

APPENDIX – D

*MODEL VILLAGES WITH
RICE HUSK GAS ENGINE*

Development Plan Appendix D-1

Project Examples 1: Rice Husk Gas Engine Electrification in Younetalin Village

Plans were prepared to electrify villages with rice husk gas engine in Ayeyarwaddi Division headed by Area Commander. Younetalin Village was the first to be electrified in accordance with the plans. The scheme at Younetalin village was completed quite quickly. It was conceived in January 2001 and the committee was formed then. The scheme commenced operation on 15 2001 April and therefore took barely 3 months to arrange the funding and building.

The project feature is as follows (as of Nov 2002):

Basic Village Feature		
Household	1,100 households	
Industry and product	6 rice mills, BCS, Video/Karaoke Shops Paddy (Cultivation field is 250 ares), fruits processing, rice noodle processing)	
Public facilities	Primary school, monastery, state high school, etc.	
Project Cost and Fund		
Capital cost	K9,600,000 (K580,000 for engine and generator, K3,800,000 for distribution lines)	
Collection of fund	From K20,000 up to K40,000 was collected according to the financial condition of each house. Difference between the amount raised by the villagers and the capital cost of was K4,000,000. It was covered by loan from the Area Commander of the Division with 2 % interest per month.	
Unit and Fuel		
Spec of unit	Engine :140 hp, Hino 12 cylinder diesel engine Generator : 135 kVA Model : RH-14	
Rice husk consumption	<ul style="list-style-type: none"> ➤ 12 baskets per hour is consumed ➤ 6 rice mills powered by diesel generator. Rice husk is collected at free of charge. ➤ Rice husk is distributed at K9/basket in the village for house fuel. 	
Waste	Ash is collected at free of charge and provided farmers as fertilizer. It is also used as the material of repairing roads here.	
Operation		
Operation hour	<ul style="list-style-type: none"> ➤ 5:15~10:30 p.m. (depends on season) ➤ 12a.m.~3 p.m., 3 days/week to State high school in the daytime 	
Nos. of operators	4 operators and voluntary committee members	
Nos. of consumer	420	
Power consumption	Each house can have 3 nos. of two feet light. TV, radio, and Karaoke are used with daily additional tariff.	
Salary for operators	Operator K9,000/month Distribution line engineer K8,000/month	
Running cost	K15,000~24,000/month other than salary	
Committee member	Volunteers. Head is village chief.	
Tariff		
Tariff for home electronic devises	20 W fluorescent light	K15/day
	40 W fluorescent light	K20/day
	TV	K30/day
	5W neon for home shrine	Free
Tariff for commercial electronic devises	Karaoke	K150/day
	Video shop	K200/day
	BCS	K250/day

Photos in Younetalin Village



Rice husk gasification unit



Putting rice husk into the gasifier



Engine, generator, and control panel



Powerhouse



Rice husk storage



Collection of rice husk by village children



Village feature with distribution line



Lighting in a glossary S shop

Development Plan Appendix D-2

Project Examples 2: Rice Husk Gas Engine Electrification in Panmati Village

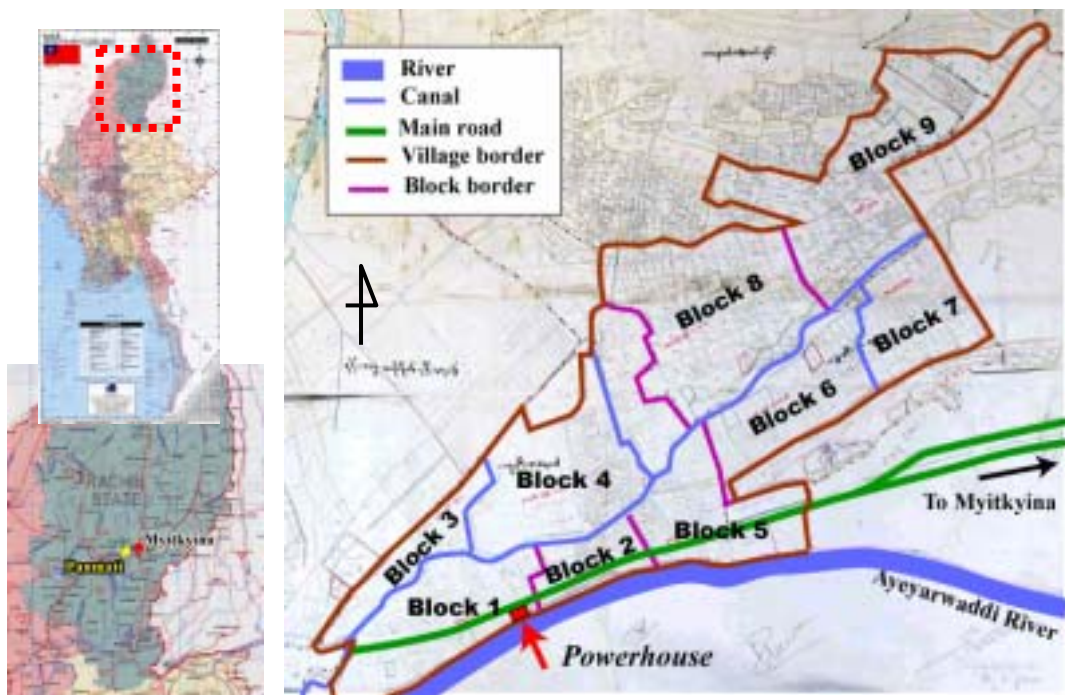
1. Project

MIC (Myanmar Inventers Cooperative), a manufacturer of rice husk gasifier and engine generation system took over the Panmati electrification scheme, which was once implemented but stopped operation due to technical problems, for rehabilitation as an IPP (Independent Power Producer) project. Total project cost is K27.5 million, K137,500 per a household. It was commissioned in June 2003.

The land and buildings are owned by VPDC. Panmati is divided into nine blocks, of which 200 households in 1-4 blocks shown in the map below are the target of electrification at the first stage. After the first stage, MIC plans to supply to the remaining area with additional unit.

2. Features of Panmati Village

Panmati village is located in a suburb of Myitkyina, to the west of the airport. It is easy to access even in the rainy season as the road is paved and its condition is good. The income of villagers is K1,000/day at the minimum, and many households are thought to have higher income than this. Expense of thousands of Kyats for electricity is reportedly affordable for them.



Map of Panmati Village

Basic features of Panmati are shown in the table below.

Features of Panmati Village

Location	8 km from Myitkyina city center. Coordinates: N25 ° 22'11.1", E97 ° 19'9.2"
Population	Nos. of houses: 800, nos. of household: 968, population:5812
Industry	➤ Agriculture. Cultivation area is 863 acre. ➤ Rice mills and sawmills.
Product	➤ Fruits (pineapple, tannin, grapefruit, longan, etc.), paddy, and timber. ➤ Marble stones
Income	K1,000/day, minimum.
Public facilities	Primary school x 1, middle school x 1, computer collage x 1, monastery x 5, Gawrka (Nepal) pagoda x 1, Christian church x 5
Condition of power supply before the Project	5 private power suppliers of diesel generators of 7-10 kW. Tariff for 2 x 20 W tube light is K1,500 per month with 3 hours supply (7~10 p.m.).

3. Rice Husk Gas Engine Unit

The system is equipped with a 200 hp second-hand engine (when fueled by diesel oil) and 100 kVA generator. A starter engine of 5 hp is installed for starting gasifier. .

4. Husk Consumption and Rice Mill

A rice mill is attached to the powerhouse that is invested by MIC. Husk is supplied to the powerhouse free of charge from the mill. It can produce husk at 160 bags per day when operated 8 hours/day. The husk consumption is about 17 bags/hr. The mill is powered by diesel engine which consumes diesel fuel at 2 gallons per day in 8 hours operation. They are planning to supply the milling power also from the husk power system in the future if the amount of rice husk is sufficient.

5. Operation and Maintenance

All of the operators and workers for operation and maintenance are from MIC.

Operation and Maintenance

Operation hour	5 p.m.-10 p.m.
Nos. of operators	3 operators, 1 office worker, 2 line maintenance workers All 6 persons are from MIC.
Salary for operators	Operator: K15,000, office worker: K20,000, line worker: K20,000 per month each. (total: K105,000 /month)

Ash is disposed in the back of the powerhouse. Farmers collect it for fertilizer free of charge.

6. Organisation and tariff system

MIC undertakes the system operation and tariff collection.

They installed a load limiter to each household, as they found that the rice husk gas engine system cannot follow large and abrupt load fluctuation. Tariff is defined according to the capacity of the load limiter selected and installed. There are five kinds of load limiter. The limit load can be set between 40-120 W, 120-200 W, 200-300 W, 300-500 W, and 500 W-800 W. Electricity power can be used in each household within these limits. If consumers use electricity beyond the load limit, fuse is cut. Operator will replace fuse. Consumers have to pay for it from the second time replacement. The cost for the load limiter is K5,000 per piece.

More than 70% of the customers use electricity within 200 W. In addition to lighting and TV/cassette, fan of 60-80 W is widely used.

As to the public facilities, electricity is supplied to one pagoda, one clinic, street lights, and SPDC building free of charge.

Tariff Imposed According to Load Limit

Load limit (W)	Tariff (Kyat)	Load limit (W)	Tariff (Kyat)
40	2,000	200	10,000
60	3,000	300	15,000
80	4,000	300-500	25,000
100	5,000	500-800	35,000

7. Distribution line

- Distribution line is at 220 V, 2.4 km long. The conductor is #6 copper wires from the power house to distribution line and 25 mm² ACSR and #8 copper lines are used for distribution line according to the location.

- SPDC erected poles and installed wires separately from the existing MEPE distribution lines. They utilize some of MEPE poles for their hanging lines.
- MIC purchased the distribution lines at K2 million from SPDC.
- No transformer is used.

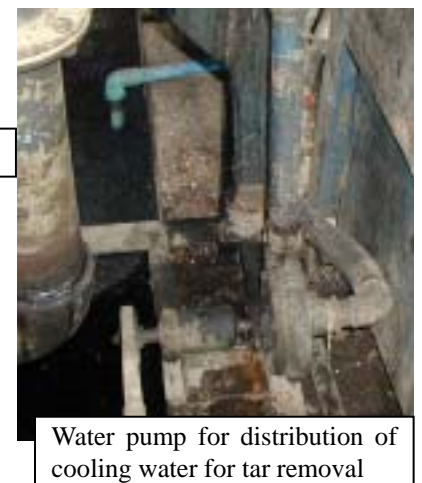
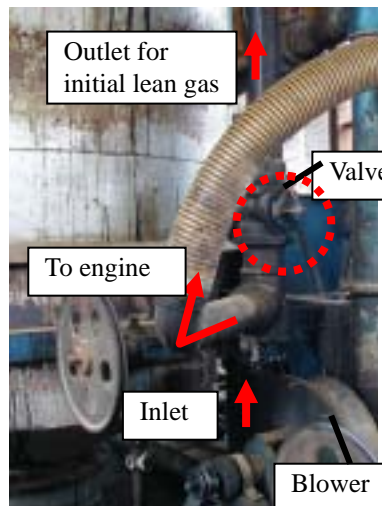
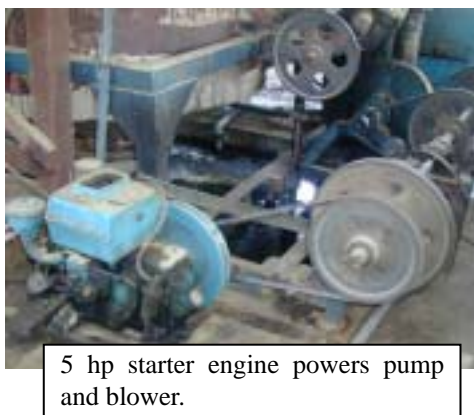
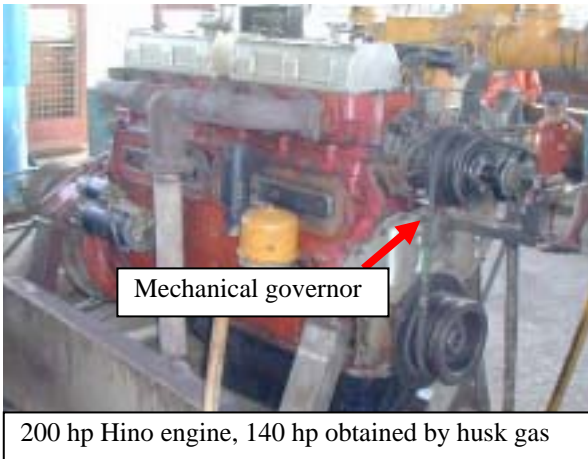
8. Market Price of Electric Appliances and House-wiring

The market prices of electric appliances in Myitkyina in June 2003 were as follows:

Market Price of Electric Appliances in Myitkyina

Items	Price (Kyat)	Made in
Fluorescent bulb (15 W)	400	China
Fluorescent bulb (20 W)	400	China
2 ft fluorescent light (20 W)	500	China
4 ft fluorescent light (40W)	650	China
Extension code with 6 multi plugs	500	China
Extension code with 8 multi plugs and voltage meter	700	China
Watt-hour meter	4,200	China
Inverter (1000 W)	3,500	China
Small fan	11,000	Thailand
Board with voltage meter, 3 plugs, 1 switch, and 1 bulb socket	2,400	
In-house wire (per 100 m)		
1/C 3 lines-29mm ²	4,035	
1/C 7 lines-64mm ²	20,280	
2/C 3 lines-29mm ²	5,300	
2/C 7 lines-44mm ²	21,850	
2/C 7 lines-83mm ²	62,680	

Source: Hearing by the JICA Study Team in June 2003.





Ash collector



Diesel engine for rice mill



Separation of husk and rice



Rice mill



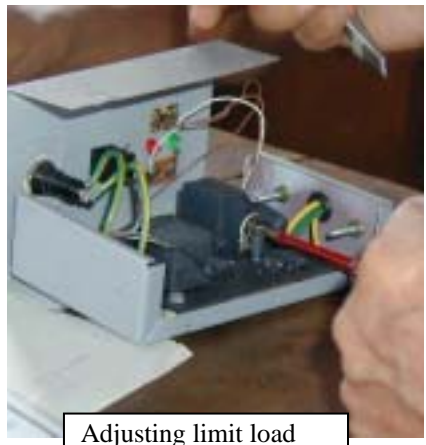
Husk storage



Inside control panel



Load limiter



Adjusting limit load



Line from powerhouse to distribution line and street light



Distribution lines. Upper lines are of MEPE. Lower lines are installed by SPDC and transferred to MIC.



Typical house of Panmati village



Village chief's house



40 W fluorescent light



80 W fan



In-house wiring



Batteries and regulator



TV and inverter



Village chief and U Yar Naing (MIC)



Children enjoying TV game in Myitkyina

APPENDIX – E

HYDRO POTENTIAL

HYDROPOWER POTENTIALS THROUGHOUT MYANMAR
(State & Division Wide)

Sr.No	State & Division	Under 1.0 MW								1.0 MW to 10.0 MW								Above 10 MW								Under 1.0 MW to Above 10MW Total	
		Installed		Under Construction		Under Study		Total		Installed		Under Construction		Under Study		Total		Installed		Under Construction		Under Study		Total			
		No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)	No: of Prj	Capacity (MW)
1	Kachin State	3	0.470	-	-	16	4.708	19	5.178	3	8.780	1	6.000	9	35.220	13	50.000	-	-	-	-	7	2006	7	2006	39	2061.178
2	Kayah State	1	0.108	-	-	1	0.050	2	0.158	-	-	-	-	-	-	-	-	2	196	-	-	3	3713	5	3909	7	3909.158
3	Kayin State	1	0.037	-	-	7	1.372	8	1.409	-	-	-	-	4	10.000	4	10.000	-	-	-	-	9	17009.5	9	17009.5	21	17020.909
4	Chin State	8	2.310	-	-	8	1.820	16	4.130	1	1.000	-	-	2	3.000	3	4.000	-	-	-	-	3	1304	3	1304	22	1312.130
5	Sagaing Division	1	0.050	-	-	11	2.565	12	2.615	1	1.260	-	-	2	3.300	3	4.560	-	-	1	30	5	2362	6	2392	21	2399.175
6	Tanintharyi Division	2	0.342	-	-	6	1.210	8	1.552	-	-	-	-	1	9.000	1	9.000	-	-	-	-	5	681	5	681	14	691.552
7	Bago Division	-	-	-	-	4	1.890	4	1.890	-	-	-	-	1	2.000	1	2.000	-	-	1	20	5	363	6	383	11	386.890
8	Magway Division	-	-	-	-	2	0.400	2	0.400	-	-	-	-	3	19.200	3	19.200	-	-	-	-	3	103	3	103	8	122.600
9	Mandalay Division	1	0.450	-	-	5	0.264	6	0.714	1	4.000	-	-	1	2.250	2	6.250	2	81	1	280	6	3114	9	3475	17	3481.964
10	Mon State	1	0.198	-	-	6	0.725	7	0.923	-	-	-	-	2	11.500	2	11.500	-	-	-	-	1	280	1	280	10	292.423
11	Rakhine State	-	-	-	-	9	1.673	9	1.673	-	-	-	-	1	1.500	1	1.500	-	-	-	-	4	243.5	4	243.5	14	246.673
12	Shan State	10	2.116	1	0.320	37	12.550	48	14.986	6	24.000	1	2.000	16	44.160	23	70.160	2	30	-	-	10	7584	12	7614	83	7699.146
	Total	28	6.081	1	0.320	112	29.227	141	35.628	12	39.040	2	8.000	42	141.130	56	188.170	6	307	3	330	61	38763	70	39400	267	39623.798

Total number of projects

= 267

Total capacity (MW)

= 39623.798

Appendix E Hydro Potential (2/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>KACHIN STATE</u>							
<u>Under 1.0 MW</u>							
1	Putao (Nam Htun)	7 miles from Putao	52.00	0.160	170.00	24.00	Commissioned on March (1987)
2	Kampaiti	0.5 miles North of Kampaiti (93-K/3-899573)	-	0.150	12.36	92.21	Commissioned
3	Panwa	1.5 miles North of Panwa (92-K/6-824174)	-	0.160	17.756	119.09	Commissioned
4	Washaung Canal	8 miles from Waingmaw (97° - 36' E, 25° - 23' N)	158.00	0.140	75.00	8.00	Preliminary Report (1976)
5	Putao (Nam Hkan Tee)	3 miles from Putao (97° - 27' E, 27° - 20' N)	14.69	0.400	46.90	74.00	Feasibility Study (1982) WAPCOS
6	Taza Chaung	3.5 miles North-West of Naung Mun (93-E-384121)	6.00	0.066	6.00	31.00	Prefeasibility Report (1987)
7	Inbuhka Chaung	2.5 miles North of Malang Bun (92-E/11-220812)	2.75	0.022	3.00	31.00	Prefeasibility Report (1987)
8	Chibwe (Yitlaw)	1.5 miles South-East of Chibwe (92-K/1-130897)	0.65	0.025	2.94	162.00	Preliminary Study
9	Sarhmaw	12 miles from Mogaung (92-C/ 11-412302)	31.00	0.200	41.00	50.00	Preliminary Study (Dam Type)
10	Sihten Hka (Namti)	3 miles North-West of Namti village, Mogaung Township (92-C/ 15- 652502)	-	0.400	21.25(Design)	303.00	Preliminary Study
11	Nam Mn	3 miles South-West of Nam Mun village, 16 miles West of Hopin (92-D/ 5-959911)	4.00	0.500	4.00	400.00	Preliminary Study
12	Lagar Hka (Hantha fall)	3.5 miles South-East of Namma, Mohnyin Township (92-D/ 5-149971)	2.00	0.640	2.00	610.00	Preliminary Study
13	Waihkar Chaung (Saing Taung)	4 miles South-West of Hpa Kant (92-C/ 6-913663)	20.00	0.200	75.00	20.00	Preliminary Study
14	San Hka Chaung	3.5 miles North-East of Taw Hmaw village, which is 7.5 miles North-West of Myitkyina. (B-898814)	17.87	0.250	12.39	206.62	Preliminary Study
15	Ahtan Chaung (Hkaung Lan Hpu)	1 miles North-East of Hkaung Lan Hpu, which is 140 miles North-East of Myitkyina	-	0.400	60.00	120.00	Preliminary Study
16	Phoung Ma Hka	13 miles South-East of Putao. (92-E-1168)	7.40	0.315	94.50	50.00	Preliminary Study
17	Chirihka	12 miles from Bhamo (97° - 26' E, 24° - 13' N)	15.50	0.360	19.00	240.00	Office Study
18	Run Hka Chaung	5 miles North-East of Sumprabum. (92-F-10)	5.00	0.150	19.00	150.00	Office Study
19	Namhsam Chaung	14 miles North-East of Bhamo. (92-H/ 7-224346)	18.00	0.640	41.87	250.00	Preliminary Study (Feb 1998)
Total = 19				Toal = 5.178			
<u>1.0 MW to 10 MW</u>							
1	Hopin (Galing Chaung)	8 miles North-East of Hopin (96° - 36' E, 25° - 40' N)	9.00	1.260	30.00(Design)	625.00	Commissioned on September (1991)
2	Chingkrang Hka	21 miles from Myitkyina (97° - 30' E, 25° - 39' N)	23.67	2.520	80.00(Design)	538.00	Commissioned on April (1993)
3	Namhkam Hka (Mokaung)	14 miles East of Mogaung	14.00	5.000	190.00(Design)	420.00	Commissioned on September (1996)
4	Tumpang Chaung	24 miles North-East of Waingmaw. (92-G/14 D-661671)	240.00	6.000	376.00	149.85	Under Construction
5	Namhsam Hka	23 miles from Bhamo (97° - 28' E, 24° - 21' N)	16.30	2.020	6.50	2416.00	Detailed Design (1957) Yugo
6	Nam tabet	17 miles South-East of Waingmaw (92-G/ 12-352184)	509.00	4.000	1998.00	42.65	Preliminary Report (High weir type)
7	Hta Hka	30 miles South-East of Putao. (92-E/ SE-4675)	15.00	6.000	140.00	350.00	Preliminary Study (1/6/97)
8	Umungya Hka (Sangha Fall, Diversion Type)	12 miles North-East of Momauk. (92-H/ 7-271258)	-	2.000	100.00	1800.00	Preliminary Study (Diversion Type)
9	Umungya Hka (Sangha Fall, Dam Type)	12 miles North-East of Momauk. (92-H/ 7-271258)	-	10.000	-	-	Preliminary Study (Dam Type)
10	Kasung Hka	24 miles North-West of Myitkyina (92-G/ 2-770655)	17.83	5.000	26.00	525.00	Preliminary Study
11	Nam Je Hka	9 miles from Mansi	79.00	2.000	-	200.00	Office Study
12	Namphat Hka	17 miles North-East of Bamaw. (J-257183)	75.00	3.000	70.00	400.00	Preliminary Study (1993)
13	Ledon Chaung	12 miles South-West of Mohnyin.	22.00	1.200	-	300.00	Office Study
Toal = 13				Total = 50.000			

Appendix E Hydro Potential (3/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>KACHIN STATE</u>							
<u>Above 10.0 MW</u>							
1	Ayeyawady (Laphe)	21 miles from Myitkyina (97° - 32' E, 25° - 38' N)	1725.00	1500.00	13650.00	250.00	Preliminary Report
2	Ayeyawady (2nd Defile)	Near Sinkan (97° - 00' E, 24° - 09' N)	-	125.00	-	-	Preliminary Report
3	Nam Tabet (Dam Type)	15 miles Myitkyina. (97° - 32' E, 25° - 09' N)	-	150.00	3460.00	-	Preliminary Report, KTA
4	Nam Tabet (Diversion Type)	18 miles from South East of Waing Maw. (D-175500)	450.00	16.00	600.00	280.00	Preliminary Report (MEPE & WREUT)
5	Tarung Hka	70 miles from Hkamti (96° - 32' E, 26° - 44' N)	2370.00	150.00	-	335.00	Preliminary Report, UNDP
6	Tawang Hka	90 miles from Hkamti (96° - 52' E, 26° - 12' N)	753.00	50.00	-	350.00	Preliminary Report, UNDP
7	Tanaing Hka	70 miles from Myitkyina (97° - 00' E, 26° - 17' N)	1635.00	15.00	-	125.00	Preliminary Report, UNDP
				Total = 2006.00			
Total number of projects = 39		(< 1 MW to > 10 MW)	Total (< 1 MW to > 10 MW) = 2061.178 MW				

Appendix E Hydro Potential (4/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status	
<u>KAYAH STATE</u>								
<u>Under 1.0 MW</u>								
1	Hpa Saung (Hwe Kabu Chaung)	Hpa Saung. (97° - 19' E, 18° - 52' N)	4.80	0.108	8.00	192.00	Commissioned on January (1988)	
2	Hsataw	3 miles from Hsataw. (97° - 32' E, 19° - 34' N)	5.50	0.050	-	100.00	Office Study	
Total number of projects = 2				Total = 0.158				
<u>Above 10.0 MW</u>								
1	Balu Chaung No.2	14 miles from Loikaw.	-	168.00	1200.00	1450.00	Commissioned on (1960)	
2	Balu Chaung No.1	10 miles from South-East of Loikaw. (97° - 22' E, 19° - 32' N)	3075.00	28.00	500.00	261.00	Commissioned on August (1993)	
3	Balu Chaung No.3	17 miles South-East of Loikaw. (97° - 18.5' E, 19° - 36' N)	3105.00	48.00	500.00	398.00	Preliminary Report (1955) NIPPON KOEI	
4	Thanlwin (Ywathit)	1 miles from Ywathit (97° - 32' E, 19° - 11' N)	-	3500.00	-	-	Office Study	
5	Nam Tamhpak	25 miles North-East of Loikaw, Near confluence to Pawn Chaung	1189.20	165.00	1102.00	1506.00	Pre-feasibility Study (NIPPON KOEI)	
Total number of projects = 5				Total = 3909.00				
Total number of projects = 7			(< 1 to > 10 MW)					Total (< 1 MW - > 10 MW) = 3909.158 MW

Appendix E Hydro Potential (5/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>KAYIN STATE</u>							
<u>Under 1.0 MW</u>							
1	Papun (Lekapaw Chaung)	1.5 miles from Papun.. (97° - 28' E, 18° - 04' N)	1.25	0.037	3.35	80.00	Commissioned on March (1987)
2	Pathi Chaung No.1	3 miles from Thandaung. (96° - 37' E, 19° - 02' N)	8.95	0.400	5.00	400.00	Detailed Survey
3	Tadanku Chaung	4 miles East of Kawkareik	20.00	0.100	30.00	24.00	Prefeasibility Report (1986)
4	Khuket Chaung	1.5 miles South of Leiktho	2.31	0.062	4.90	57.00	Prefeasibility Report (1987)
5	Koko Chaung	9 miles East of Kawkareik	17.00	0.200	5.66	90.00	Office Study
6	Kyakhat Chaung	5 miles North East of Kyain Seikkyi.	2.00	0.030	-	50.00	Office Study
7	Azin	30 miles South-East of Kya-in Seik-Kyi(95-1/9-299254)	2.12	0.320	12.00	400.00	Feasibility Report (1997)
8	Kyonhtaw	13 miles North-East of Myainggyi Ngu(94-G/15-449135)	38.00	0.26	277.00	50.00	Feasibility Report (1995)
Total number of projects = 8				Total = 1.409			
<u>1.0 MW to 10.0 MW</u>							
1	Donthami Chaung	43 miles from Hpa-an. (97° - 25' E, 17° - 32' N)	45.60	3.000	180.00	100.00	Office Study
2	Metan	24 miles East of Kya-in-Seik-Kyi (94-L/8-227469)	27.45	3.000	120.00	400.00	Feasibility Report (1997)
3	Kyeik	22 miles North-East of Kya-in-Seik-Kyi (94-L/ 8-158574)	20.00	2.000	120.00	350.00	Feasibility Report (1997)
4	Pathi Chaung No.2	1 miles from Thaundaung (96° - 36' E, 19° - 1.5' N)	10.68	2.000	6.00	300.00	Detailed Survey
Total number of projects = 4				Total = 10.00			
<u>Above 10.0 MW</u>							
1	Thanlwin (Mekaung)	18 miles from Papun (97° - 42' E, 17° - 56' N)	91015.00	6000.000	-	500.00	Office Study
2	Thanlwin (Hutkyi) (Low Dam)	4 miles from Hutkyi Falls. (97° - 43' E, 17° - 36' N)	106922.00	300.000	-	45.00	Prefeasibility Study 1998
3	Thanlwin (Hutkyi) (High Dam)	4 miles from Hutkyi Falls. (97° - 43' E, 17° - 35' N)	106922.00	10000.000	-	500.00	Office Study
4	Yunzalin	Near Papun. (97° - 25' E, 18° - 20' N)	-	100.000	-	-	KTA Report (1953)
5	Thaukyegat	26 miles from Taungoo. (96° - 40' E, 18° - 55' N)	649.00	150.000	88.00	510.00	Predesign Report (1977) ECL, USA
6	Lampha	55 miles East of Moulmein. (98° - 19' E, 16° - 19' N) 94L/ 7-371977	12.00	19.500	86.00	2500.00	KTA Report (1953)
7	Moei - 1	55km East of Moulmein. (98° - 39' E, 16° - 25' N)	698.84	70.000	--- . --	262.46	Office Study
8	Moei - 2	28.5km South-East of Hlaingbwe. (98° - 21' E, 17° - 03' N)	2478.77	120.000	--- . --	164.04	Office Study
9	Moei - 3	21 km North-East of Kamamaung. (97° - 47' E, 17° - 41' N)	3362.95	250.000	--- . --	131.25	Office Study
Total number of projects =9				Total = 17009.50			
Total number of projects = 21				Total (< 1 MW - > 10 MW) = 17020.909 MW			

Appendix E Hydro Potential (6/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>CHIN STATE</u>							
<u>Under 1.0 MW</u>							
1	Dhobi Chaung	2 miles from Falam. (93° - 43' E, 22° - 53' N)	-	0.0600	-	-	Commissioned on (1975)
2	Zalui	4 miles from Tiddim. (93° - 41' E, 23° - 23' N)	9.160	0.4000	6.00	488.00	Commissioned on February (1984)
3	Daung Va	8 miles from Haka. (93° - 35' E, 23° - 40' N)	24.720	0.4000	6.00	260.00	Commissioned on September (1984)
4	Paletwa	0.5 miles from Paletwa. (92° - 52' E, 21° - 18' N)	1.000	0.0500	0.01	140.00	Commissioned on August (1988)
5	Matupi (Namlaung Chaung)	8 miles from Matupi.	16.000	0.2000	17.00	143.00	Commissioned on May (1992)
6	Laiva	10 miles Sourth-West of Falam.	3.240	0.6000	8.78	636.00	Commissioned on April (1994)
7	Tui Saung Chaung	2 miles North-East of Tonzang.	20.000	0.2000	32.00	150.00	Commissioned on July (1997)
8	Che Chaung (Mindat)	7.5 miles Sourth-West of Mindat. (94° - 00' E, 21° - 22' N)	113.000	0.4000	17.00	92.00	Commissioned on September (1997)
9	Long Ngol Chaung	2 miles from Haka. (93° - 35' E, 23° -40' N)	5.000	0.1500	2.00	240.00	Preliminary Survey (1976)
10	Teingla Chaung	4 miles North-East of Paletwa.	12.000	0.0500	5.00	30.00	Pre-feasibility Report (1986)
11	Kwa Lui Chaung	10 miles East of Tiddim.	3.200	0.0500	4.60	85.00	Pre-feasibility Report (1987)
12	Saw Chaung	12 miles Sourth-West of Kanpetlet.	43.100	0.2000	7.10	119.00	Pre-feasibility Report (1988)
13	Zou Lui Chaung	12 miles North of Tiddim. (925875)	2.400	0.1000	11.00	430.00	Pre-feasibility Report (1989)
14	Amlaung Chaung	8 miles from Mindat. (93° - 50' E, 21° - 20' N)	5.000	0.1200	2.00	300.00	Office Study
15	Mulaung Chaung (Mindat)	15 miles from Mindat. (93° - 53' E, 21° - 26' N)	5.000	0.9000	3.00	1500.00	Office Study
16	Ran Chaung (Mindat)	1.5 miles North-East of Ranpan Village. (84-K/NW-220238)	-	0.2500	6.61	342.00	Preliminary Survey (1995)
Total number of projects = 16				Total = 4.130			
<u>1.0 MW to 10.0 MW</u>							
1	Ngalsip Va	12 miles from Falam. (93° - 43' E, 22° - 51' N)	45.00	1.000	16.60	384.00	Commissioned on December (1986)
2	Anya Katin	1.2 miles North-West of Kanpetlet. (84-K / 4-258782)	-	1.200	91.82	748.00	Preliminary Survey (1987)
3	Buntala	15 miles from Matupi. (93° -28' E, 21° - 42' N)	81.76	1.800	16.00	600.00	Office Study
Total number of projects = 3				Total = 4.000			
<u>Above 10.0 MW</u>							
1	Mi Chaung	16 miles from Paletwa. (93° - 04' E, 21° - 07' N)	732.00	200.000	114.00	235.00	Office Study
2	Lemro	30 miles from Myohaung. (93° -19' E, 20° - 51' N)	2526.00	600.000	535.00	460.00	Preliminary Report (1973)
3	Kalewa (Mainpur)	12 miles Sourth-East of Falam. (93° - 48' E, 22° - 43' N)	4530.00	504.000	1660.00	490.00	Preliminary Report (1974)
Total number of projects = 3				Total = 1304.000			
Total number of projects = 22				Total (< 1 MW - > 10 MW) = 1312.130MW			
		(< 1 to > 10 MW)					

Appendix E Hydro Potential (7/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>SAGAING DIVISION</u>							
<u>Under 1.0 MW</u>							
1	Lahe (Hwe Hngwin Neu Chaung)	1.5 miles Sourth-East of Lahe. (83-N/ SW)	2.52	0.0500	4.00	195.00	Commissioned on February (1997)
2	Wuntho (Mangin Chaung)	4.5 miles North-West of Wuntho. (95° - 36' E, 23° - 57' N)	4.70	0.1000	14.00	140.00	Preliminary Report
3	Na Nge Chaung	2.5 miles North-East of Wuntho. (84-M/ 13)	157.00	0.0400	40.00	24.00	Preliminary Report (1987)
4	Tatwe Chaung	24 miles North-West of Kyun-Hla. (84-M/ 2)	10.20	0.0200	1.06	34.00	Preliminary Report (1988)
5	Pinlebu (Kaba Chaung)	20 miles from Pinlebu. (95° - 36' E, 24° -09' N)	62.00	0.4000	-	70.00	Office Study
6	Pinlebu (Panwe Chaung)	24 miles from Pinlebu. (95° - 39' E, 24° -10' N)	13.00	0.1300	-	100.00	Office Study
7	Nam Sake	15 miles from Hkamti. (83-0/ NE,NW-128059)	3.32	0.2000	10.00	400.00	Office Study
8	Chaung-daung	12 miles from Tigyaing. (93-A/ 2-314693)	2.30	0.1500	-	250.00	Office Study
9	Daungu Chaung	Near Wuntho (84-M/ 9-330694 STN)	64.00	0.9500	-	35.00	Office Study
10	Matugi	3 miles Sourth-West of Lashe. (83-K/ 8E-4138)	13.79	0.1000	5.30	140.00	Preliminary Report
11	Khwe Lon (Kaw Ta Fall)	16 miles Sourth-West of Banmauk (83-P/ 11, 15-435040)	-	0.4000	20.00	355.00	Preliminary Report
12	Pyanshar Chaung	3 miles North-East of Lahe. (83-N/ SW-9053)	-	0.0750	4.10	275.00	Preliminary Survey
Total number of projects = 12				Total = 2.615			
<u>1.0 MW to 10.0 MW</u>							
1	Zi Chaung	12 miles from Kalemyo. (97° - 53' E, 23° - 11' N)	115.00	1.260	140.00	134.50	Commissioned on July (1996)
2	Buk Va	30 miles from Kalemyo. (93° - 55' E, 23° - 04' N)	9.44	1.800	15.00	600.00	Office Study
3	Nayinzaya Chaung	22 miles from Kalewa. (94° -05' E, 23° - 37' N)	133.60	1.500	30.00	150.00	Preliminary Report (ID)
Total number of projects = 3				Total = 4.560			
<u>Above 10.0 MW</u>							
1	Tamanthi	31 miles from Homalin. (95° - 00' E, 25° - 00' N)	15130.00	1200.00	2500.00	172.00	Prefeasibility Report (1974)
2	Mawlaik	Near Mawlaik. (94° -34' E, 23° - 50' N)	26788.00	400.00	76000.00	70.00	Preliminary Report UNDP
3	Shwezaye	15 miles North of Monywa. (95° - 00' E, 22° - 20' N)	41050.00	600.00	-	160.00	Preliminary Report UNDP
4	Hamalin	10 miles from Homalin. (94° -54' E, 24° - 54' N)	16946.00	150.00	2500.00	33.00	Preliminary Report UNDP
5	Mu (Thaphanseik)	40 miles from Ye-U. (95° -23.5' E, 23° - 13' N)	-	30.00	-	70.00	Under Construction
6	Uru	10 miles from Homalin. (95° - 18' E, 24° - 43' N)	-	12.00	-	50.00	Preliminary Report (UNDP)
Total number of projects = 6				Total = 2392.00			
Total number of projects = 21				Total (< 1 MW - > 10 MW) = 2399.175 MW			

Appendix E Hydro Potential (8/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>TANINTHARYI DIVISION</u>							
<u>Under 1.0 MW</u>							
1	Kattalu Chaung	Kyunsu Township Katan Island	6.80	0.150	2.50	172.00	Commissioned on July (1991)
2	Mali Kyun	Mali Kyun	0.80	0.192	12.00	351.00	Commissioned on July (1992)
3	Maliwun	24 miles North of Kawthaung. (98° - 36' E, 10° -13' N)	10.30	0.450	6.00	106.60	Feasibility Study WAPCOS(1982)Under Planning.
4	Kanbauk	40 miles from Dawei. (98° - 05' E, 14° -45' N)	-	0.400	-	208.50	Prefeasibility Report (1976)
5	Bokpyin	16 miles from Dawei. (98° - 45' E, 11° - 15' N)	1.60	0.150	2.25	380.00	Prefeasibility Report (1976)
6	Thayet Chaung	1/2 miles from Thayet Chaung	5.00	0.050		50.00	Office Study
7	Ka-an Chaung	Kyunsu Township Katan (King) Island	3.78	0.080	15.00	80.00	Office Study
8	Kapa Chaung	Kyunsu Township Katan (King) Island	2.85	0.080	10.00	120.00	Office Study
Total = 8				Total = 1.552			
<u>1.0 MW to 10.0 MW</u>							
1	Anyabya	12 miles from Dawei. (98° - 19' E, 14° - 04' N)	41.75	9.000	20.20	150.00	Feasibility Report (1982) HYDROPLAN (FRG)
Total = 1				Total = 9.000			
<u>Above 10.0 MW</u>							
1	Hpaungdaw	45 miles from Dawei. (98° - 30' E, 14° - 04' N)	16.05	5.00		1460.00	Feasibility Report (1982) HYDROPLAN (FRG)
2	Khlong Kra	33 miles from Kawthaung.	275.00	40.00		197.00	Preliminary Study (MEPE + NEA)
3	Tanintharyi	31 miles North East of Mergui, near Mayon.	3811.00	600.00	16580.00	420.00	Office Study (NIPPON KOEI)
4	Sarawa Chaung	37 miles North East of Mergui, ner Mayon.	295.00	11.00	70.00	197.00	Office Study (NIPPON KOEI)R.O.R. Type
5	TheinKun Chaung	50 miles East of Tanintharyi. 96-M/ 5-567888	160.00	25.00	50.00	240.00	Preliminary Study (ID) Dam Type
Total = 5				Total = 681.000			
Total = 14 (< 1 to > 10 MW)				Total (< 1 MW - > 10 MW) = 691.552 MW			

Appendix E Hydro Potential (9/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>BAGO DIVISION</u>							
<u>Under 1.0 MW</u>							
1	Buyo Chaung	20 miles from Padaung. (94° - 55' E, 18° -45' N)	54.00	0.150	8.00	100.00	Office Study on (1987)
2	Kayin Chaung	12 miles from Yedashe. (96° - 28' E, 19° -09' N)	29.73	0.700	36.00	297.00	Feasibility Study (1982) WAPCOS
3	North Nawin	30 miles from Pyay. (95° - 27' E, 19° -04' N)	228.00	0.890	82.00	32.40	Feasibility Study
4	Kyaukkyi (Matzagaing Chaung)	3 miles from Kyaukkyi. (96° - 49' E, 18° -18' N)	6.80	0.150	40.00	75.00	Feasibility Study
Total = 4				Total = 1.890			
<u>1.0 MW to 10.0 MW</u>							
1	South Nawin	Yatthet Village Paukkaung. (95° - 35' E, 18° - 55' N)	247.00	2.000	-	78.00	Under Study
Total = 1				Total = 2.000			
<u>Above 10.0 MW</u>							
1	Bago (Zaungtu)	36 miles North-West of Bago. (96° - 12' E, 17° - 45' N)	427.00	20.000	2750.00	118.00	Under Construction
2	Bawgada	17 miles from Kyaukkyi. (96° - 53' E, 18° - 17' N)	55.00	168.000	497.00	1850.00	KTA Report (1953)
3	Yenwe	18 miles from Pyuntaza. (96° - 26' E, 18° - 06' N)	297.00	16.000	3770.00	223.00	Feasibility Report (1977)
4	Pyu Chaung	9 miles from Phu. (96° - 21' E, 18° - 31' N)	406.00	65.000	-	315.00	Preliminary Report (1962) UNDP
5	Kun Chaung	8 miles South-West of Pyu. (96° - 23' E, 18° - 25' N)	345.00	84.000	1695.00	375.00	Feasibility Report (1981)
6	Kabaung	18 miles from Taungoo. (96° - 15' E, 18° - 54' N)	418.00	30.000	-	164.00	Preliminary Report (UNDP)
Total = 6				Total = 383			
Total = 11 (< 1 to > 10 MW)				Total = 386.890 MW (<1 - > 10 MW)			
f							

Appendix E Hydro Potential (10/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>MAGWAY DIVISION</u>							
<u>Under 1.0 MW</u>							
1	Mon Chaung	12 miles from Ngape. (94° - 30' E, 19° -54' N)	49.60	0.300	21.53	205.00	Feasibility Study (1982) WAPCOS
2	Ngape	12 miles from Ngape. (94° - 24' E, 20° -05' N)	2.00	0.100	-	150.00	Office Study
Total = 2				Total = 0.400			
<u>1.0 MW to 10.0 MW</u>							
1	Bwetgyi Chaung	12 miles from Aunglan. (95° - 33' E, 19° - 29' N)	600.00	9.000	800.00	80.00	Office Study
2	Zarthaw Chaung	6.5 miles North-West of Gangaw. (84-J/ 4-292987)	586.00	1.200	9.00	44.00	Preliminary Report (1996)
3	Salin Chaung	-	-	9.000	-	125.00	I.D Report
Total = 3				Total = 19.200			
<u>Above 10.0 MW</u>							
1	Mindon	3 miles from Mindon. (94° - 42' E, 19° - 22' N)	362.00	18.000	37.00	125.00	Interim Report (1976)
2	Mone	35 miles from Mindon. (94° - 17' E, 20° - 17' N)	1905.00	75.000	4240.00	164.00	Preliminary Report (1966) CHINA
3	Myittha	60 miles from Kalaymyo. (94° - 07' E, 22° - 40' N)		10.000		80.00	Preliminary Report (UNDP)
Total = 3				Total = 103.000			
Total = 8 (< 1 to > 10 MW)				Total = 122.600 MW (<1 - > 10 MW)			

Appendix E Hydro Potential (11/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>MANDALAY DIVISION</u>							
<u>Under 1.0 MW</u>							
1	Wet Wun	13 miles from Maymyo. (96° - 40' E, 22° - 05' N)	73.12	0.450	11.00	698.00	Commissioned on (1933)
2	Dattaw Chaung	5 miles South-West of Pyin Oo Lwin.	28.00	0.120	12.00	60.00	} Prefeasibility Report (1987)
3	May Myo(Pyin Oo Lwin) Gelaung Chaung	Near Yenge Village	-	0.020	8.00	21.00	
4	May Myo(Pyin Oo Lwin) Pinlein Chaung	Near Setalon Village	-	0.020	10.00	23.00	} Prefeasibility Report (1987)
5	May Myo(Pyin Oo Lwin) Sitha Chaung	near Sitha Village	-	0.004	2.00	12.00, 15.00	
6	Sitha Chaung	8 miles from Maymyo. (96° - 26' E, 21° -57' N)	3.00	0.100	-	100.00	Office Study
Total = 6				Total = 0.714			
<u>1.0 MW to 10.0 MW</u>							
1	Mogok	Mogok Township. (96° - 30' E, 22° - 54' N)	26.40	4.000	138.00	395.00	Commissioned on September (1989)
2	Chaungmagyi Fall	30 miles from Naughkio (96° - 18' E, 22° - 18' N)	1.39	2.250	10.05	1017.00	Preliminary Report
Total = 2				Total = 6.250			
<u>Above 10.0 MW</u>							
1	Kinda	21 miles from Kume. (96° - 03' E, 21° - 30' N)	865.00	56.000	324.00	204.00	Commissioned on January (1986)
2	Sedawgyi	40 miles from Mandalay. (96° - 18' E, 22° - 18' N)	1322.00	25.000	3570.00	96.00	Commissioned on June (1989)
3	Paunglaung	7 miles from Pyinmana. (96° - 20' E, 19° - 47' N)	1691.00	280.000	-	377.20	Under Construction
4	Yeywa	30 miles South-East of Mandalay.(96° - 24' E, 21° - 41' N)	10890.00	600.000	5133.00	320.00	Feasibility Study
5	Paunglaung (UNDP)	23 miles from Pyinmana. (96° - 36' E, 19° - 46' N)	1259.00	342.000	-	470.00	Preliminary Study (1982)
6	Thabeikkyin	6 miles from Thabeikkyin. (95° - 58' E, 22° - 54' N)	44142.00	1800.000	325000.00	82.50	Office Study
7	Lwegyi	15 miles from Pyinmana. (96° - 28' E, 19° - 51' N)	1312.00	140.000	-	190.00	Office Study (1978)
8	Nancho	16 miles from Pyinmana. (96° - 26' E, 19° - 45' N)	295.00	152.000	-	710.00	Office Study (1978)
9	Paunglaung Nge	27 miles from Pyinmana. (96° - 38' E, 19° - 48' N)	345	80.000	-	740	Office Study (1978)
Total = 9				Total = 3475.000			
Total = 17 (< 1 to > 10 MW)				Total = 3481.964 MW (< 1 - > 10 MW)			

Appendix E Hydro Potential (12/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>MON STATE</u>							
<u>Under 1.0 MW</u>							
1	Zingyaik	6 miles North-East of Paung. (97° - 26' E, 16° -42' N)	1.00	0.198	9.00	358.50	Commissioned on October (1984)
2	Kinum	11 miles from Kyaikhto. (97° - 06' E, 17° -26' N)	4.45	0.200	2.00	360.00	Detailed Survey
3	Bambwegaon	4 miles from Paung. (97° - 29' E, 16° -36' N)	2.25	0.200	1.00	300.00	Preliminary Report (1979)
4	Kanni	12 miles East of Ye. (95-1/3-951055)	0.31	0.050	10.00	100.00	Preliminary Report (1979)
5	Kyaukkatin Chaung	6.5 miles South-East of Ye. (95-E/163,E/12-878937)	4.73	0.125	5.44	102.00	Preliminary Report (1988)
6	Mobaw Chaung	14 miles North of Kyaikhto. 94G/3-606213	3.99	0.100	1.24	351.00	Preliminary Report (1987)
7	Sapar Chaung	3 miles North of Mawkanin village. 95E/14-482838.	1.90	0.050	117.00	29.30	Preliminary Report (1991)
Total number of projects = 7				Total = 0.923			
<u>1.0 MW to 10.0 MW</u>							
1	Abit	1.5 miles East of Sathwe village, Mudon. (94-H/12-413461)	15.30	1.500	50.00	170.00	Preliminary Survey (1994)
2	Myet Taw Chaung	1.5 miles North East of Lamaing Town. (Ye township) 95E/ 14-642992	-	10.000	1680.00	100.00	Preliminary Survey (1992)
Total number of projects = 2				Total = 11.500			
<u>Above 10.0 MW</u>							
1	Bilin	12 miles from Bilin. (97° - 15' E, 17° - 23' N)	870.00	280.00	561.00	235.00	Feasibility Study
Total number of project = 1				Total = 280.00			
Total number of projects = 10				Total = 292.423 MW (<1 - > 10 MW)			

Appendix E Hydro Potential (13/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>RAKHINE STATE</u>							
<u>Under 1.0 MW</u>							
1	Yo Chaung	16 miles from Kyauktaw. (92° - 50' E, 20° -51' N)	106.71	0.450	105.20	105.00	Feasibility Study (1982) WAPCOS
2	Thade Chaung	16 miles from Thandwe. (94° - 35' E, 18° -35' N)	32.80	0.800	20.00	100.00	Office Study
3	Dantin Chaung	1/2 miles from Minbya. (93° - 16' E, 20° -22' N)	0.10	0.025	4.50	110.00	Preliminary Report
4	Ale Chaung	18 miles East of Thandwe	12.00	0.020	9.00	25.00	Preliminary Report (1987)
5	Daung Chaung	12 miles North-East of Gwa. (94° - 41' E, 17° -38' N)	11.00	0.150	-	50.00	Office Study
6	Mok Chaung	9 miles from Taunggup. (94° - 18' E, 18° -47' N)	1.60	0.100	-	100.00	Office Study
7	Khut Chaung	16 miles North-East of Thandwe.	1.80	0.100	1.50	40.00	Preliminary Report (1987)
8	Hpayataung Chaung	10 miles from Buthidaung & 6 miles from Maungdaw.	1.40	0.010	1.00	30.00	Preliminary Report
9	Pyauung Chaung	6 miles North-West of Kyauktaw. (84-D/13-928453)	20.00	0.018	61.12	60.00	Preliminary Report
Total = 9				Total = 1.673			
<u>1.0 MW to 10.0 MW</u>							
1	Yan Chaung	17 miles North of Myauk Oo. (84-H/1-190327)	76.00	1.500	522.00	20.00	Preliminary Report
Total = 1				Total = 1.500			
<u>Above 10.0 MW</u>							
1	Kyeintali	54 miles from Thandwe. (94° - 37' E, 17° - 53' N)	298.00	28.00	22.00	220.00	Preliminary Report (1979) DPRK
2	Thande	15 miles North ward of Thandwe. (94° - 22' E, 18° - 38' N)	467.00	100.00	49.00	290.00	Preliminary Report (1976)
3	Saingdin	50 miles from Sittwe. (92° - 38' E, 21° - 54' N)	354.00	76.50	1910.00	161.00	Preliminary Report
4	Thandwe	10 miles due South East of Thandwe ('E', N)	270.00	39.00	-	103.00	Preliminary Report (Dam type)
Total = 4				Total = 243.5			
Total = 14 (< 1 to > 10 MW)				Total = 246.673 MW (< 1 - > 10 MW)			

Appendix E Hydro Potential (14/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
	SHAN STATE						
	Under 1.0 MW						
1	Namhsan	1.5 miles from Namhsan. (97° - 10' E, 22° - 55' N)	6.50	0.030	5.00	90.00	Commissioned on 1936 (Existing)
2	Muse (Namkhum Chaung)	4 miles East of Muse. (97° - 57' E, 24° - 00' N)	9.87	0.192	3.50	154.50	Commissioned on April (1988)
3	Namkham (Nammahla Chaung)	6 miles South of Namkham. (97° - 41' E, 23° - 46' N)	11.13	0.300	2.30	140.00	Commissioned on March (1988)
4	Kunhing (Namsham Chaung)	2 miles East of Kunhing. (98° - 27' E, 21° - 18' N)	26.00	0.150	12.00	85.00	Commissioned on September (1991)
5	Kyaington-2 (Name Lat Chaung)	8 miles South-East of Kyaington.	42.00	0.480	15.00	131.00	Commissioned on November (1991)
6	Chinshwehaw (Pachethaw Chaung)	13 miles North of Kunlong.	2.75	0.300	100.00	14.00	Commissioned on February (1992)
7	Maing Lar	56 miles from Kyaington.	12.36	0.060	6.35	65.00	Commissioned on March (1992)
8	Selu (Nam Lat Chaung)	7 miles East of Mongyaung.	4.50	0.024	3.50	66.00	Commissioned on March (1992)
9	Kunlong (Name Hsawn Chaung)	15 miles East of Kunlong. 3 miles East of Hopan ... (98° -55' E, 23° - 27' N)	27.41	0.500	7.42	135.00	Commissioned on January (1996)
10	Pan Hsan (Namnga Chaung)	South-West of Pan Hsan (Pan Hkam).	-	0.080	-	262.00	Commissioned
11	Kyukok (Name Hkan Chang)	4 miles from Kyukok. (0/930912)	30.00	0.320	18.00	196.00	Under Construction
12	Mong Hsat	12 miles from Mong Hsat. (99° - 10' E, 20° - 28' N)	24.30	0.300	4.00	440.00	Interim Report (1975)
13	Nam Tam Chaung	11 miles North-West of Langhko. (93-H/15-625700)	231.67	0.890	10.00	39.00	Pre-feasibility Report (1986)
14	Nam Uon Chaung	2 miles South of Maing Pyin. (93-0/3-893816)	-	0.100	50.00	45.00	Pre-feasibility Report (1994)
15	Namlin Chaung	4.5 miles South of Tangyan. (93-J/7-204148)	-	0.800	80.00	180.44	Preliminary Report (1991), (1994)
16	Nam Na Nin	2 miles from Mong Ton. (98° - 53' E, 20° - 19' N)	23.10	0.600	15.70	200.00	Office Study
17	Mong Hkak	2 miles from Mong Hkak.	7.80	0.110	3.50	150.00	Office Study
18	Ho Kan Chaung	6 miles from Loilem.	-	0.100	-	100.00	Office Study
19	Namhsan (Northern Shan State)	1.5 miles from Namhsan. (97° - 11' E, 22° - 57' N)	6.50	0.090	15.00	90.00	Office Study (Extension)
20	Nam Teng Chaung	5 miles South of Mong Kung.	2.83	0.060	-	150.00	Office Study
21	Nam Khai Chaung	5.5 miles North-East of Kut Kai, (93-E/14-920263)	60.00	0.500	266	40.00	Office Study (6/10/1989)
22	Nam La Chaung	(1) 1 mile East of Maw Wawm (Maw Hpa Region)	1.30	0.080, 0.200	-	200.00	Office Study
23	Nam La Chaung	(2) 1 mile North-West of Maw Wawm (Maw Hpa Region)	1.60	0.030, 0.500	-	50.00	Office Study
24	Nam Kone Chaung	1/2 mile South-East of Man Ton. (93-E/4-967006)	-	0.400	65.00	100.00	Preliminary Study (17/12/1994)
25	Rwan Kyu Chaung	1 mile North-West of Mongmao. (93-J/13-033674)	-	0.300	10.00	250.00	Preliminary Study (1994)
26	Nam Hu Chaung	2 miles North-East of Maing Hkat. (93-0/5-410330)	-	0.030	7.00	80.00	Preliminary Study (1996)
27	Hwe Nam Kal	5 miles East of Maing Pauk. (Ho Tong Region)	-	0.720	88.28	164.04	Preliminary Study (UNDCP) (1994)
28	Nam Hpaktu Hpa	1/2 mile South-West of Talae. (102-D/2-135908)	-	0.015	3.30	30.00	Preliminary Study (1996)
29	Nam Ya	8 miles North of Kyaington. (93-0/11-536953)	-	0.150	3.30	350.00	Preliminary Study (1996)
30	Hwe Kkanmong Chaung	2 miles South-East of Ho-mong. (94-E/14-701880)	21.75	0.400	41.00	146.00	Preliminary Study (1996)
31	Nam Me Le	3 miles South-West of Ho-mong. (94-E/14-659905)	-	0.225	35.68	189.00	Preliminary Study (1996)
32	Nam Ko	4 miles South-East of Mong Ko.	70.59	0.960	75.00	202.53	Preliminary Study (2/5/1996)
33	Nam Hu Mun Chaung(Kaung Hka)	8 miles East of Kutkai. (93-1/3-015190)	-	0.320	47.69	118.00	Preliminary Study 911/11/1996)
34	Nam Hsai Chaung	2 miles North West of Mong Wi village, Nam Hkam Township.	-	0.200	17.00	190.00	Preliminary Study
35	Nam Lan	18 miles South-East of Hsipaw, 1/2 mile from West of Hosang village (93-F/7-057993)	-	0.400	35.00	216.00	Preliminary Study (30/9/1994)
36	Hwe Pa Lem	9 miles South-West of Mong Kung. (93-G/6-113114)	4.30	0.600	4.00 (80)	120.00	Preliminary Study (5/9/1993)
37	Char Haw Fall	6 miles South-West of Lauk Kai (93-1/10-680511)	-	0.500	2.50	1050.00	Preliminary Study (1997)
38	Nam Kaung Hsak(Marshihtan falls)	1.2 miles South-West of Kone Kyan. (93-1/9-501672)	-	0.100	1.68	545.00	Preliminary Study (March, 1997)
39	Me Han Chaung	13 miles South of Mong Ton. (/16-765307)	-	0.060	57.00	22.00	Preliminary Study 95/6/1992)
40	Nam Hkan	8 miles East of Mong Hpayak. (102-D/1-090076)	-	0.050	5.00	98.00	Preliminary Study (1992)

Appendix E Hydro Potential (15/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>SHAN STATE</u>							
<u>Under 1.0 MW</u>							
41	Nam Hpaung Chaung	48 miles North-East of Tachileik. (102-D/5-555082)	-	0.400	70.18	174.00	Preliminary Study (Oct, 1997)
42	Nam Wuam Chaung	48 miles North-East of Tachileik. (102-D/5-473084)	-	0.800	118.74	210.00	Preliminary Study (Oct, 1997)
43	Nam Hpakar	29 miles from Kutkaing	-	0.050	50.00	20.00	Preliminary Study (1990)
44	Pacharkalo	His Hsaing Township.	-	0.150	4.00	250.00	Preliminary Study
45	Hotant	8 miles North-West of Nam San. (93-H/9-289359)	-	0.200	7.00	200.00	Preliminary Study (5/4/1991)
46	Htu Chaung	1 mile North-East of Subyaung village, Pekon Township (94-A/ 15-378530)	-	0.500	10.52	175.00	Preliminary Study (2/5/1995)
47	Namhsawnkho Chaung	20 miles South-East of Kyaukme, (G-803968)	38.00	0.750	14.00	240.00	Preliminary Study (27/2/1999)
48	Sempoi	6.5 miles East of Thibaw (H-320119)	50.00	0.020	4.00	40.00	Preliminary Study (25/2/1999)
Total = 48				Total = 14.986			
<u>1.0 MW to 10.0 MW</u>							
1	Kong Nyaung (1)	24 miles from Lashio. (97° - 35' E, 22° - 50' N)	505.00	6.800	210.00	150.00	Commissioned on (1985)
2	Tatkyi Falls	7 miles East of Yat Sauk. (96° - 53' E, 21° - 17' N)	500.00	1.200	670.00	29.50	Commissioned on July (1987)
3	Namyao (Kong Nyaung 2)	14 miles South-West of Lashio.	525.00	4.000	565.00	105.00	Commissioned on April, 1994
4	Kyaington -1 (Nam Wop Chaung)	10 miles South of Kyaington. (99° - 33' E, 21° - 08' N)	10.00	3.000	15.00	1109.00	Commissioned on July, 1994.
5	Kyaukme (Nam Saung Ngau Chaung)	6 miles East of Kyaukme. (97° - 07' E, 22° - 34' N)	69.50	4.000	25.00	485.60	Commissioned on September, 1996
6	Mepan	6 miles North-East of Mong Hsat. (99° - 18' E, 20° - 33' N)	6.00	2.000	7.00	1100.00	Under Construction
7	Hsenwi-1	2 miles from Hsenwi.	12.40	2.000	6.84	1000.00	Preliminary Report
8	Hsenwi-2 (Nampulet Chaung & Hsai Hkao Chaung)	3 miles West of Hsenwi. (93-E/15-865017)	10.55	6.000	50	899.00	Preliminary Report 1991.
9	Mong Mit (Yetagun Chaung)	12 miles South-West of Mong Mit. (96° - 32' E, 23° - 04' N)	18.00	1.300	81.25	240.00	Preliminary Report 1985.
10	Nam Paw Chaung	4 miles South of Muse. (93-E/ 13-795792)	385.00	4.000	882.83	68.90	Preliminary Report 1991.
11	Nam Het	21 miles from Lashio. (97° - 57' E, 22° - 59' N)	37.60	1.000	262.00	300.00	Office Study
12	Nam Wi	1 mile North-West of Mong Wi village, Nam Sam Township. (93-E/6-366368)	-	4.000	441.42	96.50	Preliminary Study 1994
13	Nam Pan Chaung (High Weir Type)	10 mile South-West of Pan Hsan, Wa Region. (93-N/4-899804)	-	5.000	627.09	37.07	Commissioned on April, 1999
14	Nam Hkun Chaung	6 miles South-West of Kyaung Ton. (93-0/12-488680)	-	2.000	-	1100.00	Preliminary Study 1996
15	Kyaing Hkong (Nam Hkat Chaung)	8 miles South-West of Maing Hkat. (93-0/6-291264)	10.48	1.000	12.00	542.00	Preliminary Study 1996.
16	Nam Mawng Chaung	8 mile North-East of Selu. (Wan Has Lo)	-	2.000	-	-	Map Study
17	Nam Hok Chaung	7 miles North-East of Tachileik. (93-P/14-930853)	-	3.000	393.41	150.00	Preliminary Study 1996. (Dam Type)
18	Par Shwe Haw	4 miles North-East of Ma Li Pa(Lauk Kai) village, Kokan Region.	-	1.000, 1.200	20.00, 21.33	1056.00, 971.00	Preliminary Study 1991.
19	Par He Chaung	11 miles South-East of Naungcho. (93-B/12-309880).	-	1.260	44.85	197.00	Preliminary Study 1994.
20	Sa Par Haw	4 miles East of Haleo Kai (Shauk Kai) village, Kokan Region.	-	4.000	70.00	100.00	Preliminary Study
21	Nam Ywon Chaung	3.5 miles North of Mwkmai. (93-H/11-411562)	66.50	1.200	14.83	246.00	Pre-feasibility Report 1995
22	Nam Mehsai	1 mile West of Tachileik (93-P/15-856747).	367.00	8.200	100.00	121.00	Feasibility Report (1992) MEPE+EPDC
23	Nam Hka Chaung	12 miles East of Nam Lan (H-296927)	116.00	1.800	150.00	62.00	Feasibility Report (26/2/1999 MEPE).
Total = 23				Total = 70.160			

Appendix E Hydro Potential (16/16)

Sr.No	Name of Project	Location of Project Site	Catchment Area (sq miles)	Available Power (Installed) MW	Minimum Discharge (Cusec)	Available Head (ft)	Project Status
<u>SHAN STATE</u>							
<u>Above 10.0 MW</u>							
1	Zawgyi (I)	13 miles North of Yat Sauk. (96° - 54' E, 21° -23' N)	529.00	18.00	667.00	400.00	Commissioned on 18th July,1995
2	Zawgyi Dam (Zawgyi II)	26 miles from Bahtu. (96° - 53' E, 23° -19' N)	523.00	12.00	126.00	100.00	Commissioned on October,1998
3	Namteng	4 miles from Wankunlong. (98° - 20' E, 20° -42' N)	-	75.00	750.00	369.00	KTA Report (1953)
4	Shweli	20 miles South-West of Nam Hkam (93-E/10-362445) (97° - 20' E, 23° -41' N)	-	60.00 ~200.00	2470.00	853.00	Preliminary Report
5	Namtu	7 miles from Namtu. (97° - 20' E, 22° -14' N)	2400.00	36.00	1385.00	130.00	Preliminary Report (1963)
6	Pyauungsho	32 miles from Naungkhio. (96° - 54' E, 21° -58' N)	9820.00	60.00	2660.00	188.00	Preliminary Report (1996) CHINA
7	Heho	2.5 miles from Heho. (96° - 52' E, 20° -42' N)	954.00	12.00	32.00	480.00	Interim Report (1978)
8	Nam Kok	36 miles South of Mong Hsat, 2 miles from Myanmar & Thai border line.	-	54.00	10590.00	150.00	Feasibility Study (Consortium + MEPE)
9	Nam Long	27 miles North East of Zawgyi II Dam. (° - 'E, ° - 'N)	1676.00	177.00	1621.00	1115.00	Preliminary Study, NIPPON KOEI
10	Thanlwin (Tasan)	(98° - 40' E, 20° -20' N)	-	3600.00	2700.00	533.00	Preliminary Study (Dam Type)
11	Thanlwin (Nam Naing)	(98° - 45' E, 22° -10' N)	74518.00	3200.00	89699.00	574.00	Preliminary Study (Dam Type) NIPPON KOEI
12	Nam Pawn	45 miles North of Baluchaung Power Station II. (° - 'E, ° - 'N)	1244.00	170.00	1151.00	1480.00	Preliminary Study (Dam Type)
Total = 12				Total = 7614.00			
Total = 86 (<1 - > 10 MW)				Total = 7699.146 MW (<1 MW ->10MW)			