ENERGY DEVELOPMENT AND POLICY ISSUES IN PAPUA NEW GUINEA

A Presentation to JICA on Energy Development and Policy Issues in Papua New Guinea

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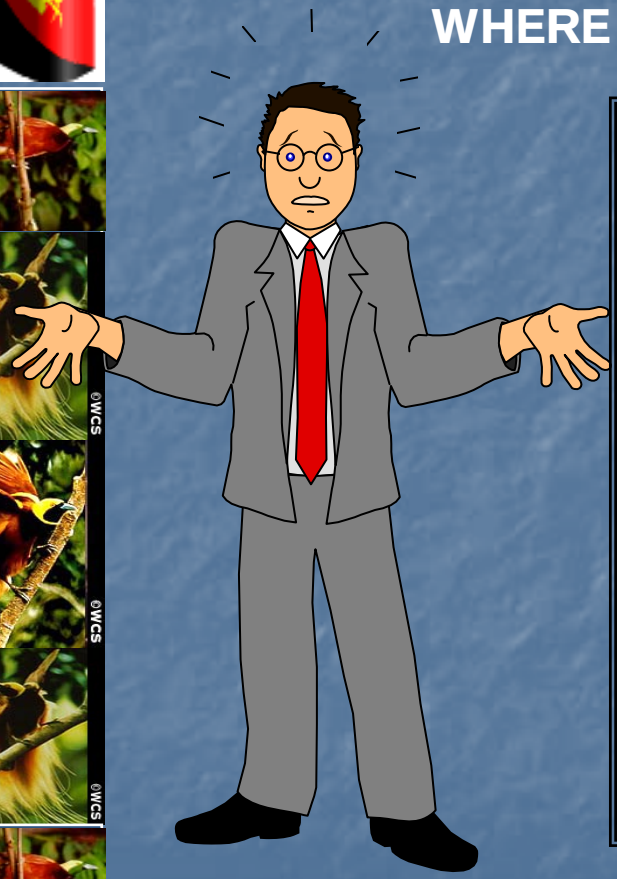
- Location of PNG
- Energy Development in PNG
- Petroleum Sector (Non-Renewable)
- Energy Sector(Non Renewable)

INTRODUCTION

WHERE IS PAPUA NEW GUINEA ?



Energy Development in PNG

DEPARTMENT OF PETROLEUM AND ENERGY
(A REGULATORY BODY)

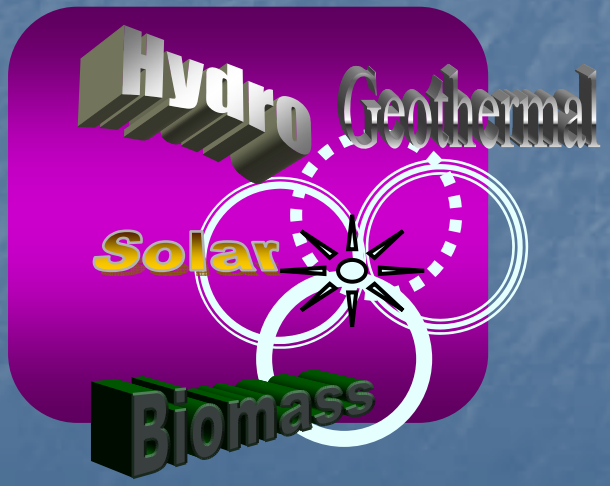
PETROLEUM DIVISION

NON-RENEWABLE

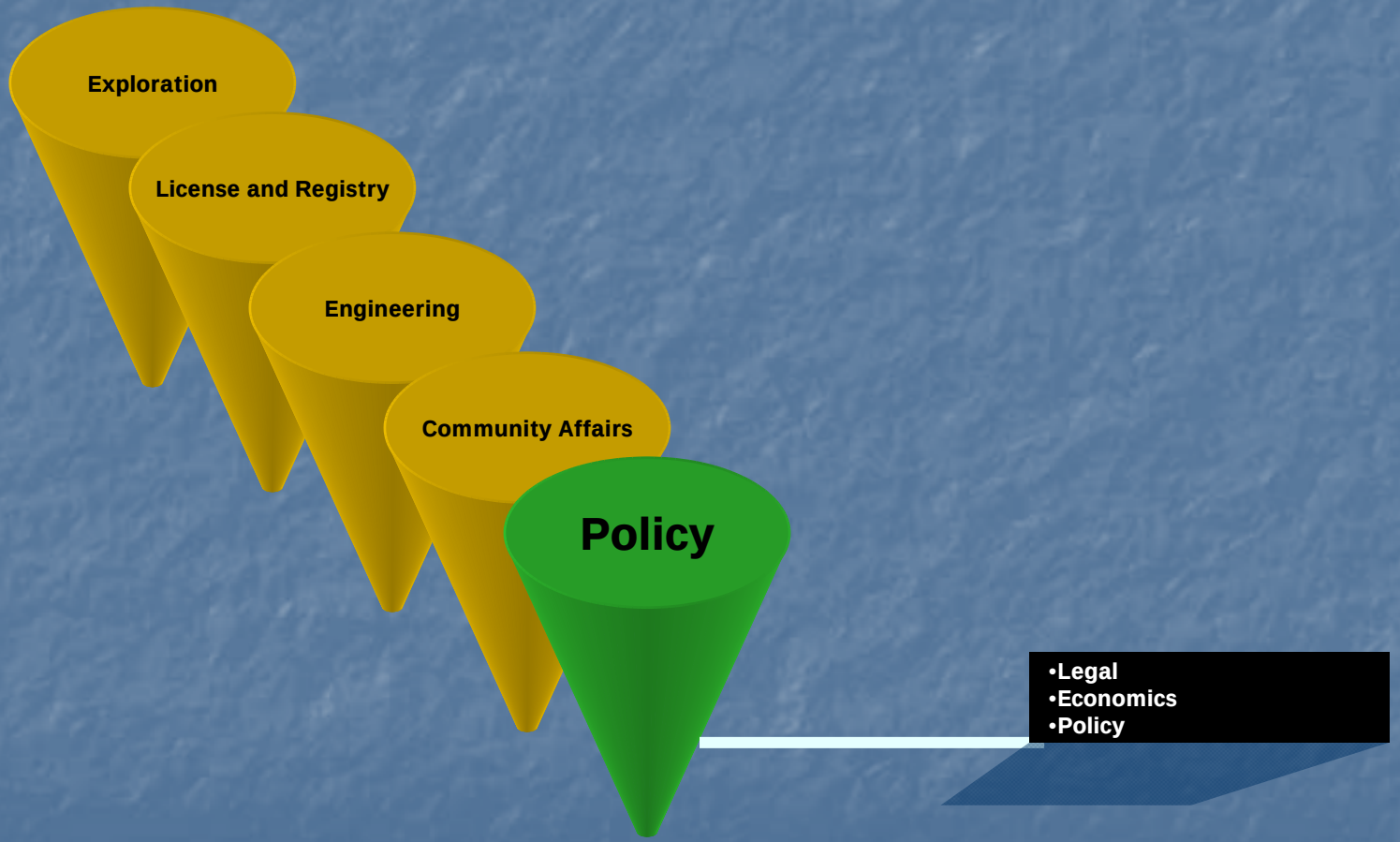
UPSTREAM ACTIVITIES
- Exploration
- Prodution
- Processing and
- Export

ENERGY DIVISION

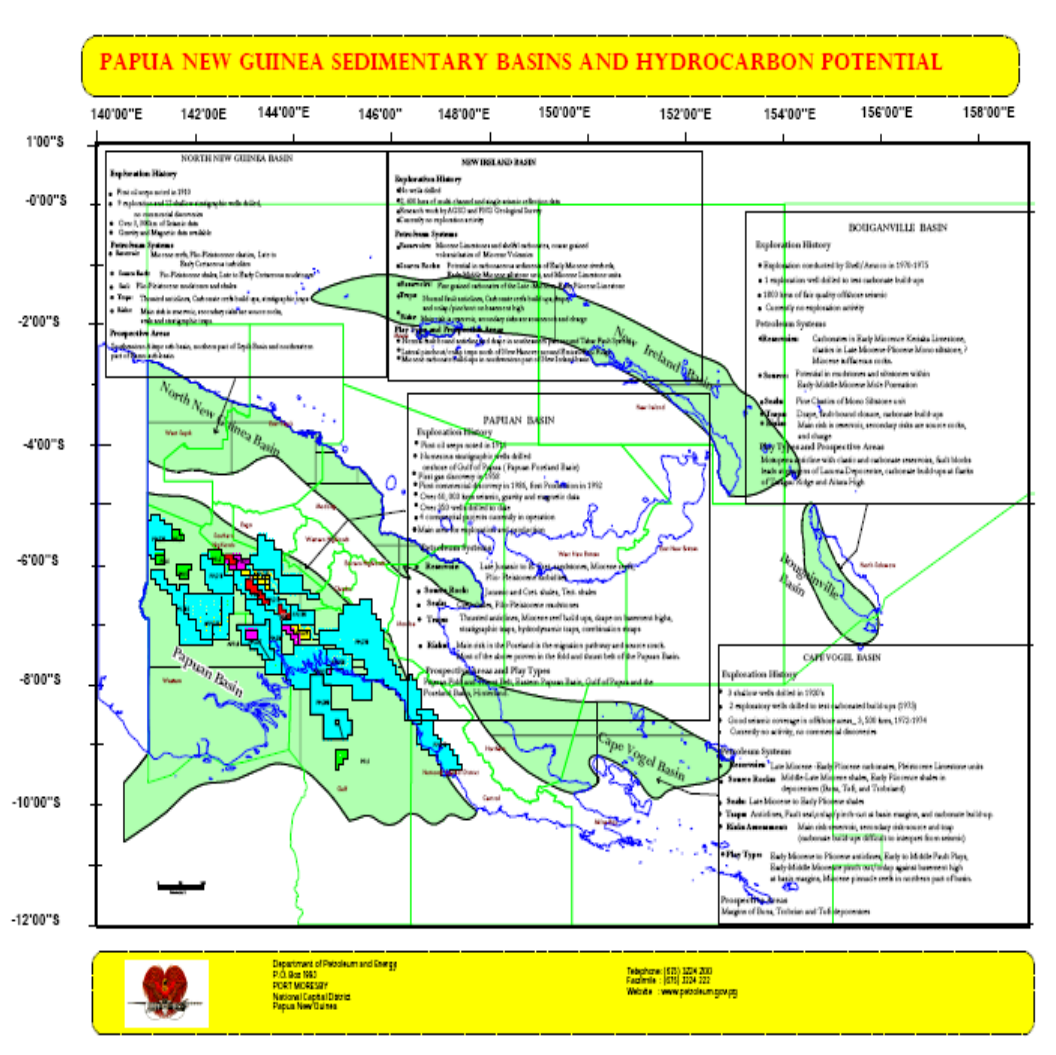
RENEWABLE



ROLE OF THE PETROLEUM DIVISION

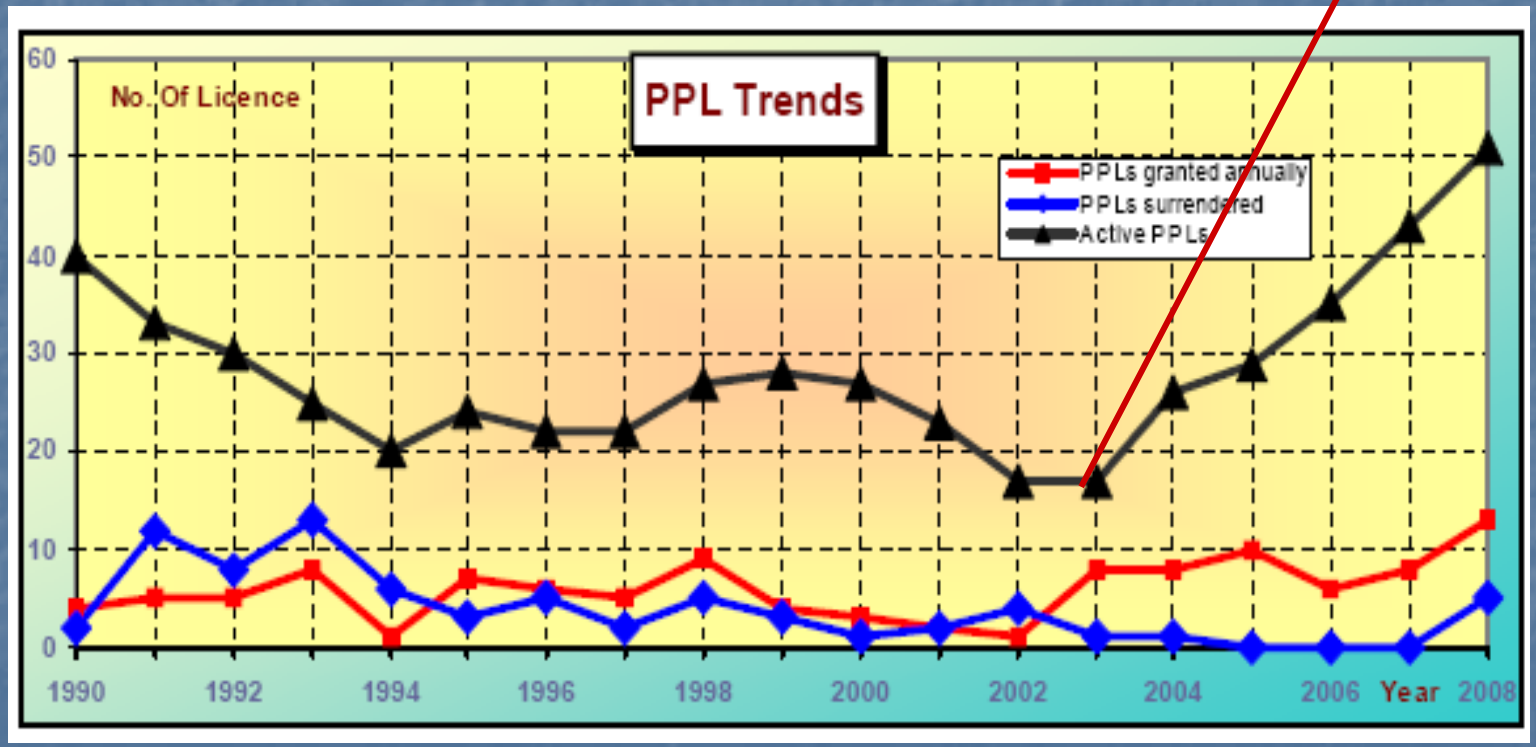


PETROLEUM STATISTICS



- 5 Sedimentary Basins
- Only 1 Basin(Papuan Basin) very Prospective
- Pioneer Explorations in 1950's,first commercial decovery and production in 1991
- More than 200 wells drilled, only 5 producing fields
- Oil production steady ily declining in 2001
- New fiscal incentives introduced in 2003 to rejuvenate activites
- PNG has more natural gas reserves(15TCF) undeveloped
- First oil refinery(32500bopd) commissioned in 2004. Meet 60% percent of local demand
- PNG's first LNG Project(6.3MTA)
- costing US 14 billion to sell first gas to markets in Asia, by 2014

Impact of 2003 Fiscal incentive Reduction of APT from 40% to 30%.



Oil Reserves

Field (s)	Category	OIIP (MSTBO)	Recovery Factor	Ultimate Recovery (MSTBO)	Cum. Oil Prod. as of Dec 2008 (MSTBO)	Remaining Reserves (MSTBO)
Kutubu	1P		0.539	337,145	307,188	29,957
	2P		0.558	348,640		41,452
	3P	624,973	0.585	365,482		58,294
Moran	1P	185,853	0.458	85,080	49,708	35,372
	2P	227,046	0.485	110,008		60,300
	3P	345,024	0.377	130,132		80,424
Gobe Main	1P	83,500	0.331	27,624	26,090	1,534
	2P		0.338	28,211		2,121
	3P		0.365	30,436		4,346
SE Gobe	1P		0.255	41,669	36,946	4,723
	2P		0.266	43,519		6,573
	3P	163,613	0.279	45,609		8,663
SE Mananda	1P		0.104	2,904	1,735	1,169
	2P		0.124	3,469		1,734
	3P		0.149	4,170		2,435

GAS AND CONDENSATES RESERVES

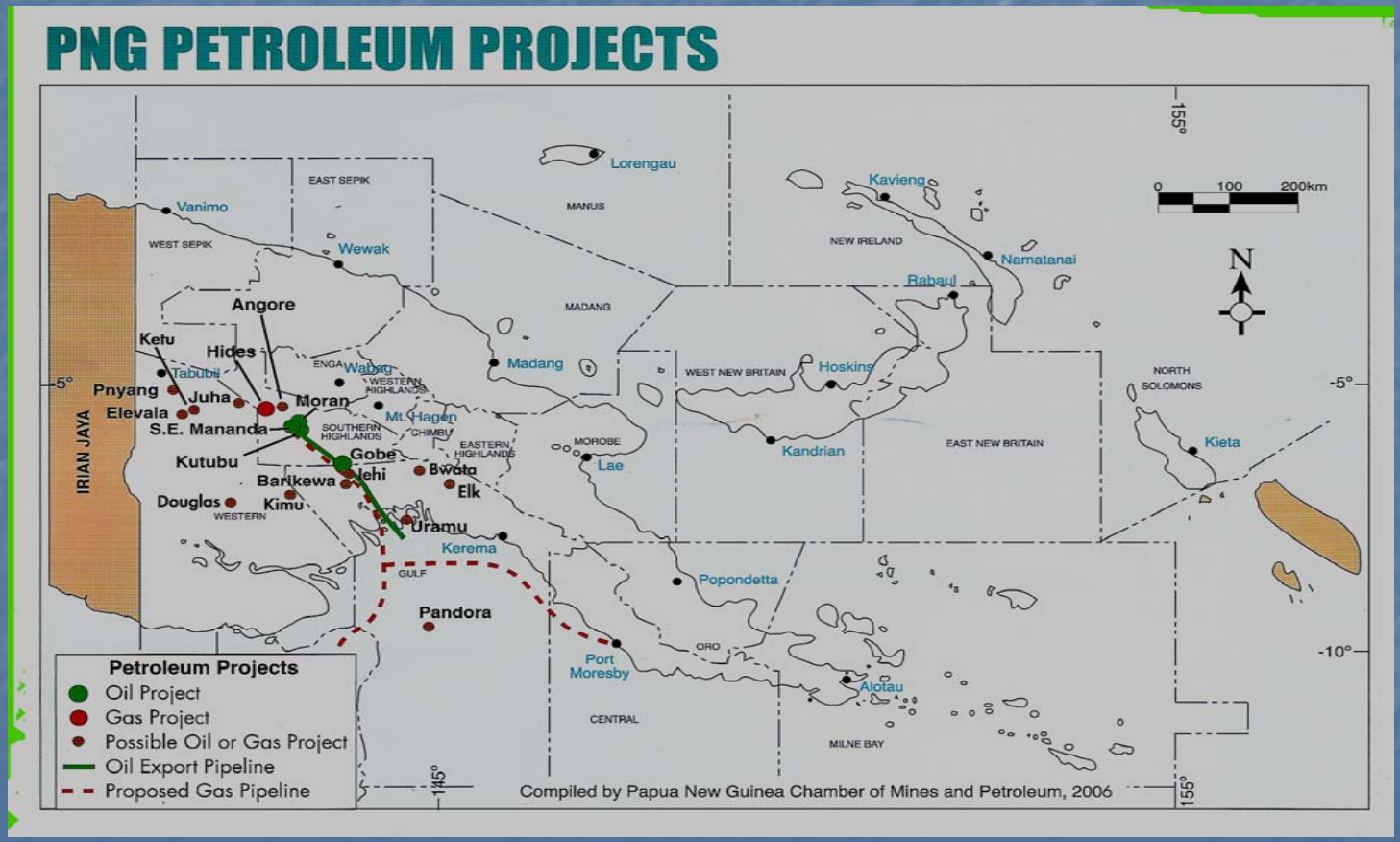
Field	Type	STOIIP	STCIIP	GIIP	Gas Reserves			Condensate Reserves		
					1P	2P	3P	1P	2P	3P
		(MMBO)	(MMBO)	(BCF)	(BCF)	(BCF)	(BCF)	(MMB)	(MMB)	(MMB)
Pandora	G	-	-	1,110	511	644	893	-	-	-
Pasca	G	-	29	435	-	160	300	-	6	6
Uranu	G	-	-	178	-	92	122	-	-	-
Kimu	G	-	-	2,000	-	3	1,000	-	-	-
Elevala	G/C	-	35	611	-	433	526	-	3	15
Ketu	G/C	-	-	704	-	140	585	-	-	16
Pnyang	G/C	-	23	343	-	1160	2554	-	9	16
Stanley	G/C	-	4.2	144	5	44	72	0.2	1.5	2.5
Douglas	G/C	-	30	2,000	400	800	1,500	3.5	7.5	15
Barikewa	G	-	-	759	-	605	692	-	-	-
Iehi	G	-	-	104	-	11	72	-	-	-
Bwata	G/C	-	-	139	48	66	128	-	-	-
Gobe*	-	-	-	-	-	-	-	-	-	-
Kutubu*	-	-	-	-	-	-	-	-	-	-
Moran*	-	-	-	-	-	-	-	-	-	-
SE Mananda	O/G	-	-	-	-	-	-	-	-	-
Angore*	G/C	-	100	6,951	-	3,328	5,881	-	5	33
Hides*	G/C	-	182	9,584	3,814	5,371	7,513	57	101	300
Juha*	G/C	-	269	5,293	638	1,536	3,805	32	38	90
Total			672.2	30,355	5,416	14,393	25,643	92.7	171	493.5

Total Oil and Gas Productions

Table 4. The History of Oil & Gas Production in PNG

YEARLY OIL AND GAS PRODUCTION SINCE 1991																
Year (s)	KUTUBU		GOBE MAIN		SE GOBE		MORAN		NW MORAN		SE MANANDA		TOTAL PRODUCTION			
	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil Produced	Cumulative Oil	Gas	Cumulative Gas
	MMbbl	MMscf	MMbbl	MMscf	MMbbl	MMscf	MMbbl	MMscf	MMbbl	MMscf	MMbbl	MMscf	MMbbl	MMbbl	MMscf	BCF
1991	0.068	0.08											0.068	0.068	0.085	0.000
1992	19.31	16.95											19.314	19.382	16.952	0.017
1993	45.88	49.06											45.884	65.266	49.060	0.066
1994	44.08	58.67											44.078	109.344	58.666	0.125
1995	36.34	61.18											36.344	145.688	61.185	0.186
1996	38.64	65.34											38.641	184.329	65.344	0.251
1997	27.59	66.96											27.592	211.921	66.960	0.318
1998	18.93	69.56	3.57	8.57	3.59	6.72	3.45	6.40					29.533	241.455	91.253	0.410
1999	15.21	77.24	6.11	12.33	6.40	15.03	4.30	8.52					32.020	273.475	113.125	0.523
2000	11.99	77.53	5.50	11.67	4.83	16.11	3.12	7.05					25.435	298.910	112.354	0.635
2001	9.61	75.28	2.64	11.87	4.55	13.28	4.24	9.49					21.035	319.945	109.924	0.745
2002	7.76	77.90	1.96	11.49	3.70	12.79	3.14	8.12					16.563	336.508	110.296	0.855
2003	7.36	82.91	1.77	11.11	3.40	18.88	4.92	15.43					17.447	353.955	128.335	0.984
2004	6.55	84.79	1.45	12.13	2.26	21.38	4.87	17.90					15.134	369.089	136.195	1.120
2005	7.09	86.48	1.11	13.41	2.68	22.47	6.04	17.12	0.24	0.29			17.166	386.255	139.773	1.260
2006	5.63	80.52	1.07	10.75	2.82	23.91	6.82	19.32	0.68	0.93	0.75	2.79	17.751	404.006	138.226	1.398
2007	4.88	74.08	0.91	15.58	2.39	25.47	7.15	28.17	0.55	0.69	0.95	5.32	16.814	420.820	149.304	1.547
2008	5.43	75.68	0.73	14.14	1.98	29.43	5.54	26.86	0.87	1.34	0.52	3.91	15.065	435.885	159.459	1.706
Total	**312.34**	**1,180.21**	**26.80**	**133.04**	**38.59**	**205.48**	**53.60**	**164.39**	**2.33**	**3.25**	**2.22**	**12.02**	**435.88**	**4,576.30**	**1,706.49**	**12.14**

Distribution Petroleum Activities



Policies and Measures

MAIN LEGISLATIONS

- **The Oil and Gas Act 1998**

  Spells out regulatory instruments for oil and gas development activities such as: licensing, exploration,development,processing,storage,transportation,sale of products, direct monetary benefits to State, Oil companies and resource area landowners and non monetary benefits such as infrastructure development,training,employment,business development and community participation. Also sets out compliance mechanisms relating to Health, Safety, Security and Environmental Protection and, project monitoring and reporting.

- **The Oil and Gas Regulation 2002**

  Provides the specifics or details of compliance approaches required to comply with requiremnts of individual instruments stipulated in the Act. Its is a collection of Health, Safety, Security ,Environmental, Engineering, Mechanical, Geological and Electrical guidelines purposely for project operators to follow to ensures safe projects operations. It is a major complimentary legislation to the Act.

Policies and Measures.cont...

- Supporting National Legislations main)
- The Environmental Act 2000
  - Provides specific regulatory instruments for environmental protection within the oil and gas industry. This includes Environmental Management Plans outlining impacts and measures from petroleum development activities such as exploration, petroleum facility construction,hydrocabon wastes discharges and disposals and general environmental disturbances. Also sets outs requirements for environmental permits, environmental policies, environmental monitoring and reporting and non-compliance orders.
- The Environmental Regulation 2000
  - Provides the specifics or details of compliance approaches required to comply with requiremnts of individual instruments stipulated in the Act. .

Policies and Measures.cont..

- Other Supporting National Legislations
  - Industrial Health, Safety and Welfare Act 1975
  - Marine Pollution (Bill) Act
  - Physical Planning 1989
  - Lands Act 1996
  - Land Disputes Settlement Act (chapter 45)
  - Companies Act 1997
  - Income Tax Act 1959
  - Organic Law on Provincial and Local Level Government
  - Public Finance Management Act 1995
  - Arbitration Act

Policies and Measures.cont...

- MAIN POLICY INTRUMENTS
- The Oil and Gas Regulation 2002
- The Environmental Regulation 2000
- Petroleum Policy Handbook
- Pipelines Policy
- Gas Commercialization Policy
- Landowners Management Policy

POLICY ISSUES

- **WHAT POLICIES ARE LACKING (Policy Gaps)**

GAS FLARING POLICY

OFFSHORE OPERATIONS POLICY

FIELD ABANDONMENT POLICY

COMMUNITY EXPECTATIONS POLICY

LOCAL CONTENT POLICY

MARGINAL FIELDS POLICY

Policy Issues: Challenges

- Major Challenges and Difficulties

1. Lack of Capacity

   Lack of Capacity interms of human and physical resources to formulate and implement relevant policies

2. Management Support and Commitment

   Management gives little attention and support towards formulation and implementation of key policies

3. Training and Capacity Building
4. Policy Analysis
5. Changes in Industry

Policy Issues-Challenges

- From Participant
- Develop a Marginal Field Policy

  Assigned to complete a draft marginal field policy this month. Access to information is a difficulty, no experience in marginal fields/new area, short timeframe to accomplish a policy, need resources(eg internet and reading references on marginal fields), getting appropriate consultation and getting the correct format and writing standard

- Assist with formulation of Gas Flaring Policy and National Content Policy

  Similar difficulties and challenges outlined above

Expectations

- What help do I hope to get from this Training?
  - Experinces from JICA and Participants
  - References useful materials,websites,books etc)
  - Policy formulation and implementation guidelines/skills
  - Policy evaluation and needs assesment skills

THANKYOU

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