Study Group 1.3 Proposal: Gas Rent and Mineral Property Rights

1st WOC 1 Meeting
Sapporo, Japan
25-28 September 2012

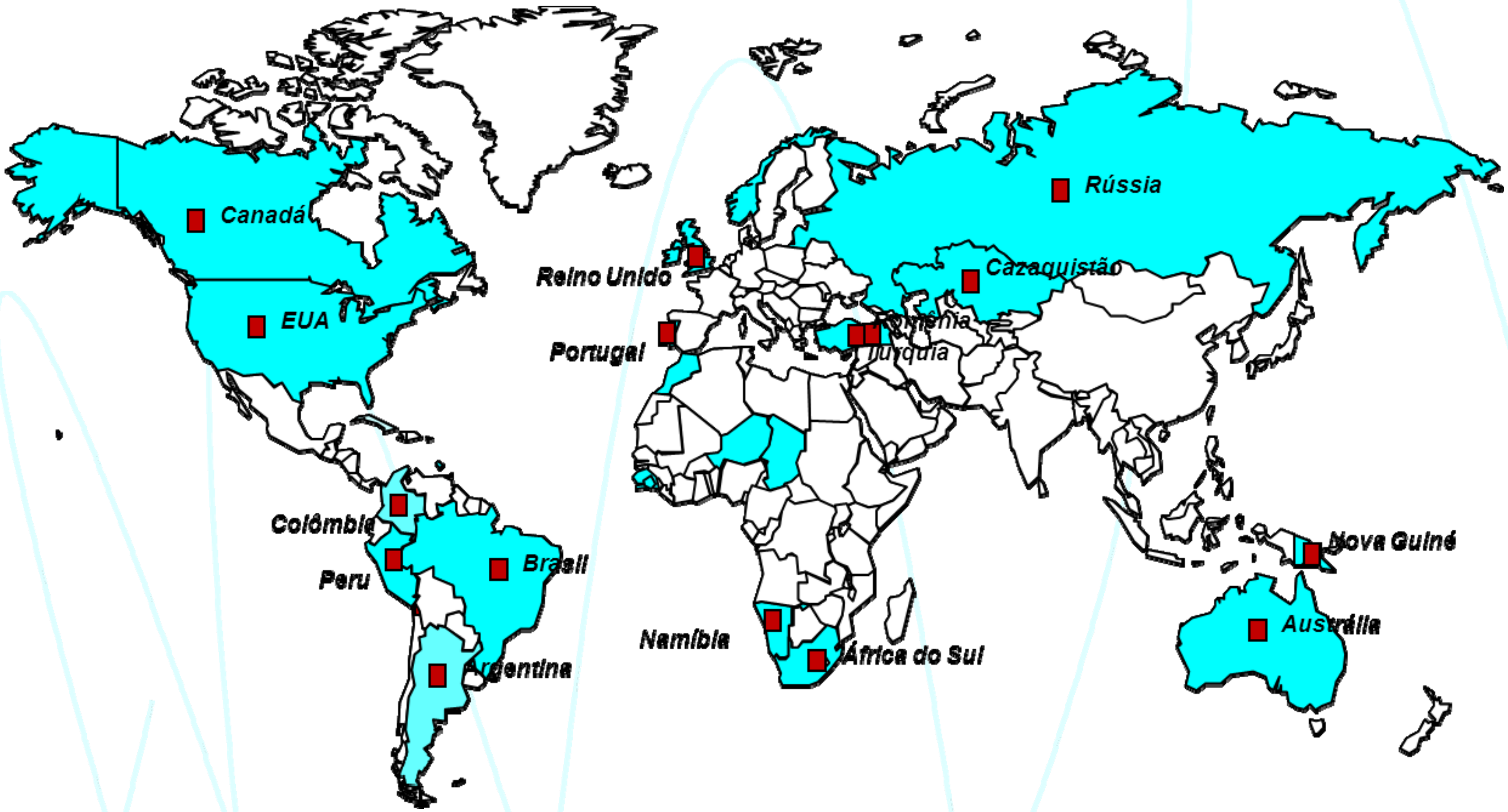
Gas Rent and Mineral Property Rights

- ***Contractual models***
  - *Concession of mineral rights*
  - *Production sharing contracts*
  - *Service contracts*
- ***Fiscal instruments***
  - *Royalties*
  - *Taxes*
  - *Signature and production bonuses, inland revenue and other instruments*
- ***Typical investment cycles***
- ***Case studies***
  - *Angola*
  - *Australia*
  - *United States*
  - *Norway*
  - *United Kingdom*
  - *Brazil*
- ***Conclusions and next steps***

Concession contracts

- *Investor sells the production, deduct costs, taxes and retains what is left*
- *Mineral rights granted exclusively to the winner of a bidding process to explore, develop and sell the production*
- *Supplementary obligations may include supply conditions to the local market, fulfillment of environmental issues, devolution of areas and reversion of assets for a price*
- *High risk, high compensation required*
- *Licenses (UK, Norway) or leases are possible (USA)*

Concession contracts



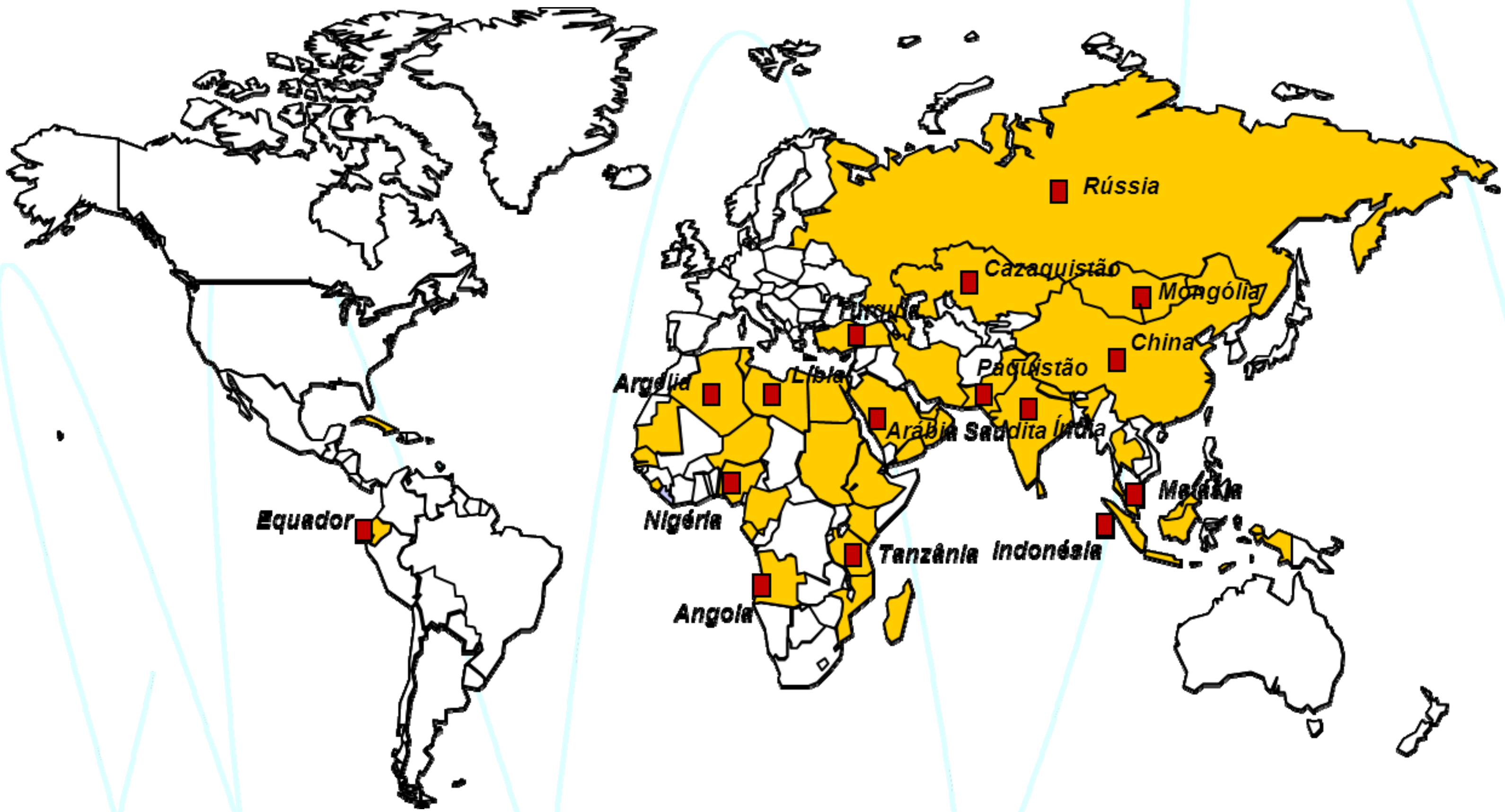
(Pereira, 2010)

Production sharing

- ***Mineral rights granted exclusively to the winner of a bidding process to explore, develop and sell part of the production***
- ***Investor receives part of the oil produced as a compensation for its risks, after cost compensation***
- ***National oil company may have an administrative role***
- ***Winner must execute working programme***

PROFIT SHARING	
"R" Factor	Contractor's Profit Share (%)
R ≤ 1.0	50
1.0 < R ≤ 1.5	45
1.5 < R ≤ 2.0	40
2.0 < R < 2.25	30
2.25 < R < 2.5	20
R > 2.5	15
R is the ratio of cumulative revenue to cumulative expenditures.	

Production sharing



(Pereira, 2010)

Service contracts

- ***Investor receives a fee for exploratory and productive services (usually a certain amount of the production)***
- ***Mineral rights are retained by the local government***

Service contracts

(Pereira, 2010)

Hybrid models

(Pereira, 2010)

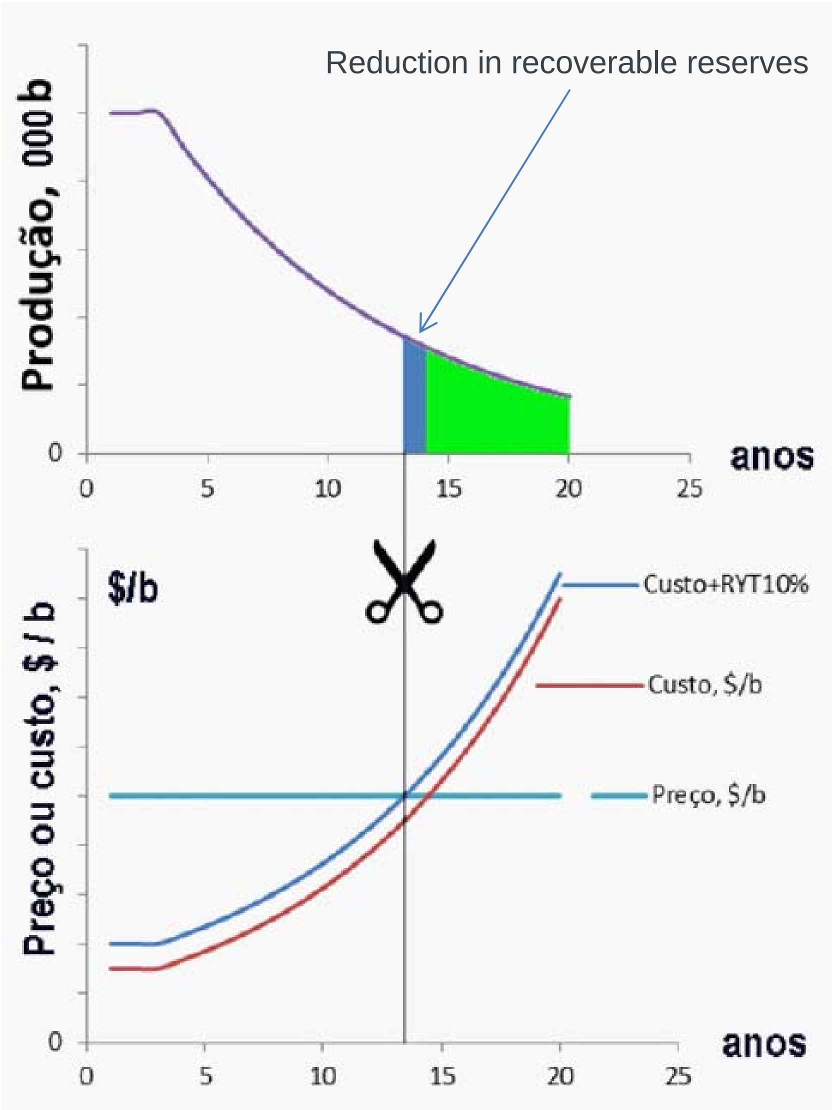
Fiscal instruments

- *Royalties*
- *Bonuses*
- *Production sharing*
- *Income tax*
- *Resource rent*
- *Capital allowances*
- *Investment incentives*

Royalties

- *Most traditional instrument*
- *Nature: Usage-based payments made by one party (the "licensee") to another (the "licensor") for the right to ongoing use of an asset (Wikipedia)*
- *Attractive to governments because it anticipates rent*
- *Criticism: Reservoir abandonment*

Royalties

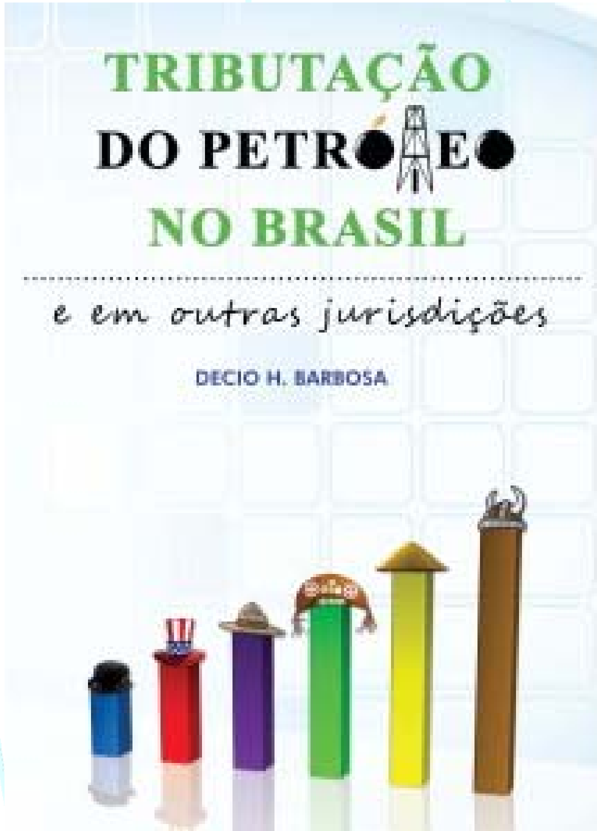


- ***Production halts when marginal cost reaches market price***
- ***Royalties may cause a predatory exploitation of natural resources***

Décio Barbosa, Royalties: Use com Moderação *in* Monitor IBP, January 2011, Year III, Number 1, pp. 2-3.

Case study

- *Recoverable reserves of 850 million barrels*
- *Exploration in two years*
- *Exploitation in five years*
- *In production for 20 years*
- *20 production wells*
- *10 injection wells*
- *FPSO 200 kbpd*
- *Rig leasing at US$ 500,000/day*
- *Decline rate of 10% p.a.*
- *Well cost US$ 100 million*



Case study

Year	Geology and geophysics	Exploratory and delimitation wells	Production wells	Submarine items	FPSO	Project management	Capex	Opex	Decommissioning	Production (bbl/d)	Revenues (MUS$)	EBITDA (MUS$)
1	20						20					-20
2	50						50					-50
3		200					200					-200
4		200					200					-200
5			50	100	100	100	350					-350
6			200	400	300	100	1000					-1000
7			370	400	300	100	1170					-1170
8			370	400	300	100	1170	200		32	3200	1830
9			370				370	200		44	4400	3830
10			370				370	200		55	5500	4930
11			370				370	200		66	6600	6030
12			370				370	200		75	7500	6930
13			130				130	200		73	7300	6970
14							0	200		65	6500	6300
15							0	200		59	5900	5700
16							0	200		53	5300	5100
17							0	200		48	4800	4600
18							0	190		43	4300	4110
19							0	181		39	3900	3719
20							0	171		35	3500	3329
21							0	163		31	3100	2937
22							0	155		28	2800	2645
23							0	147		25	2500	2353
24							0	140		23	2300	2160
25							0	133		21	2100	1967
26							0	126		18	1800	1674
27							0	120	500	17	1700	1080
Totals	70	400	2600	1300	1000	400	5770	3526	500	850	85000	75204
	Petroleum	100	US$/bbl									

Country analyses

- *United Kingdom*
- *Norway*
- *Australia (tbd)*
- *United States (tbd)*
- *Brazil (tbd)*
- *Angola (tbd)*
- *Other countries (tbd)*

United Kingdom

- *Corporation tax 30% (ring fence rate for O&G E&P)*
- *Supplementary charge rate now at 32%*
- *Petroleum revenue tax discontinued in new areas*
- *Capital allowances*
  - *Accelerated depreciation*
  - *Immediate write-off for exploration costs*
- *Investment incentives*
  - *Losses can be carried forward indefinitely*
  - *R&D incentive*

United Kingdom

Year	Geology and geophysics (MUS$)	Exploratory and delimitation wells (MUS$)	Production wells (MUS$)	Submarine items (MUS$)	FPSO (MUS$)	Project management (MUS$)	Capex (MUS$)	Opex (MUS$)	Decommissioning (MUS$)	Production (Mbbl)	Revenues (MUS$)	EBITDA (MUS$)	Depreciation (MUS$)	Rent from taxes (MUS$)	Net cash flow (MUS$)	Present value of rent (MUS$)	Present value of net cash (MUS$)
1	20						20					-20			-20		-20
2	50						50					-50			-50		-45
3		200					200					-200			-200		-165
4		200					200					-200			-200		-150
5			50	100	100	100	350					-350			-350		-239
6			200	400	300	100	1.000					-1.000			-1.000		-621
7			370	400	300	100	1.170					-1.170			-1.170		-660
8			370	400	300	100	1.170	200		32	3.200	1.830	4.160		1.830		939
9			370				370	200		44	4.400	3.830	370	1.655	2.175	772	1.014
10			370				370	200		55	5.500	4.930	370	3.057	1.873	1.296	795
11			370				370	200		66	6.600	6.030	370	3.739	2.291	1.441	883
12			370				370	200		75	7.500	6.930	370	4.297	2.633	1.506	923
13			130				130	200		73	7.300	6.970	130	4.321	2.649	1.377	844
14							0	200		65	6.500	6.300		3.906	2.394	1.131	693
15							0	200		59	5.900	5.700		3.534	2.166	931	570
16							0	200		53	5.300	5.100		3.162	1.938	757	464
17							0	200		48	4.800	4.600		2.852	1.748	621	380
18							0	190		43	4.300	4.110		2.548	1.562	504	309
19							0	181		39	3.900	3.719		2.306	1.413	415	254
20							0	171		35	3.500	3.329		2.064	1.265	337	207
21							0	163		31	3.100	2.937		1.821	1.116	271	166
22							0	155		28	2.800	2.645		1.640	1.005	222	136
23							0	147		25	2.500	2.353		1.459	894	179	110
24							0	140		23	2.300	2.160		1.339	821	150	92
25							0	133		21	2.100	1.967		1.220	747	124	76
26							0	126		18	1.800	1.674		1.038	636	96	59
27							0	120	500	17	1.700	1.080		980	600	82	50
Totals	70	400	2.600	1.300	1.000	400	5.770	3.526	500	850	85.000	75.204	5.770	46.936	28.768	12.212	7.063

United Kingdom

Conclusions

- *Combined taxes recently raised from 50% to 62%, thereby increasing the government take in the same proportion, approximately*
- *Because E&P costs are rising, conditions are less attractive for upstream investors*

Norway

- ***No royalties, bonuses or production sharing***
- ***Income tax of 28%***
- ***Additional special O&G upstream tax of 50%***
  - ***Applies to the Norwegian Continental Shelf and onshore areas***
  - ***Cannot be deducted for purposes of income tax***
- ***Capital allowances***
  - ***Offshore investments depreciated linearly over six years***
  - ***Uplift of 30% applies to the special O&G tax***
    - ***7,5% per year in four years***
- ***Investment incentives***
  - ***Losses can be carried forward indefinitely with interest rates nominated by the Ministry of Finances (1.9% in 2011)***
- ***No ring fencing***

Norway

Depreciation (MUS$)	Depreciation uplift (MUS$)	Uplifted depreciation (MUS$)	Rent from income tax (MUS%)	Rent from special O&G tax (MUS$)	Total tax rent (MUS$)	Net cash flow (MUS$)	Present value of net rate (MUS$)	Present value of net cash (MUS$)
						-20		-20
						-50		-45
						-200		-165
						-200		-150
						-350		-239
						-1.000		-621
						-1.170		-660
693	1.040	1.733	646	633	1.279	551	656	283
755	1.133	1.888	965	1.156	2.121	1.709	989	797
817	1.225	2.042	1.255	1.629	2.885	2.046	1.223	867
878	1.318	2.196	1.546	2.102	3.648	2.382	1.407	918
940	370	1.310	1.781	2.995	4.776	2.154	1.674	755
962	310	1.272	1.719	2.914	4.633	2.337	1.476	745
268	218	486	1.689	2.907	4.596	1.704	1.331	494
207	125	332	1.538	2.684	4.222	1.478	1.112	389
145	33	178	1.387	2.461	3.849	1.251	921	300
83		83	1.265	2.258	3.523	1.077	767	234
22		22	1.145	2.044	3.189	921	631	182
			1.041	1.860	2.901	818	522	147
			932	1.665	2.597	732	425	120
			822	1.469	2.291	646	341	96
			741	1.323	2.063	582	279	79
			659	1.177	1.835	518	225	64
			605	1.080	1.685	475	188	53
			551	984	1.534	433	156	44
			469	837	1.306	368	121	34
			442	790	1.232	348	103	29
5.770	5.770	11.540	21.197	34.967	56.164	19.540	14.547	4.728

Norway

- ***Conclusions***
  - ***Government take is probably one of the highest in the world, around 75%, in spite of the allowances offered to investors (depreciation uplift and forwarding of losses with interest)***
  - ***Government take is even higher when direct participation in NOC is considered (e.g. shares and dividends)***

Possible theses

- ***Use of royalties may induce premature abandonment of reservoirs, but improper use of other fiscal instruments must also be highlighted as opposite of best practices***
- ***As new O&G resources are more expensive to develop and renewable energies still have a long way to grow, governments must carefully balance their fiscal instruments to achieve best results***
- ***Gas is not oil, so specific upstream policies could be developed to take advantage of its environmental benefits***

Next steps

- ***Fiscal instruments***
  - ***Deepen the analysis for royalties***
  - ***Examine other fiscal instruments***

- ***Highlight best bidding practices and business models***

Thank you!