

**HAPUGASTENNE AND HULU GANGA SMALL HYDROPOWER PROJECTS (REF. NO. 0085)
MONITORING REPORT FOR PERIOD 01/01/2007 TO 30/09/2008**

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June 15, 2009

HAPUGASTENNE PHASE I AND II PLANTS

Notes

1. The Hapugastenne Phase I and II plants have the same civil works.
2. The Phase I plant consist of 2 sets of identical turbines/generators and related equipment
3. The Phase II plant (which was commissioned one year later) consists of 1 set of the same turbines/generators as the Phase I plant plus related equipment.
4. The CEB measures the output of the two plants separately using two separate meters
5. In practice the 2 plants are operated as a single entity.

NET ELECTRICITY OUTPUT

Hapugastenne Phase I

Month	Generation (kWh)	Source (Invoice Nos raised for CEB)	Consumption From Grid (kWh)	Net Electricity Output (kWh)
2007				
January	153,970	4013	960	153,010
February	82,280	4014	960	81,320
March	70,580	4015	960	69,620
April	929,630	4016	960	928,670
May	1,612,370	4017	960	1,611,410
June	1,663,960	4018	960	1,663,000
July	1,794,270	4019	960	1,793,310
August	505,330	4020	960	504,370
September	3,422,060	4021	960	3,421,100
October	3,102,690	4022	960	3,101,730
November	2,088,010	4023	960	2,087,050
December	662,830	4024	960	661,870
2008				
January	295,307	4025 & 4026	40,026	255,281
February	434,039	4027	4,652	429,387
March	1,127,304	4028	3,097	1,124,207
April	2,207,430	4029	552	2,206,878
May	1,597,419	4030	1,319	1,596,100
June	2,321,841	4031	79	2,321,762
July	2,384,610	4032	40	2,384,570
August	1,183,540	4033	660	1,182,880
September	1,734,560	4034	2,034	1,732,526
Total	29,374,030		63,979	29,310,051

Note: The Ceylon Electricity Board (CEB) which supplies grid power to the plant only provided estimated bills for grid consumption during the months January to December 2007. In January 2008 the meter was read and a relatively large upward adjustment was made to the bill to reflect the shortfall in the estimated consumption during the previous year. This is the reason for the 40,026 kWh measured as January 2008 consumption.

Hapugastenne Phase II

Month	Electricity Output (kWh)	Source (Invoice Nos raised for CEB)	Consumption from Grid (kWh)	Net Electricity Output (kWh)
2007				
January	1,120,620	5013	356	1,120,264
February	691,020	5014	356	690,664
March	515,350	5015	356	514,994
April	1,295,200	5016	356	1,294,844
May	1,657,890	5017	356	1,657,534
June	1,455,030	5018	356	1,454,674
July	1,437,060	5019	356	1,436,704
August	1,160,900	5020	356	1,160,544
September	1,634,680	5021	356	1,634,324
October	1,678,540	5022	356	1,678,184
November	1,505,660	5023	356	1,505,304
December	1,544,380	5024	356	1,544,024
2008				
January	1,370,592	5025 & 5026	356	1,370,236
February	1,150,526	5027	356	1,150,170
March	1,430,304	5028	356	1,429,948
April	1,795,890	5029	356	1,795,534
May	1,346,007	5030	356	1,345,651
June	1,517,453	5031	356	1,517,097
July	1,755,240	5032	356	1,754,884
August	1,570,900	5033	356	1,570,544
September	1,487,730	5034	15	1,487,715
Total	29,120,972		7,135	29,113,837

Note 1: The CEB only started billing the plant for consumption from the grid from July 2008 and the first bill covered the two month period July and August 2008. The total 711 kWh consumption from the grid during these two months has been divided in 2 and 356 kWh allocated to each of the months of July and August 2008.

Note 2: Since the CEB did not issue bills for for consumption from the grid prior to July 2008, this consumption is not known. Therefore, the conservative assumption has been made that grid consumption each month in the previous months is equal to the maximum monthly consumption of the six months (July to December 2008) for which billing is available.

EMPLOYMENT (Common for Phase I and II)

Employee category	Number of Employees
Power Station Assistants	11
Power Station Operators	3
Power Station Supervisors	5

MONITORING OF ENVIRONMENTAL PARAMETERS AS REQUIRED BY CENTRAL ENVIRONMENTAL AUTHORITY (CEA)

The environmental parameters detailed below have been monitored as required by the CEA:

Aspect Monitored	Parameters Monitored	Monitoring Location(s)	Monitoring Dates
Surface water	Nutrient levels in terms of phosphates and Total Inorganic Nitrogen (TIN)	Upstream of weir	May 2007 and September 2008
Surface water	BOD and COD levels	Upstream of weir and below the tailrace (water release point to the river after generation)	June 2007 and June 2008
Ecology	Flora and fauna	Within the courses of Rath Ganga below the diversion point.	April 2008
River bank erosion	Erosion level	Below the tailrace and at the bottom of the spill where water is diverted in the event of a plant shut down.	Once a month over entire period
Sediment	Sediment deposits.	Upstream of the weir.	Once a month over entire period

COMMUNITY DEVELOPMENT EXPENDITURE (Common for Phase I and II)

Date	Invoice Number	Nature of Expenditure	Amount (Rs)
03/29/2007	369/317468	Donating a drum for Nissanka Kalayathanaya (art centre) Amunutenna	4,800.00
08/15/2007	458/509339	First installment to the contractor for providing water supply & constructing a community bathing place at Hapugastenna	45,000.00
8/16/2007	Labour charges no invoice number	Transporting PVC pipes from Maliboda to Hapugastenna for the community bathing place	9,500.00
12/3/2007	793/664323	Final payment to the contractor for providing water supply & constructing a community bathing place at Hapugastenna	157,959.00
3/13/2008	1126/967953	Donation given to Rathgama , Gallella Community Service for constructing a drinking water tank at Kotigahawatte.	50,000.00
15/05/2007	149/317590	Constructing a community hall at Hal -Ela	50,000.00
19/09/2007	549/566194	Donation given to Rathgama , Gallella Nivahal Prajamula Sanvidhanaya (Community Organiasation) Ihala Ratgama for repairing community water pipes system.	50,000.00
10/9/2008	897	Cost of renovation of Kirindawala road	50,000.00

HULU GANGA PHASE I AND II PLANTS**Note**

1. The Hulu Ganga Phase I and II plants are situated next to each other and are considered a single plant complex by the CEB.

As a result the CEB only has a single meter to measure the combined energy generation by the two plants each month.

NET ELECTRICITY OUTPUT (PHASE I AND II PLANTS TOGETHER)

Month	Electricity Output (kWh)	Source (Invoice Nos raised for CEB)	Consumption from Grid (kWh)	Net Electricity Output (kWh)
2007				
January	2,857,000	6013	0	2,857,000
February	969,500	6014	0	969,500
March	201,800	6015	0	201,800
April	552,000	6016	0	552,000
May	361,000	6017	0	361,000
June	1,354,700	6018	0	1,354,700
July	1,693,800	6019	0	1,693,800
August	593,400	6020	0	593,400
September	2,310,800	6021	0	2,310,800
October	3,822,300	6022	0	3,822,300
November	937,700	6023	0	937,700
December	3,245,200	6024	0	3,245,200
2008				
January	2,767,900	6025	0	2,767,900
February	897,800	6026	0	897,800
March	2,619,200	6027	0	2,619,200
April	1,902,700	6028	0	1,902,700
May	707,100	6029	0	707,100
June	299,700	6030	0	299,700
July	854,500	6031	0	854,500
August	765,900	6032	0	765,900
September	809,700	6033	0	809,700
Total	30,523,700		-	30,523,700

MONITORING OF ENVIRONMENTAL PARAMETERS AS REQUIRED BY CENTRAL ENVIRONMENTAL AUTHORITY (CEA)**PHASE I PLANT**

The environmental parameters detailed below have been monitored as required by the CEA:

Aspect Monitored	Parameters Monitored	Monitoring Location(s)	Monitoring Dates
Surface water	Nutrient levels in terms of phosphates and Total Inorganic Nitrogen (TIN)	Upstream of weir	May 2007 and September 2008
Surface water	BOD and COD levels	Upstream of weir and below the tailrace (water release point to the river after generation)	June 2007 and June 2008
Ecology	Flora and fauna	Within the courses of Hulu Ganga below the diversion point.	April 2008
River bank erosion	Erosion level	Below the tailrace and at the bottom of the spill where water is diverted in the event of a plant shut down.	Once a month over entire period
Sediment	Sediment deposits.	Upstream of the weir.	Once a month over entire period

PHASE II PLANT

The environmental parameters detailed below have been monitored as required by the CEA:

Aspect Monitored	Parameters Monitored	Monitoring Location(s)	Monitoring Dates
Surface water	Nutrient levels in terms of phosphates and Total Inorganic Nitrogen (TIN)	Upstream of weir	May 2007 and September 2008
Surface water	BOD and COD levels	Upstream of weir and below the tailrace (water release point to the river after generation)	June 2007 and June 2008
Ecology	Flora and fauna	Within the courses of Moragaha Oya below the diversion point.	April 2008
River bank erosion	Erosion level	Below the tailrace and at the bottom of the spill where water is diverted in the event of a plant shut down.	Once a month over entire period
Sediment	Sediment deposits.	Upstream of the weir.	Once a month over entire period

EMPLOYMENT (PHASE I AND II PLANTS)

Employee Category	Number of Employees	
	Phase I	Phase II
Power Station Assistants	3	3
Power Station Operators	3	3

COMMUNITY DEVELOPMENT EXPENDITURE (PHASE I AND II PLANTS)

Date	Invoice Number	Details of projects	Expenditure (Rs.)	Project
	18/901006	Donation to Kosgama temple for development work.	150,000	Phase I
4/30/2007	18/901006	Donation to Kosgama Maha Vidyalaya.	25,000	Phase I
4/30/2007	18/901006	Donation to Kosgama Ihalagama Development Committee for repairing water	25,000	Phase I
5/29/2008	613	Donation to Panwila Praseshiya Sabha	7,500	Phase I
8/11/2008	592	Donation to Kosgama Ihalagama Development Committee.	200,000	Phase I
11/24/2008	1016	Donation to Kosgama Ihalagama Development Committee for temple and	200,000	Phase I

EMISSIONS REDUCTION - ALL PROJECTS

Hapugestenne I		Hapugestenne II		Hulu Ganga I and II		All Projects
Net Electricity Output (kWh)	Emissions Reductions (kgCO2)	Net Electricity Output (kWh)	Emissions Reductions (kgCO2)	Net Electricity Output (kWh)	Emissions Reductions (kgCO2)	Emissions Reductions (kgCO2)
29,310,051	24,901,819	29,113,837	24,735,116	30,523,700	25,932,936	75,569,871

Note: Emissions factor as per PDD is 0.8496 kgCO2 per kWh