	150	0	150
7:00	155	0	155	160	0	160	130	0	130	150	0	150	170	0	170	170	0	170	160	0	160
8:00	155	0	155	145	0	145	155	0	155	160	0	160	165	0	165	165	0	165	165	0	165
9:00	145	0	145	140	0	140	160	0	160	165	0	165	160	0	160	170	0	170	165	0	165
10:00	175	0	175	170	0	170	185	0	185	180	0	180	190	0	190	190	0	190	180	0	180
11:00	170	0	170	160	0	160	185	0	185	175	0	175	150	0	150	190	0	190	175	0	175
12:00	150	0	150	145	0	145	145	0	145	135	0	135	140	0	140	150	0	150	130	0	130
13:00	150	0	150	140	0	140	135	0	135	140	0	140	135	0	135	135	0	135	145	0	145
14:00	140	0	140	140	0	140	145	0	145	145	0	145	145	0	145	145	0	145	170	0	170
15:00	130	0	130	150	0	150	160	0	160	175	0	175	150	0	150	155	0	155	165	0	165
16:00	155	0	155	150	0	150	165	0	165	175	0	175	155	0	155	160	0	160	160	0	160
17:00	165	0	165	160	0	160	170	0	170	175	0	175	175	0	175	180	0	180	170	0	170
18:00	190	0	190	220	0	220	200	0	200	215	0	215	190	0	190	180	0	180	190	0	190
19:00	285	0	285	245	0	245	270	0	270	260	0	260	270	0	270	275	0	275	275	0	275
20:00	280	0	280	245	0	245	235	0	235	258	0	258	270	0	270	260	0	260	270	0	270
21:00	230	0	230	200	0	200	200	0	200	200	0	200	215	0	215	200	0	200	210	0	210
22:00	175	0	175	130	0	130	120	0	120	145	0	145	170	0	170	155	0	155	165	0	165
23:00	130	0	130	105	0	105	90	0	90	115	0	115	145	0	145	100	0	100	100	0	100
24:00	95	0	95	90	0	90	90	0	90	100	0	100	90	0	90	90	0	90	95	0	95
Maximum	285	0	285	245	0	245	270	0	270	260	0	260	270	0	270	275	0	275	275	0	275
Minimum	85	0	85	90	0	90	85	0	85	80	0	80	85	0	85	85	0	85	80	0	80
Average	154	0	154	150	0	150	146	0	146	152	0	152	153	0	153	151	0	151	154	0	154
Energy	3685	0	3685	3590	0	3590	3505	0	3505	3653	0	3653	3670	0	3670	3635	0	3635	3695	0	3695
Daily Load Factor	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%
User No	1130		1130	1130		1130	1131		1131	1131		1131	1131		1131	1133		1133	1133		1133
Monthly Assumed /C	98		98	95		95	93		93	97		97	97		97	96		96	98		98
Monthly Assumed Total	70,439		70,439	66,623		66,623	66,939		66,939	69,766		69,766	70,026		70,026	69,299		69,299	70,443		70,443

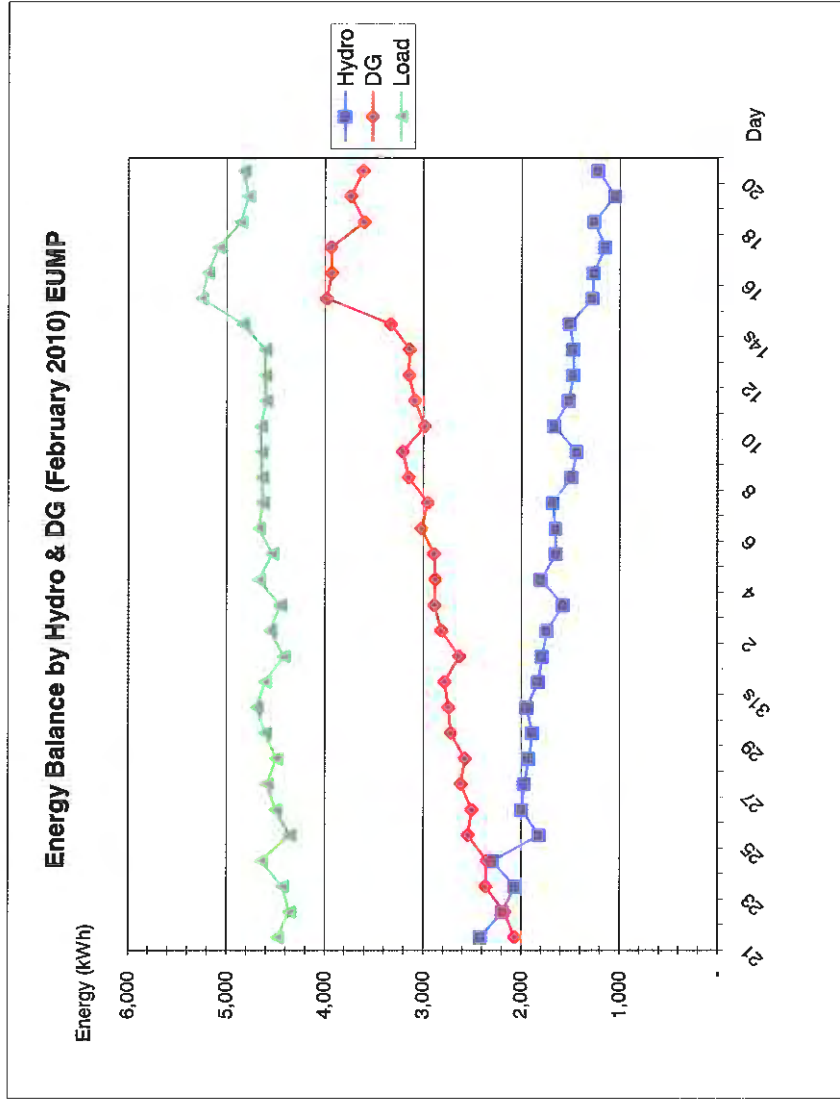
2nd-week

Daily Load Curve,
August'09



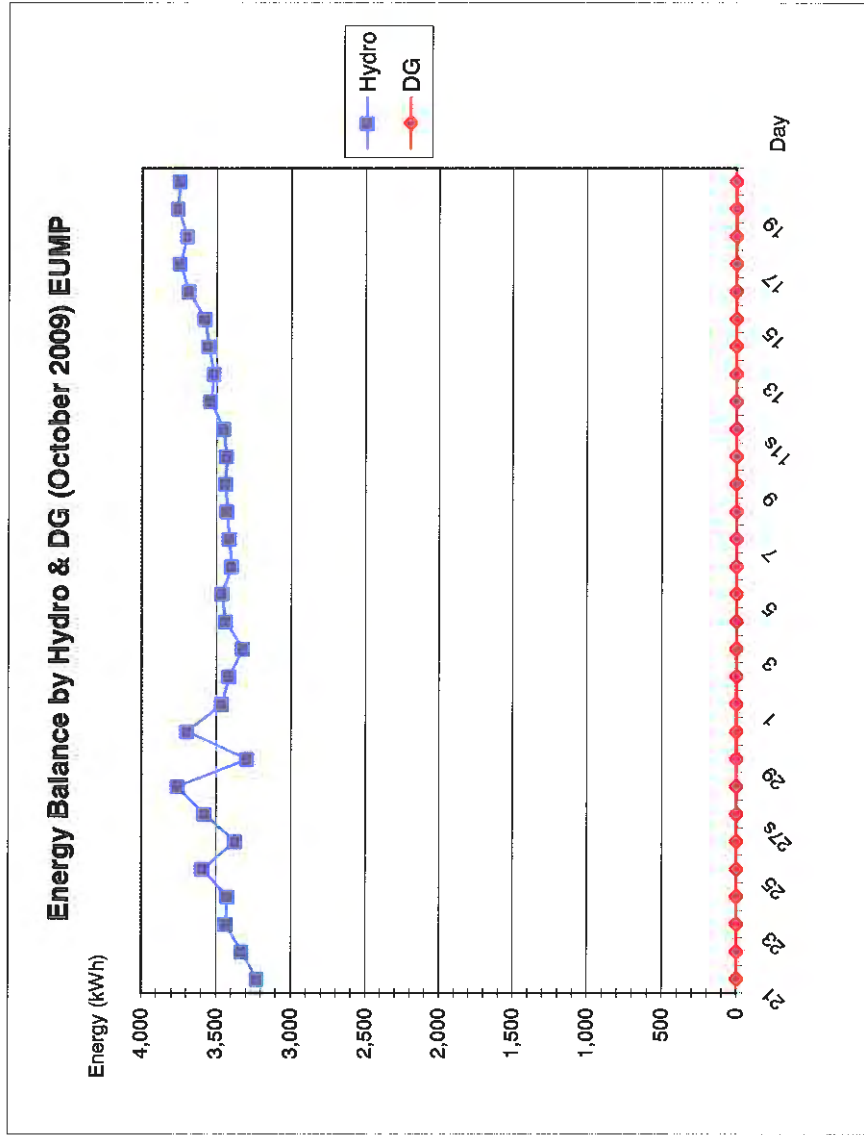
Energy Consumption for Mondul Kiri Power System February 2010

Day	kWh		kWh	kWh	
	Hydro	Load		DG	Load
21	2,420	2,070	4,490		
22	2,195	2,173	4,368		
23	2,070	2,368	4,438		
24s	2,300	2,356	4,656		
25	1,820	2,547	4,367		
26	2,000	2,510	4,510		
27	1,975	2,619	4,594		
28	1,925	2,578	4,503		
29	1,890	2,722	4,612		
30	1,950	2,747	4,697		
31s	1,830	2,787	4,617		
1	1,790	2,636	4,426		
2	1,745	2,819	4,564		
3	1,575	2,889	4,464		
4	1,805	2,877	4,682		
5	1,650	2,890	4,540		
6	1,657	3,021	4,678		
7s	1,683	2,955	4,638		
8	1,495	3,152	4,647		
9	1,440	3,211	4,651		
10	1,670	2,988	4,658		
11	1,520	3,087	4,607		
12	1,470	3,146	4,616		
13	1,470	3,142	4,612		
14s	1,510	3,332	4,842		
15	1,275	3,983	5,258		
16	1,265	3,932	5,197		
17	1,150	3,937	5,087		
18	1,260	3,600	4,860		
19	1,050	3,736	4,786		
20	1,220	3,611	4,831		
Total	52,075	92,421	144,496		
Average	1,680	2,981	4,661		



Energy Consumption for Mondul Kiri Power System October, 2009

	kWh		kWh
	Hydro	DG	
21	3,225	0	3,225
22	3,330	0	3,330
23	3,440	0	3,440
24	3,425	0	3,425
25	3,595	0	3,595
26	3,375	0	3,375
27s	3,580	0	3,580
28	3,760	0	3,760
29	3,294	0	3,294
30	3,695	0	3,695
1	3,465	0	3,465
2	3,415	0	3,415
3	3,325	0	3,325
4s	3,440	0	3,440
5	3,465	0	3,465
6	3,400	0	3,400
7	3,415	0	3,415
8	3,430	0	3,430
9	3,440	0	3,440
10	3,435	0	3,435
11s	3,455	0	3,455
12	3,540	0	3,540
13	3,520	0	3,520
14	3,555	0	3,555
15	3,580	0	3,580
16	3,685	0	3,685
17	3,745	0	3,745
18s	3,695	0	3,695
19	3,760	0	3,760
20	3,745	0	3,745
Total	105,229	0	105,229
Average	3,508	0	3,508



Appendix 4-4

FAULT RECORD FOR MONDUL KIRI POWER STATION, EUMP
(Urgent Report)

Date	1/30/2009	
Fault time	a.m 3:26	
Fault Power station	O'Romis	
Power System Load	Total: 80 kW	
Out Put (kW)	O'Meng 40 kW Output: 60 kW	D/G Output: stop kW
1 Status	Blackout the power system for 15 minutes	
Kind of fault	Head tank water level low	
Fault Indicators	Water pressure low (2)	52-2 CB trip
Reason's why	At 3:25, water level alarming, and operator just stopped the turbine. Then O'Meng also stopped by low frequency due to the stop of O'Romis station.	
2 Countermeasure		
Recovery time	a.m 3:46	
Temporarily recover		
Normal recover	Normal starting turbine.	
3 Operator name		
4 Approved by		Confirmed by
Note:		Note:
5 Comments by JICA advisors team		
	When occurred the alarm of water level, the operator shall check the head tank and out put of O'R must decrease 40 or 30kW, and O'M must increase 40 to 60kW shortly. So that the system did not blackout.	
	The operator must know the Alarm is only information to operators and for countermeasure.	

EVENT RECORDS FOR MONDUL KIRI POWER STATION

Station Name:		Diesel		Recover/ Countermeasure	Operator Name
No.	Date	Time (from)	Time (to)	Event Records	
1	18/03/09	12:00	12:50	(Peak load 150 kw)	Yeb Thay
2	17/03/09	12:00	13:30	increasing fast from 10kw to 30kw peak load 140kw	Mr. Theng sitha
3	18/03/09	12:00	13:00	increasing fast from 5kw to 10kw (peak load 150kw)	Mr. Theng sitha
4	19/03/09	11:15	13:30	increasing fast from 5kw to 10kw (peak load 160kw)	Yeb Thay
5	3/5/2009	8:30	9:55	increasing fast from 5kw to 10kw Ground overvoltage	Mr. som dara
6	6/5/2009	5:10	5:30	Ground overvoltage	Som dara
7	18/05/09	10:10	10:35	Ground overvoltage	som dara

Page 1

SCHEDULED OUTAGE REPORT

DATE OF WORK WORKOUT LINE		24 Feb-08 Installation of 10kVA Transformer to O R-088	
Place		O R-088	
Purpose		To supply electricity to a new customer	
Responsible person at the site		Mr. Nade, TOBMEC	
Deenergized MV Line		O Romils P/S	
Outage PMT		Hospital S/S F1	
Date of notification		PMT01, PMT02, PMT03	
Method of notification		24 Feb-08 loud speaker	
PROCEDURE		Outage PMT	
		Scheduled	Result
1	O Romils P/S MCB		
2	Hospital S/S P2	13:00	13:05
3	Hospital S/S P2		
4	O R-088		
5	O R-088		
6	O R-087		
7	O R-087		
8	O R-088		
9	O R-088		
10	O R-088		
11	O R-087		
12	Hospital S/S P2		
13	Hospital S/S P2	18:00	18:30
14	O R-088		
15	O R-088		
16	O Romils P/S		
17	O Romils P/S MCB		
Result of outage period**		PMT01	2:25
		PMT02	2:25
		PMT03	2:25

* EAC Standard : At least 2 days before outage in case of outage of duration 1 hour or more
 ** EAC Standard : 12 hours or less

Summary Report for Periodic Inspection
on
Project for Operation and Maintenance
of the Rural Electrification on
Micro-hydropower in Mondul Kiri

June, 2009

JICA Study Team

Electric Power Development Co., Ltd. (J-Power) and
Chugoku Electric Power Co., Inc.(Energia)

1. Introduction

We would like to report you that the periodic inspection for Hydropower stations (O'Moleng and O'Romis) and Diesel power station have been carried out on May 31 to June 13, 2009 by the staff of EUMP under the supervising of Japanese engineers.

The summary of the inspection is described as follows.

2. Activities of the Schedule

2.1 Inspection of Hydropower station

- 1) Pre meeting for inspection: 2009/05/30
- 2) Periodic inspection for O'Moleng P.S : 2009/05/31 to 2009/06/04
- 3) Periodic inspection for O'Romis P.S : 2009/06/04 to 2009/06/05
- 4) Post meeting for inspection : 2009/06/06

2.2 Inspection of Diesel power station

- 1) Pre meeting for inspection: 2009/06/09
- 2) Periodic inspection for Diesel P.S : 2009/06/10 to 2009/06/12
- 3) Post meeting for inspection : 2009/06/13

2.3 On-the-job training for EUMP staff

- 1) On-the-job training for Hydropower staff: 2009/05/31 to 2009/06/05
- 2) On-the-job training for Diesel power staff: 2009/06/10 to 2009/06/12

3. The summary of the inspection results

3.1 Hydropower station

- 1) Check results: Good
 - (1) Turbine/Generator appearance inspection
 - (2) Runner and Turbine casing inside check and Disassembly of the front cover
 - (3) Inlet valve appearance inspection
 - (4) Speed changer appearance inspection
 - (5) G/V servomotor appearance inspection
 - (6) Generator panel appearance inspection
 - (7) Bearing check

The detailed inspection results should be referred “Inspection Report of Hydropower Station” as attached.

3.2 Diesel power station

1) Check results : Good

- (1) Check and clean for Four (4) kinds of Fuel oil filters
- (2) Check and clean for Four (4) kind of Lub. oil filters
- (3) Check the Air compressor.
- (4) Check the Cam room and Crank room
- (5) Fuel nozzle injection testing
- (6) Check the Lubricating oil for Engine, Generator and Air compressor.

The detailed inspection results should be referred “Inspection Report of Diesel Power Station” as attached.

4. Training for EUMP Staff and Operators

4.1 Hydropower generating facilities

On the Job Training was carried out by the Japanese supervisor (Tanaka Suiryoku) and JICA Project team as follows.

- (1) Assembly and disassembly method for turbine covers, inspection cover
- (2) Assembly and disassembly method for turbine bearing covers
- (3) Inspection method for runner, inside of turbine
- (4) Inspection method for turbine bearing
- (5) Changing of turbine bearing grease
- (6) Grease up for turbine and generator
- (7) Inspection of dummy load heater unit
- (8) Inspection of inlet valve, servomotor and speed changer unit
- (9) Inspection of control panel and data recording
- (10) Confirmation of operation method

4.2 Diesel power generating facilities

On the Job Training was carried out by the Japanese supervisor (Daihatsu diesel) and JICA Project team as follows.

- (1) In accordance with Instruction manual of Air compressor (Hasegawa Iron Works Co.),

action was taken below.

- (a) Opened cylinder-head and extract the parts of low pressure valves.
- (b) Cleaned low pressure suction valve.
- (c) Cleaned low pressure delivery valve and face up seating.
- (d) Confirmed running condition. Result: good in order.

(2) Adjustment of Valve clearance

- (a) Fly-wheel point to TOP position, with the marked line on the fuel injection pump at the up position.
- (b) Adjust T-shaped yoke to 0 position, and tight rock nut using by Vise.
- (c) Assemble rocker arm, adjust the valve clearance.

Intake valve clearance: 0.3mm

Exhaust valve clearance: 0.4mm

(3) Fuel Nozzle (As attached Sect 7-sheet 3, 4).

Nozzle test using by special tools and pressure test pump were carried out.

A way of judgment for testing nozzle was instructed to operators.

(4) Daily operation and maintenance.

In accordance with [O&M Manual for Diesel Engine] , following items were instructed to operators.

- (a) Before running for Diesel engine.

It was especially instructed to drain out condensation from the high air pressure line at every morning to avoid the rust.

- (b) Information on safety operation for Diesel engine.
- (c) Manual lubrication intervals.

(5) Assembly and disassembly method for turbine covers, inspection cover

Observation:

- 1) EUMP staff carried out the OJT together with supervisor according to all training items.
- 2) Inspection method and disassembly/assembly method has been transferred during periodic inspection.
- 3) The next periodic inspection has to be carried out after 6 months operation for O'Moleng, O'Romis and Diesel power stations.
- 4) Necessary drawing and procedure for periodic inspection was submitted.

5. Comments on the O & M management

5.1 The 3 power stations, EUMP have been contributed to supply the power continuously into Mondul Kiri power system in normal conditions since 2008.October 21.

5.2 Since the running hours are; O'Moleng 4,042 hours, O'Romis 5,227 hours and Diesel 1,755 hours, respectively by the end of May 2009 from initial operation on October 21, 2008.

It means that continuous operation of the power station would be stressed to the rotating machines and will be required timely countermeasure, so that we have a plan to carry out the periodical inspection as well as on-the-job training every 6 months under the supervising of Japanese engineers and JICA project team.

5.3 As a result of inspection, there is no problem with any defect or malfunction such as machine trouble or electrical failure, so on.

5.4 It is good managed that the spare parts have been registered with Inventory book by the EUMP staff..

5.5 The next periodic inspection (2nd.) is scheduled in November /December 2009.

Attachment:

- 1) Photo of inspection and training
- 2) Inspection report for hydropower generating facility and inspection procedure
- 3) Inspection report for diesel power generating facility and inspection procedure

-End-

Periodic Inspection for O'Moleng Power Station, June 2009



Disassembly of turbine cover



Inspection of turbine runner



Grease up into generator bearings

Periodic Inspection for O'Romis Power Station, June 2009



Turbine runner inside



Change of bearing grease



Meeting before/after inspection

Periodic Inspection for Diesel Power Station, June 2009



Inspection of inside engine body and crank shaft



Timing adjustment by turning gear



Disassembly inspection of air compressor



On-the-Job Training



On-the-Job Training



Meeting before inspection

Summary Report for Periodic Inspection (2nd)

on

Project for Operation and Maintenance

of the Rural Electrification on

Micro-hydropower in Mondul Kiri

December, 2009

JICA Study Team

**Electric Power Development Co., Ltd. (J-Power) and
Chugoku Electric Power Co., Inc.(Energia)**

1. Introduction

We would like to report you that the periodic inspection for Hydropower stations (O'Moleng and O'Romis) and Diesel power station have been carried out on November 16 to December 2, 2009 by the staff of EUMP under the supervising of Japanese engineers.

The summary of the inspection is described as follows.

2. Activities of the Schedule

2.1 Inspection of Hydropower station

- 1) Pre meeting for inspection: 2009/11/27
- 2) Periodic inspection for O'Romis P.S : 2009/11/27 to 2009/11/30
- 3) Periodic inspection for O'Moleng P.S : 2009/12/01 to 2009/12/02
- 4) Post meeting for inspection : 2009/12/03

2.2 Inspection of Diesel power station

- 1) Pre meeting for inspection: 2009/11/16
- 2) Periodic inspection for Diesel P.S : 2009/11/16 to 2009/11/22
- 3) Post meeting for inspection : 2009/11/23

2.3 On-the-job training for EUMP staff

- 1) On-the-job training for Hydropower staff: 2009/11/27 to 2009/12/02
- 2) On-the-job training for Diesel power staff : 2009/11/16 to 2009/11/22

3. The summary of the inspection results

3.1 Hydropower station

- 1) Check results: Good
 - (1) Turbine/Generator appearance inspection
 - (2) Disassembly of Inspection cover and Runner and Turbine inside check
 - (3) Inlet valve appearance inspection
 - (4) Speed changer appearance inspection
 - (5) G/V servomotor appearance inspection
 - (6) Generator panel appearance inspection
 - (7) Bearing check and grease up for turbine and generator

A4-2

The detailed “Inspection Report of Hydropower Station” will be submitted later on.

3.2 Diesel power station

- 1) Check results : Good
- (1) Check and clean for Four (4) kinds of Fuel oil filters
 - (2) Check and clean for Four (4) kind of Lub. oil filters
 - (3) Check the Air compressor.
 - (4) Check the Cam room and Crank room
 - (5) Fuel nozzle injection testing
 - (6) Check the Lubricating oil for Engine, Generator and Air compressor.

The detailed “Inspection Report of Diesel Power Station” will be submitted later on.

4. Training for EUMP Staff and Operators

4.1 Hydropower generating facilities

On the Job Training was carried out by the Japanese supervisor (Tanaka Suiryoku) and JICA Project team as follows.

- (1) Assembly and disassembly method for turbine inspection cover
- (2) Assembly and disassembly method for ground packing
- (3) Inspection method for runner, inside of turbine
- (4) Grease up for turbine (50 times) and generator (100 times) by the grease gun
- (5) Inspection of dummy load heater unit
- (6) Inspection of control panel and data recording
- (7) Lecture of trouble shooting
- (8) Lecture of Sequence diagram and drawings

4.2 Diesel power generating facilities

On the Job Training was carried out by the Japanese supervisor (Daihatsu diesel) and JICA Project team as follows.

- (1) In accordance with Instruction manual of Air compressor (Hasegawa Iron Works Co.), action was taken below.

A4-3

- (a) Opened cylinder-head and extract the parts of low pressure valves.
 - (b) Cleaned low pressure suction valve.
 - (c) Cleaned low pressure delivery valve and face up seating.
 - (d) Confirmed running condition. Result: good in order.
- (2) Adjustment of Valve clearance
- (a) Fly-wheel point to TOP position, with the marked line on the fuel injection pump at the up position.
 - (b) Adjust T-shaped yoke to 0 position, and tight rock nut using by Vise.
 - (c) Assemble rocker arm, adjust the valve clearance.
 - Intake valve clearance: 0.3mm
 - Exhaust valve clearance: 0.4mm
- (3) Fuel Nozzle
- Nozzle test using by special tools and pressure test pump were carried out.
A way of judgment for testing nozzle was instructed to operators.
- (4) Daily operation and maintenance.
- In accordance with [O&M Manual for Diesel Engine] , following items were instructed to operators.
- (a) Before running for Diesel engine.
 - It was especially instructed to drain out condensation from the high air pressure line at every morning to avoid the rust.
 - (b) Information on safety operation for Diesel engine.
 - (c) Manual lubrication intervals.
- (5) Assembly and disassembly method for turbine covers, inspection cover
- (6) Lecture of trouble shooting
- (7) Lecture of Sequence diagram and drawings

Observation:

- 1) EUMP staff carried out the OJT together with supervisor according to all training items.
- 2) Inspection method and disassembly/assembly method has been transferred during periodic inspection.
- 3) We carried out the lecture of sequence diagram how to read and understanding for electrical practice by the Instruction and maintenance manual.
- 4) The next periodic inspection has to be carried out after 6 months operation for O'Moleng, O'Romis and Diesel power stations.
- 5) Necessary drawing and procedure for periodic inspection was submitted.

A4-4

5. Comments on the O & M management

5.1 The 3 power stations, EUMP have been contributed to supply the power continuously into Mondul Kiri power system in normal conditions up to now without trouble.

5.2 Since the running hours are; O'Moleng 8,211 hours (2009/11/26), O'Romis 9,302 hours (2009/11/29) and Diesel 1,799 hours (2009/11/16), respectively from initial operation on October 21, 2008.

It means that continuous operation of the power station would be stressed to the rotating machines and will be required timely countermeasure, so that we have a plan to carry out the periodical inspection as well as on-the-job training every 6 months under the supervising of Japanese engineers and JICA project team.

5.3 As a result of inspection, there is no problem with any defect or malfunction such as machine trouble or electrical failure, so on, even if there would occur the minor trouble in the daily operation.

5.4 It is good managed that the spare parts have been registered with Inventory book by the EUMP staff., and is under preparation of spare parts slips for all parts.

5.5 We instructed the maintenance management to DG staff of EUMP as follows.

- 1) Drain out moisture from high pressure air line at every morning,
- 2) Preparation of lubrication oil by oil list as soon as possible,
- 3) Management of running data by binding book

5.5 The next periodic inspection (3rd.) is scheduled in May /June 2010.

Attachment:

- 1) Photo of inspection and training
- 2) Inspection schedule

-End-

A4-5

**Periodic Inspection (2nd) of O’Romis Power Station,
November 27 to 30, 2009**



**Inspection of inside of
Turbine Runner**



**Inspection of inside of
Turbine Runner**



**Disassembly of Ground
Packing Cover for
Turbine**



**Used ground packing
and Muddy condition**



**Grease up generator
bearings**



**Inspection of inside
Speed gear condition**



Dummy Load Governor



Meeting before/after inspection

**Periodic Inspection (2nd) of O'Moleng Power Station,
December 1 to 2, 2009**



Inspection of Bearing Packing for Turbine



**Measuring of Gaps on
Bearing Packing for
Turbine**



**Inspection of Intake and
Sedimentation Basin
(Closing the intake gate)
at O'Moleng Intake Dam**



**Muddy condition of
Sedimentation and
Cleaning at basin**



**Checking of concrete face
on sedimentation**



**Water filling after cleaning
of sedimentation basin**

**Periodic Inspection for Diesel Power Station,
November 16 to 22, 2009**



**Disassembly of Engine
Head and cover**



Inspection of inside Engine



**Disassembly of Engine
head**



**On-the-job Training for
Spare parts**