

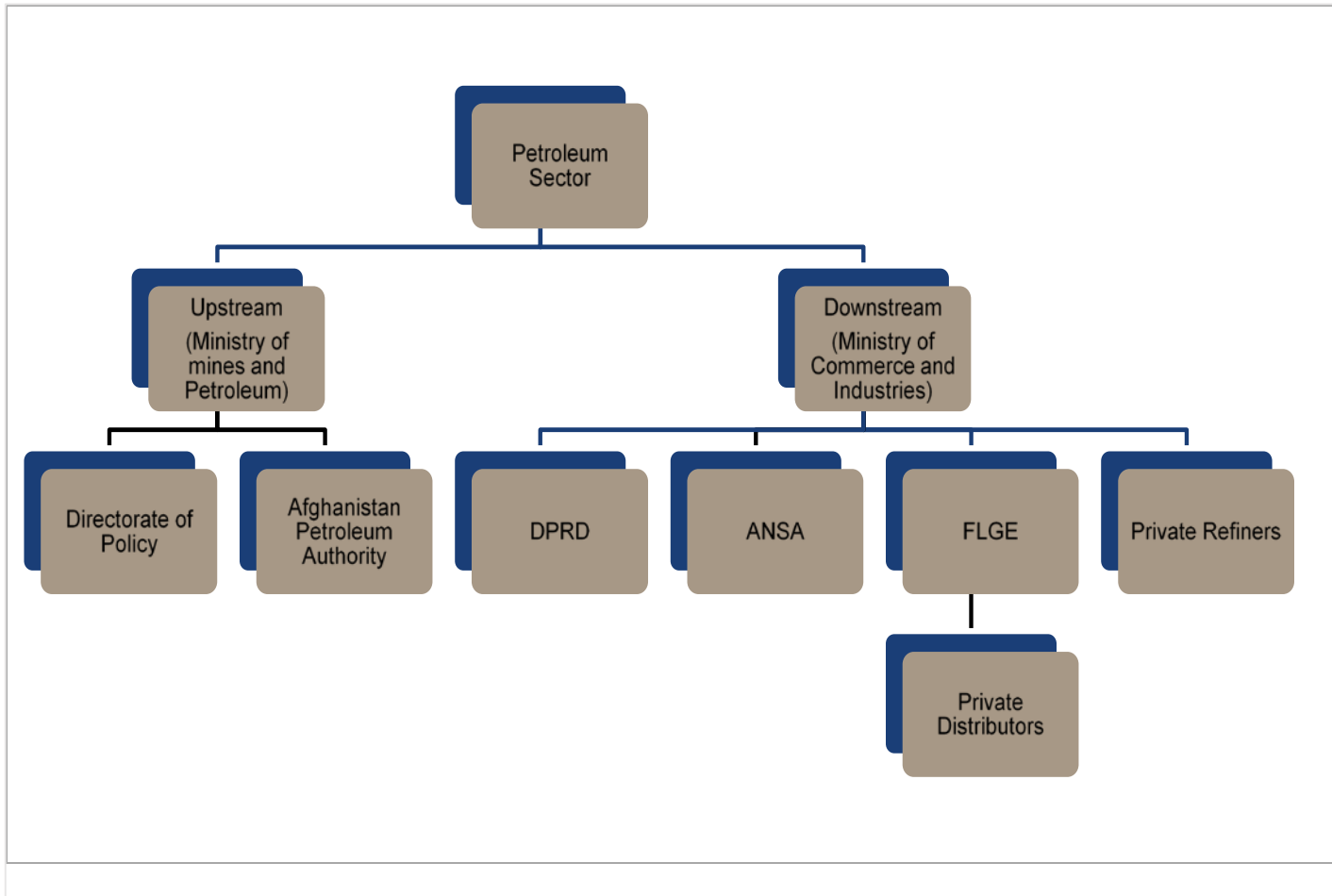
SAARC Dissemination Workshop for the Study on “Promotion of the trans-border business of crude oil and POL products in SAARC member states”

Presentation 2: Assessment of Crude and POL Business in SMS

Presenter: CRISIL Research

Afghanistan: Institutional Framework

Hydrocarbon institutional framework, Afghanistan



- The Ministry of Mines and Petroleum (MOMP), Afghanistan, is the overarching body responsible for developing policies, attracting investment and regulating the upstream oil and gas sector in Afghanistan.
- The Directorate of Policy under MOMP is responsible for developing policies to govern and regulate the oil and gas and mining sectors. It also oversees the implementation of these policies and is responsible for maintaining data relating to crude oil and petroleum products.
- Afghanistan Petroleum Authority (APA) was established under MOMP in 2013 to undertake project management, governance, regulation and supervision of the country's oil and gas sector. It primarily serves as the technical arm of MOMP.
- The Ministry of Commerce and Industries, Afghanistan, with its Downstream Petroleum Regulation Department (DPRD) and FLGE undertakes the downstream activities in oil and gas sector including demand assessment, imports and pricing. It also represents the government for entering into oil and gas-related agreements.
- FLGE is the key body for downstream segment of oil and gas sector in Afghanistan responsible for importing oil and gas, issuing import and distribution licensing, managing storage and controlling the prices.
- The Afghanistan National Standard Authority (ANSA) is an independent body and is responsible for quality control of petroleum products and drafting environmental safety laws.

Afghanistan: Policy and regulatory framework

1 Policy and regulatory framework for exploration and production

The Hydrocarbons Law, 2014, developed by the Ministry of Mines and Petroleum, governs the hydrocarbon exploration in Afghanistan. The key provisions under this law include:

- All hydrocarbons located on or under the territory of Afghanistan shall be the exclusive property of the state.
- Hydrocarbons operations within the territory of Afghanistan shall be conducted with the permission of the state. A person may carry out hydrocarbons operations, pursuant to a license granted by the Ministry of Mines and Petroleum.
- The Ministry of Mines and Petroleum shall be the competent authority for granting a license for hydrocarbons operations provided for in this law.

An Inter-Ministerial Commission, established under this law, shall be responsible for the regulation of affairs related to the monitoring, supervision, granting and rejection of Hydrocarbons Operations Contracts

2 Policy framework for pricing of POL products

The Ministry of Commerce and industries, with its bodies DPRD and FLGE, regulates and controls the prices of POL products in Afghanistan. However, no governing policy could be ascertained for this

3 Policy framework for alternative fuels

- Currently, Afghanistan doesn't have any specific policy on alternative fuels pertaining to the usage of POL products. It, however, has a policy on promoting renewable energy, which would impact diesel demand from power sector.
- The National Renewable Energy Policy (NREP), 2014, aims to provide a thrust and direction to the renewable energy sector, and is aligned to the Power Sector Master Plan (PSMP) and the Afghanistan National Development Strategy (ANDS), to set a framework for deployment and growth of renewable energy. The policy sets a target for deploying 350-450 MW of renewable energy capacity by 2032, which is equivalent to 10% of the total energy mix of 3500-4500 MW, as per the targets of PSMP. To achieve its targets, the NREP supports the involvement of the private sector, the government and non-government organisations.

Afghanistan: Overview of POL Infrastructure

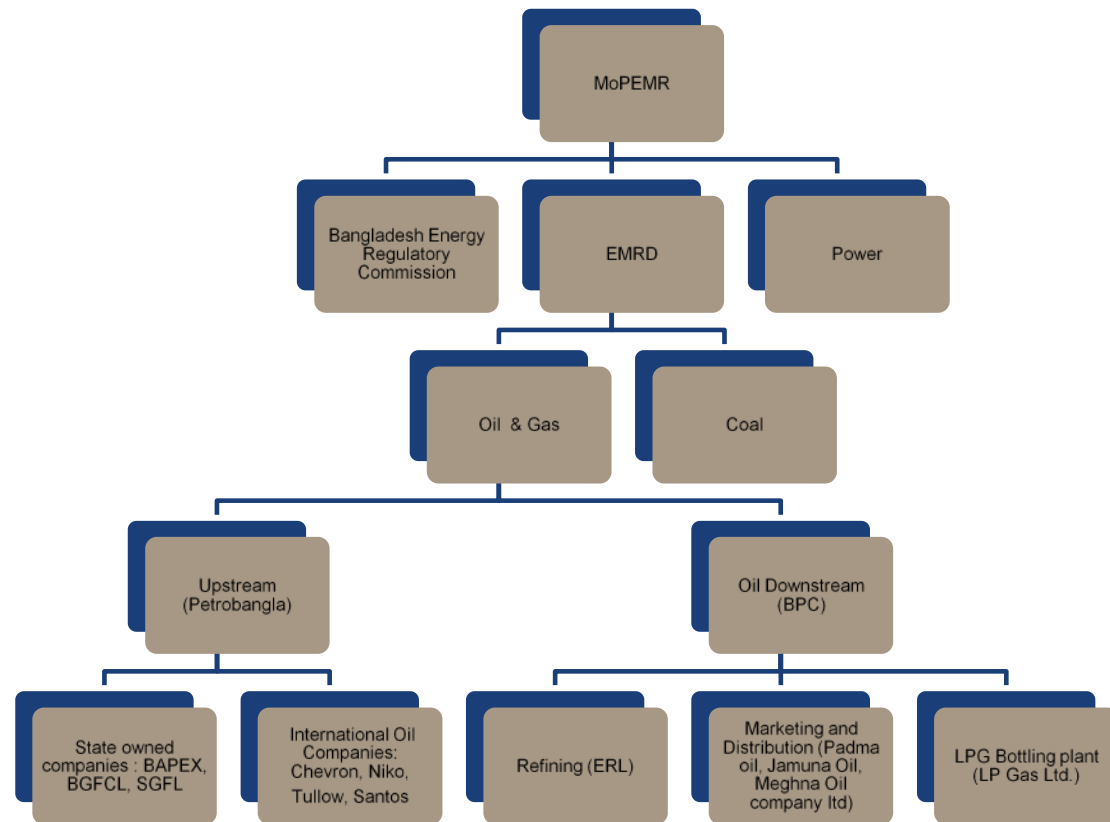
- Afghanistan has two large oil and gas basins – the Afghan Tajik Basin province and the Amu Darya Basin province, with a total estimated crude oil reserves of 2,158 million barrels (~294 million tonne); However, due the prolonged political unrest in the country, no significant investments have been made to extract these resources.
 - Only 8,000 barrels of oil per year (1,091 tonne per annum) was produced against a total demand of 2.1 million tonne for POL products in fiscal 2016.
- Afghanistan currently has seven refineries with a combined capacity of 1.6 million tonnes
- Currently, the majority of POL products is distributed through road transport, which is taken care by the government (with support from private players) and coalition forces separately.

Refining capacity in Afghanistan

Company	Capacity ('000 MT)
Kaam Group	182.5
Kaam Group 2	182.5
Kaam Group 3	182.5
Ghazanfar	182.5
Inter Asia	365
Mazar Shareef Refinery	182.5
Asia Hareua Energy	365

Bangladesh: Institutional Framework

Hydrocarbon institutional framework, Bangladesh



- The Ministry of Power, Energy and Mineral Resources (MoPEMR) is the overarching body with the responsibility of overall planning, development and management of different types of commercial energy resources including power. There are two divisions under the ministry i.e., Energy and Mineral Resource Division (EMRD) and Power Division. The basic legal framework for exploration, development, exploitation, production, processing, refining and marketing of petroleum is provided by Bangladesh Petroleum Act, 1974.
- EMRD is the administrative authority of all energy and mineral resources including oil, gas, coal and other minerals, of Bangladesh.
- Bangladesh Oil, Gas and Mineral Corporation (BOGMC), commonly known as Petrobangla, holds the shares of companies dealing in exploration and development of oil and gas on behalf of EMRD. Petrobangla is the upstream regulator and thus, administers Production Sharing Contracts (PSCs) with International Oil Companies (IOCs) on behalf of the government.
- Bangladesh Petroleum Corporation (BPC) is responsible for import, refining and processing of crude oil, blending of lubricants, export and marketing of petroleum products including bi-products and lubricants. BPC has eight subsidiaries operating under it including the only oil refinery, 3 distribution and marketing companies, two lubricant blending plants, an LPG bottling and distribution plant and a bitumen production company.
- Bangladesh Electricity Regulatory Commission (BERC), established as per the BERC Act, 2003, is an independent commission, which is responsible for regulating the energy sector in Bangladesh, including gas, electricity and petroleum products.

Bangladesh: Policy and regulatory framework

1 Policy framework for pricing of POL products

- National Energy Policy of Bangladesh (2004) determines the pricing rules are applicable for crude oil and LPG
 - The price of locally produced LPG is linked to international kerosene price on BTU basis with appropriate discount to encourage consumption and local production;
 - The value of oil from each production area is determined on the basis of market value comparable to Asia Pacific Petroleum Price Index (APPI).
- Other POL product prices in Bangladesh are controlled by the government with revision being undertaken irregularly. Pricing for petroleum products, except jet fuel and furnace oil, have not been revised since April 2016. No revision has been done in the prices of LPG (12.5 kg cylinder) since June 2009, which is still Tk700 (\$8.75) per cylinder. The following table shows prices of various petroleum products as reported on BPC's website with dates since they have been effective.

2 Policy framework for alternative fuels

- Bangladesh presently does not have any specific policy on alternative fuels pertaining to usage of POL products. Fuel oil finds major usage in the power sector. It is expected renewable energy growth in Bangladesh will have an impact on its demand.
- Bangladesh's Renewable Energy Policy, 2008 aims at 5% electricity consumption from renewable energy sources by 2015 and 10% by 2020 (amounting to 800MW and 2GW respectively). Following the renewables policy, the government planned 500MW of solar, 200MW of wind and 100MW of other renewables by 2015. However, these targets were not achieved. Subsequently, the government revised the targets to install 3.1GW of renewable energy

Bangladesh: Overview of POL Infrastructure

- Bangladesh is predominantly an import-dependent economy with regards to meeting its crude and POL requirements.
 - Its domestic production is limited to a small amount of natural gas condensates, about 7,800 barrels per day (December 2014) and crude oil production of 26 thousand tonnes versus a total demand of 5.9 million tonne of petroleum products in fiscal 2017 (excluding LPG demand).
 - Only 8,000 barrels of oil per year (1,091 tonne per annum) was produced against a total demand of 2.1 million tonne for POL products in fiscal 2016.
- Eastern Refinery Limited (ERL) is the only refinery in Bangladesh, established in 1967, at Chittagong, with a capacity of 1.5 million tonne per annum.
- POL products transport in Bangladesh is presently undertaken through coastal tankers, railways and tank lorries from the Chittagong port to the refinery and subsequently to demand centers
 - Private players, mostly for captive consumption, also use small barges for carrying POL products on river routes
 - The government plans to build five major POL pipelines within three years, with a total length exceeding 600 kilometres across the country.
- Bangladesh has a total of 27 storage depots with a capacity of 1,196 thousand tonnes. ERL has the largest storage capacity of 502 thousand tonne

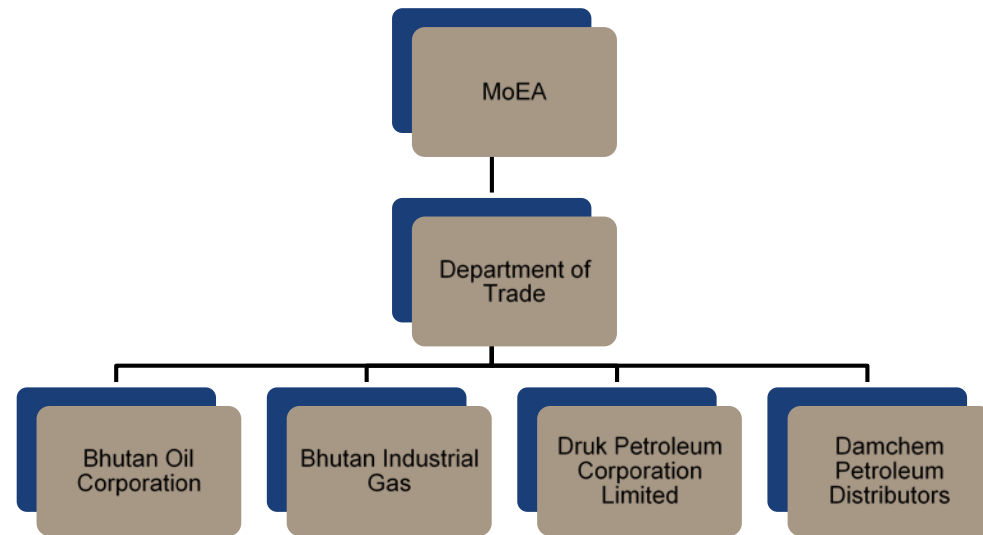
Storage Capacity in Bangladesh

Product ('000 MT)	ERL	POCL	JOCL	MPL	LPGL	SAOCL	ELBL	TOTAL
CRUDE OIL	228.6							228.6
LPG	1.2				0.5			1.7
NAPTHA	26.3							26.3
MS	3	7.3	8.1	7.5				25.9
HOBC	14.3	5.7	6.2	6.2				32.5
SKO	5.6	10.5	14.1	20.1				50.3
HSD	84	142.2	129.7	163.1		10.5		529.5
HSFO	61.5	21.1	23	16.5		9.3		131.4
JET A-1	1.4	62.5						63.9
LDO		0.1						0.1
LUBE OIL	0					10.1	9.5	19.6
Bitumen	3.2							3.2
CONDENSATE	17.4							17.4
OTHERS	56	4.8	3.1	1.9	0	0	0	65.7
TOTAL	502.5	254.2	184.2	215.3	0.5	29.9	9.5	1196.1

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Bhutan: Institutional, Policy and Regulatory Framework

Hydrocarbon institutional framework, Bhutan



- The Department of Trade (DOT) under the Ministry of Economic Affairs, Bhutan (MoEA) is the overarching body in Bhutan managing the import and regulating the pricing of POL products.
- The Bhutan government has a long-term agreement with the Government of India for the supply of petroleum products through Indian oil marketing companies IOCL and BPCL.
- The products are then distributed through BOC, Druk Petroleum Corporation and Damchem Petroleum.

Policy and regulatory framework

1 Policy framework for pricing of POL products

The DOT regulates and determines the prices of POL products across various regions of Bhutan. Presently, the prices of petrol and diesel in Bhutan are much cheaper than India owing to exemption of excise duty on fuel imports at source in India. Bhutan Trade and Classification Tariff Schedule, 2017 recommends 20% duty on petrol and diesel, in addition to 5% sales tax and 5% green tax, for their sale in Bhutan

LPG and kerosene are sold at a subsidised rate in Bhutan. Subsidy for LPG ranges from 55 to 60% depending on distance of the location of the outlets from bordering towns.

2 Policy framework for alternative fuels

The Bhutan government came out with an Alternate Renewable Energy Policy, 2013 to provide necessary direction and focus on the promotion of renewable energy (RE) and explore substitution of fossil fuels by green energy transport fuel sources.

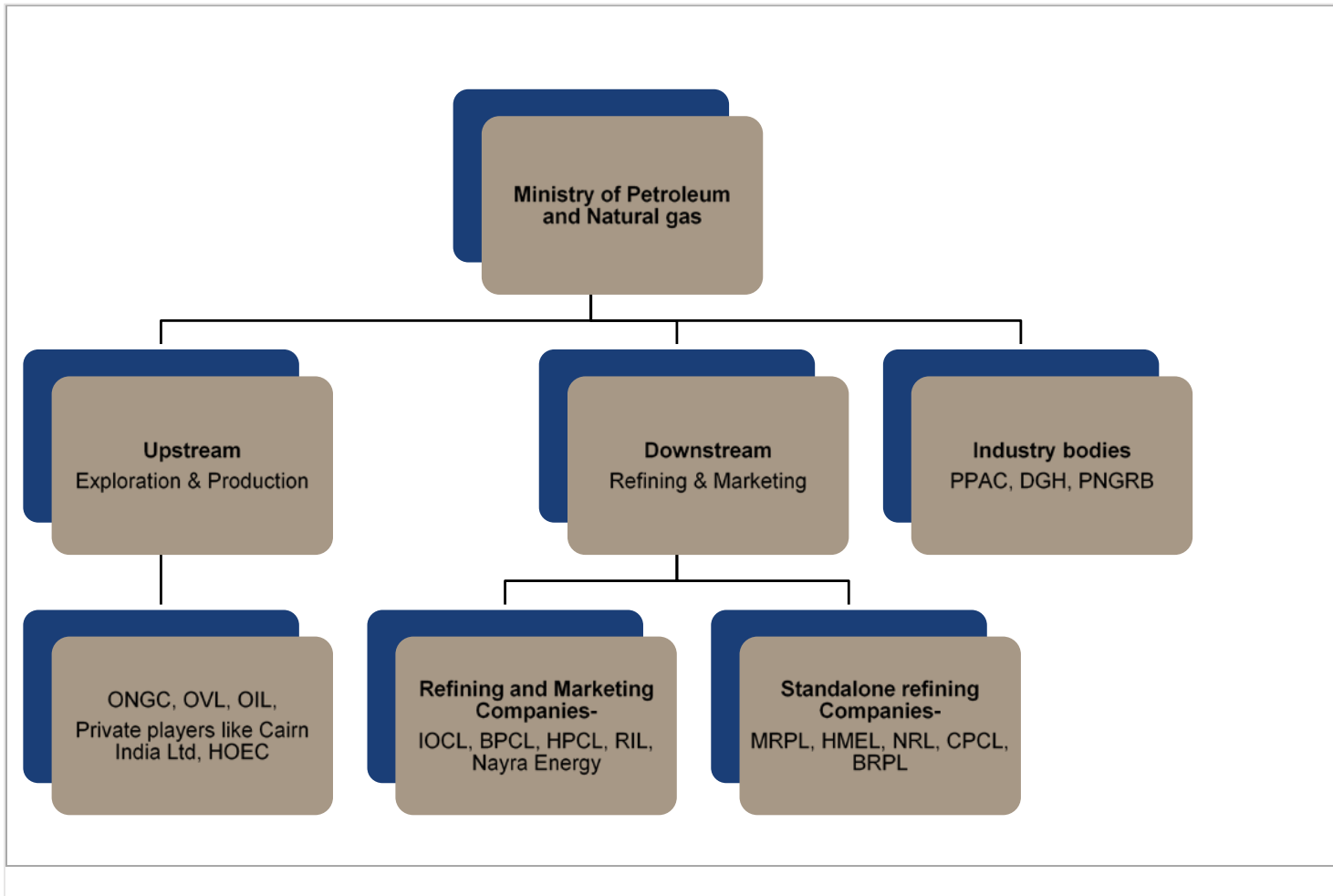
The Renewable Energy Development Fund (REDF) was established as a part of this policy to create a favourable investment climate for alternative fuels and renewable energy. The National Energy Efficiency and Conservation Policy was finalised in 2017, whereby renewed focus has been laid on improving energy performance and fuel consumption

Bhutan: Overview of POL Infrastructure

- Bhutan has no known recoverable crude oil reserves. It is entirely dependent upon imports to meet domestic demand for petroleum oil products.
- Bhutan does not have any POL-based midstream infrastructure in terms of refineries and pipelines. POL products are directly imported from India and are distributed through road tankers.
 - Small and medium-sized tankers with a carrying capacity of 9-12 kilolitres are utilised due to mountainous terrain and narrow roads.
- Total POL storage capacity of 2265 kilolitres is present in the country owned by both government and private entities.
- LPG is imported directly in cylinders of 14.2 kg to 19 kg from India. There is a monthly quota of 700 MT subsidised LPG import to Bhutan from India under a grant assistance programme.

India: Institutional Framework

Hydrocarbon institutional framework, India



- Ministry of Petroleum and Natural Gas (MoPNG) is the apex body, responsible for developing policies for exploration and production, refining, distribution, marketing, import, export, and conservation of petroleum products in India
- The Directorate General of Hydrocarbons was established to manage India's hydrocarbon resources on behalf of the Government of India. DGH also maintains repository of data pertaining to oilfields and promotes participation of oil companies in rounds of bidding and supervises award of concessions after evaluating bids
- With enactment of the Petroleum and Natural Gas Regulatory Board Act in 2006, the regulator for oil and gas downstream sector was established. The regulator supervises the work of the operator and approves budgets and establishment of hydrocarbon reserves
- India's oil and gas market is primarily dominated by public sector enterprises (PSU). In the upstream sector, ONGC is the largest player, accounting for 80% of India's crude oil production. Oil India Limited, Cairn India, and HOEC are some other players involved in exploration and production activities. In the downstream segment, there are consolidated refining and marketing players as well as standalone refiners. Despite significant efforts by the government to encourage private participation, market continues to remain dominated by PSUs

India: Policy and regulatory framework

1 Policy and regulatory framework for exploration and production

- Exploration and production of crude oil in India has been mainly dominated by public sector companies, viz., ONGC and OIL. To encourage private sector participation in domestic oil production, the New Exploration Licensing Policy (NELP) was formulated in 1999, to meet India's growing appetite for oil. Prior to NELP, blocks were awarded to ONGC and OIL on nomination basis.
- The Government approved a new Hydrocarbon and Exploration Licensing Policy (HELP) on March 30, 2016. Details of the policy are given below:
 - Single license for conventional and non-conventional hydrocarbons:
 - Open Acreage Licensing Policy (OALP)
 - Revenue-sharing model
 - Marketing and pricing freedom

2 Policy framework for pricing of POL products

- Earlier, the government had introduced the IPP mechanism to promote the refining sector in India, as India was a net importer of petroleum products. This, along with other reforms, aided growth of refining capacity. Consequently, India became a net exporter of petroleum products; therefore, the pricing mechanism was shifted to TPP considering crude oil imports.
- In 2013, Ministry of Finance recommended a shift to EPP for pricing auto fuels, from TPP. The recommendation aimed at lowering under-recovery burden, as 2.5% of customs duty levied on petrol and diesel under the IPP mechanism, is used for calculating under-recoveries. And as India does not import petrol and diesel, this becomes an additional cost, which increases the under-recovery burden. However, the government is still referring to the TPP to safeguard oil PSUs.

3 Policy framework for alternative fuels

- Government of India has come out with multiple policies in alternative fuel domain, to achieve 10% reduction in import dependency in oil and gas sector by fiscal 2022. The policies are expected to have significant impact on demand of POL products over the long term
 - Policy on biofuels
 - Policy on electric vehicles
 - Policy on LNG vehicles

India: Overview of POL Infrastructure

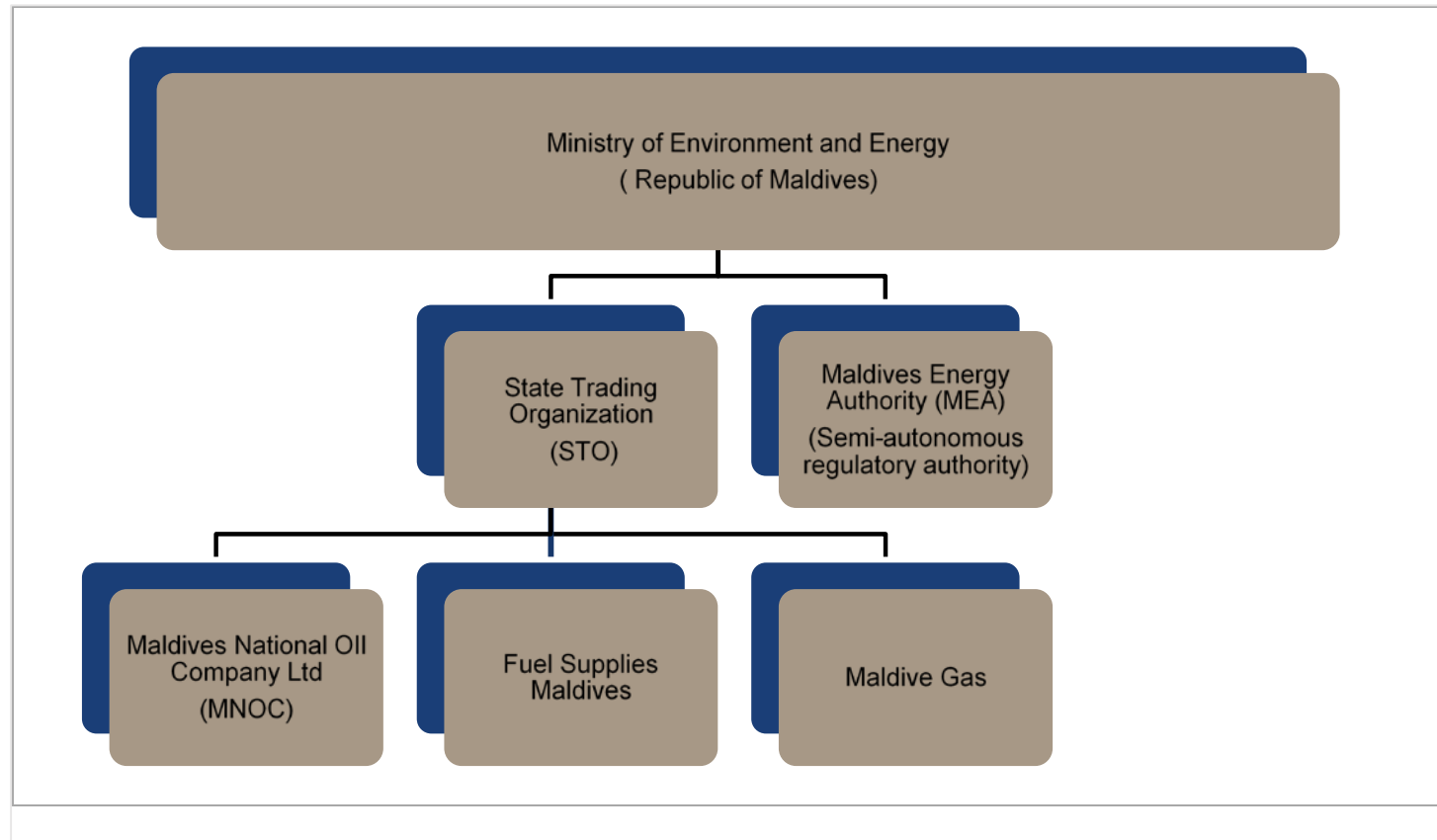
- India's balance recoverable reserves of crude oil as at the end of fiscal 2017 were 604 million tonnes, which at the current production rate of 36 million tonnes are expected to last for about 17 years.
- Due to deregulation in the refining sector, significant investments have been made (by both public and private players) since 1998, resulting in huge capacity additions. Hence, India needs to import significant amounts of crude oil to feed its refineries.
- As of fiscal 2018, India has 247 million tonnes of refining capacity.
 - Indian Oil Corporation Ltd (IOCL) is the largest player with cumulative capacity of 69 million tonnes followed by Reliance (RIL), a private refining player, with 68 million tonnes.
- India has a crude oil pipeline network of 10,214 km, connecting production regions and ports to refineries. These pipelines had total capacity of 150 million tonnes of crude oil per annum as of fiscal 2016-17.
- There are 37 POL pipelines of total length 13,412 km, with product-carrying capacity of 98 million tonnes, and five LPG pipelines covering length of 2,690 km, with total capacity of 7.27 million tonnes.
- In addition, OMCs have ~285 storage terminals and depots catering to 62,585 retail outlets across the country.

Petroleum product storage and distribution network in India

	IOCL	BPCL	HPCL	RIL	NEL	Shell	Others	Total
POL terminal/depots (Nos.)	125	78	82	18	2		6	311
Aviation fuel stations (Nos.)	107	51	41	28			1	228
Retail outlets (total) (Nos.)	27089	14447	15062	1400	4473	108	6	62585
Out of which, Rural retail outlets (Nos.)	7529	2621	3310	127	1570	14		15171
SKO/LDO agencies (Nos.)	3897	1001	1638					6536
LPG distributors (total) (Nos.) (PSUs only)	10213	5084	4849					20146
LPG bottling plants (Nos.) (PSUs only)	91	50	48				1	190
LPG bottling capacity (TMTPA) (PSUs only)	9385	3933	4047				30	17395

Maldives: Institutional Framework

Hydrocarbon institutional framework, Maldives



- The Ministry of Environment and Energy is the overarching body responsible for the government's environmental, energy and climate policy. The ministry works on issues concerning the climate, energy, biological diversity, chemicals, nature, marine and water environments and international environmental cooperation
- The energy department is in charge of formulating policies related to the energy sector in line with the legislative framework of the Republic of Maldives. It strengthens international cooperation to boost both investment and know-how in the sector and is committed to raise awareness on energy resources and consumption
- STO is the main importer and supplier of petroleum products in the Maldives. It is responsible for ensuring availability of POL products through international trade and coordination.
- Maldives National Oil Company (MNOC), established in 2003, is a 100% owned subsidiary of STO and was incorporated to explore the potential and oversee production, refining and transport of hydrocarbons, gas and POL products
- FSM, established in 2001, provides fuel-related services including sales, distribution and maintenance of storage facilities across the country
- Maldives Gas, established in 1999, is the distributor of cooking gas in the Maldives and supplies LPG to more than 40,000 customers
- MEA is a semi-autonomous regulatory body working under the guidance of a Governing Board appointed by the president. The regulator is mandated with establishing tariffs, issuing guidelines and regulations to ensure that reliability, security of the grids, and the rights and obligations of consumers and service providers are safeguarded

Maldives: Policy and regulatory framework

1 Policy framework for pricing of POL products

- As all the petroleum products are imported, the retail prices are determined and revised based on international prices by STO itself without minimal interference from the MEA. However, this revision is undertaken in consultation with the Maldivian government
- Petrol and diesel prices were last revised in May/June 2018 subsequent to rise in global crude oil prices to 10.24 Maldivian rufiyaa/litre (\$0.66/litres) and 11.23 Maldivian rufiyaa/litre (\$0.72/litre), respectively
- LPG prices ranged from 112.50 Maldivian rufiyaa/cylinder (\$7.27/cylinder) to 1,260 Maldivian rufiyaa/cylinder (\$81/cylinder) for 5kg and 45kg cylinders, respectively, with no sales tax and customs duty applicable for cooking gas
- All the other POL products attract a customs duty of 5% on the CIF price

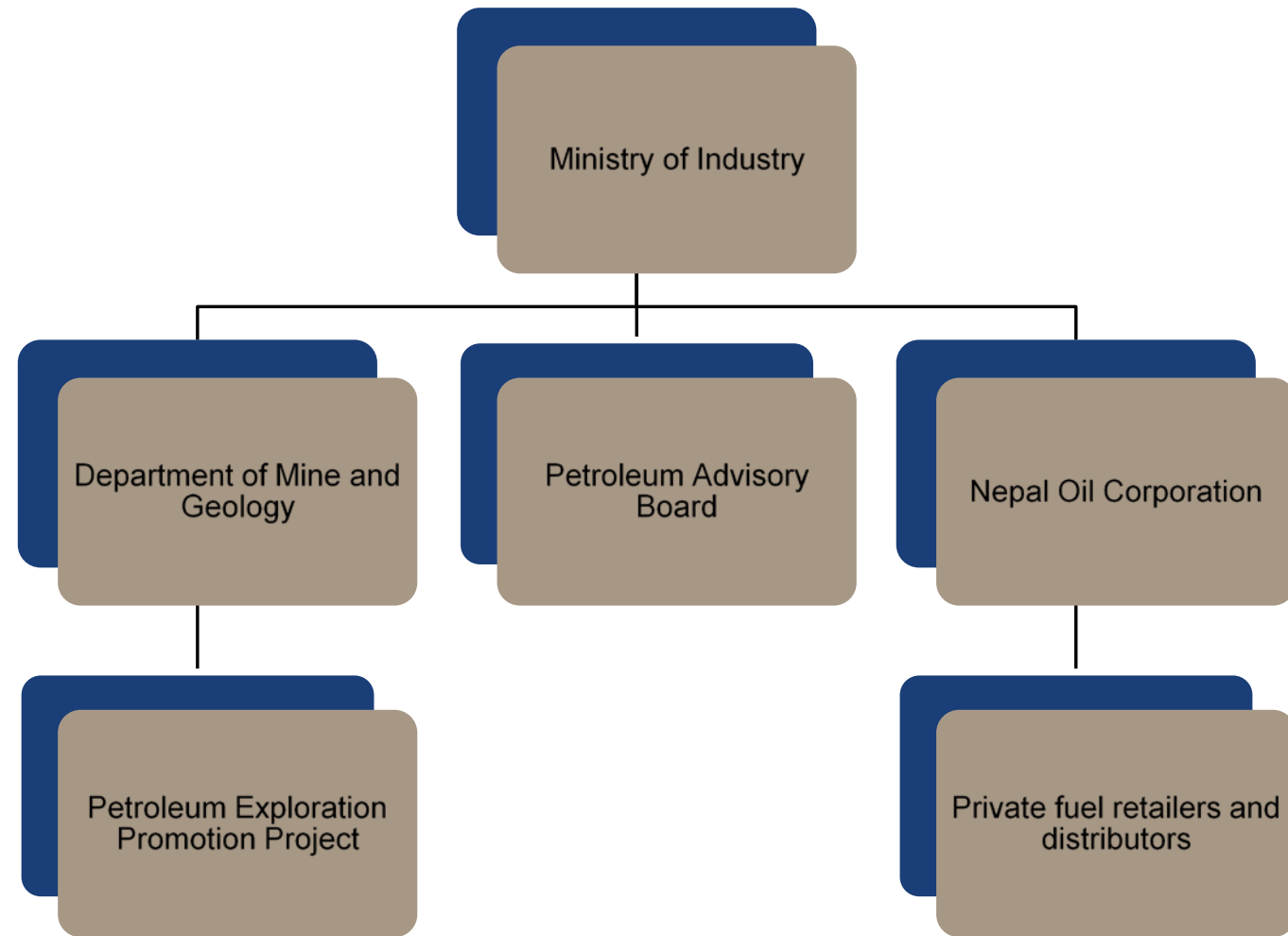
2 Policy framework for alternative fuels

- The Maldives is dependent on a combination of centralised and distributed diesel power generating sets for meeting its power demand
- It is estimated that 80% of total diesel demand in the country comes from power sector. Under the Increasing National Energy Security policy, the government seeks to produce 70% of energy from clean energy sources
- However, no specific renewable energy targets have been fixed. While the Greater Malé Region Renewable Energy Integration Plan assesses a renewable energy potential of 43.5 MW, the Maldives Scaling up Renewable Energy Program in Low Income Countries (SREP) Investment Plan envisages an investment of \$139 million with cumulative target of 26MW tentatively until 2020

Maldives: Overview of POL Infrastructure

- The Maldives, a country comprising 1,192 dispersed tropical islands spread over an area of 115,300 km² with a land area of only 224 km², is completely dependent on imports for meeting its energy needs at present.
- It sources its entire energy requirement from imported petroleum products (POL) owing to lack of any indigenous fossil fuel production.
- The Maldives being a 100% POL product import-based economy with no proven crude oil reserves has no refining infrastructure. The dispersed nature of islands makes pipeline distribution an unfeasible option. The downstream infrastructure is, therefore, limited to import, storage and distribution facilities
- Maldives has a storage capacity to accommodate 48,000 tonnes of diesel and 10,000 tonnes of petrol.
- Fuel supply to customers across islands is ensured through barges and tankers of various capacities. Capacity of fuel tankers ranges from 550 – 2,500 kilolitres to 25-80 kilolitres depending upon the island's demand and distance from the central storage hub.
- LPG distribution in the Maldives is undertaken by Maldivian Gas Pvt Ltd. Depending on the end-use consumers, the size of cylinders varies from 5kg to 45kg. At present, there are two LPG distribution units in the Maldives.
 - Malé – It handles all orders received from domestic households, hotels and businesses in Malé as well as orders from resorts. About 600 cylinders are delivered on a daily basis
 - Hulhumalé – This centre delivers ~100 cylinders per day

Nepal: Institutional, policy and regulatory framework



- *The Nepal Petroleum Act, 2040 (1983)*: This serves as the broad enabling legislation which permits the government to enter into petroleum exploration and production agreements with suitable (international) oil companies
- *The Petroleum Regulation, 2041 (1985) with amendments*: This builds on the Nepal Petroleum Act to establish the procedure for bidding, evaluation of bids, negotiations and granting of petroleum agreements. The model petroleum agreement, detailed in these regulations, acts as the basis for bidding, negotiation and administration of such pacts

POL Based Infrastructure

Nepal doesn't have any POL-based mid-stream infrastructure such as refineries and pipelines. The POL products are directly imported from India and are distributed through road tankers.

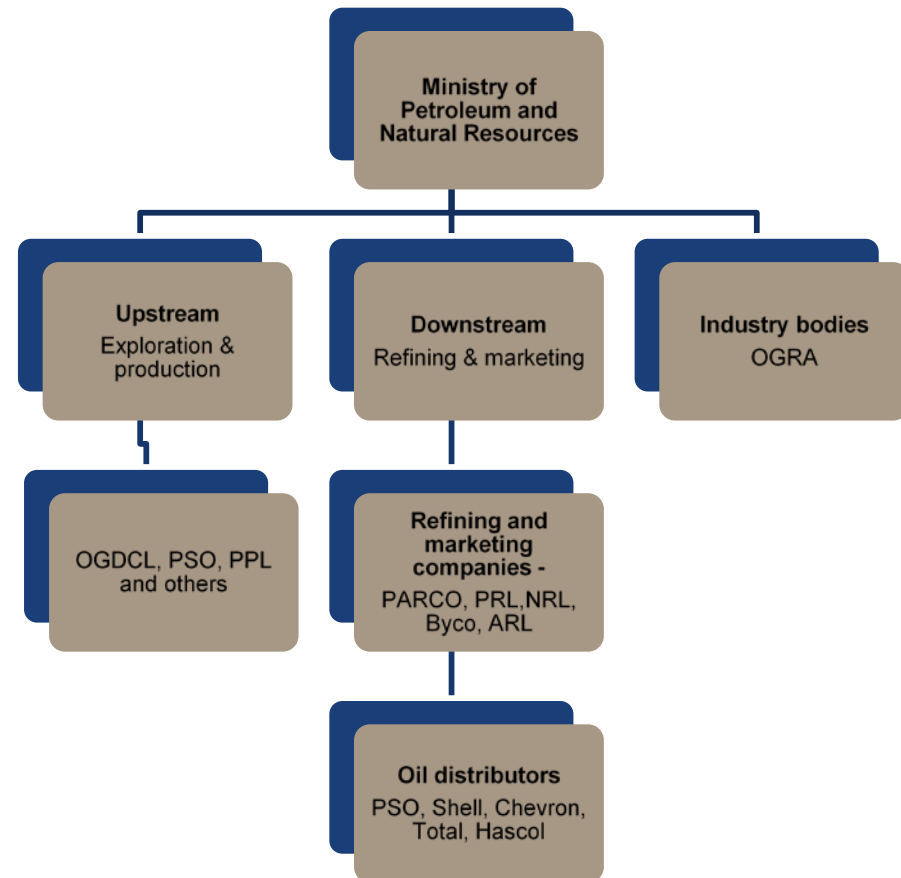
The transport is expected to get cheaper and convenient once the Motihari-Amlekhgunj pipeline is commissioned. Nepal Oil Corporation (NOC) and Indian Oil Corporation (IOCL) are jointly laying a 69 km long, 2 million tonne, cross country POL product pipeline from Motihari in Bihar to Amlekhgunj in Nepal at an estimated cost of \$48 million. Out of the total length, 32.7 km of pipeline is proposed to be laid in the Indian territory and the balance in Nepal.

The region-wise segregation of supply sources for meeting Nepal's POL demand is detailed as follows:

Regions in Nepal	Supply refinery/sources (IOCL)
Eastern	Barauni refinery
Central	Raxual Depot
Western	Betalpur terminal depot, Mugalsari
Mid-Western	Allahabad ternimal, Gonda depot
Far-Western	Banthara depot

Pakistan: Institutional Framework

Hydrocarbon institutional framework, Pakistan



- Pakistan's energy sector is managed by central government agencies. State and regional governments are involved only in small scale power generation projects (< 50 MW capacity), awarding exploration and mining leases for natural resources, except oil and gas, and granting permissions for renewable energy projects
- Public and privately-owned companies are present in the country's oil and gas space, which is controlled by the Ministry of Petroleum and Natural Resources (MoPNR). It is responsible for developing policies pertaining to oil and gas production, distribution and marketing.
- Hydrocarbon Development Institute of Pakistan is the principal body responsible for R&D in fossil fuel applications, and for compiling Pakistan's energy statistics
- Director General of Petroleum Concessions awards and manages oil and gas E&P licenses as per the petroleum policy, which is revised by the government from time to time (Petroleum Exploration & Production Policy 2012 is currently in effect)
- Oil and Gas Development Corporation (OGDCL) and Pakistan Petroleum Ltd (PPL) are the major companies responsible for oil and gas production, apart from several private companies involved in E&P activities
- Oil and Gas Regulatory Authority (OGRA) is the apex regulator, which was set up with the objective of increasing private sector investment and increasing competition in mid-stream and downstream activities and regulate the segments.
- The Directorate General of Oil oversees activities such as refining, import, distribution and retail of oil and petroleum products in Pakistan

Pakistan: Policy and regulatory framework

1 Policy and regulatory framework for exploration and production

- Onshore and offshore E&P rights are awarded via three distinct procedures:
 - Granting of petroleum exploration licenses for entering into petroleum concession agreement (PCA) or production sharing agreement (PSA) in relation to onshore and offshore blocks offered through competitive bidding
 - Granting of petroleum exploration licenses for entering into PCA or PSA in relation to onshore and offshore blocks without competitive bidding to strategic partner companies on government to government basis
 - Granting of non-exclusive reconnaissance permits for undertaking studies and multi-client surveys after direct negotiation
- Following a successful bid, either a PCA for onshore acreage or a PSA for offshore acreage is signed between the government and the successful bidder as per the model PCA/PSA made available to applicants at the time of the announcement of the invitation for bids

2 Policy framework for pricing of POL products

- The price for domestically produced crude oil delivered at the nearest refinery gate is equal to C&F price (FOB price of imported crude oils into Pakistan *plus* freight on AFRA: deemed chartered rate) of a comparable crude oil or a basket of Arabian/Persian Gulf crude oils *plus or minus* a quality differential between the reference basket and the local crude oil. In addition, a WLO is applied. No other levy or discount is applicable other than WLO
- Pricing of petroleum products at an ex-refinery level is based on import parity pricing, i.e., the price that would be applicable to the refiner if the fuel was imported, including FOB price, customs duty and freight

3 Policy framework for alternative fuels

- The Alternate Energy Development Board (AEDB) has the responsibility to implement programmes, policies and projects through the private sector in ARE development
- The RE Policy, 2006 was focused only on solar, wind and hydro; whereas, ARE Policy, 2012 includes all ARE technologies, including bagasse, cogeneration, waste-to-energy and geothermal, providing attractive financial and fiscal incentives to local and foreign investors while offering them a level playing field

Pakistan: Overview of POL Infrastructure

POL storage capacities in Pakistan (fiscal 2017)

Company	Capacity (MT)
PSO	755,426
Shell	130,547
Hascol	136,350
TPML	49,142
TPPL	40,450
APL	32,498
BTCPL	10,575
ZOOM	684
GO	3,735
Total	1,159,407

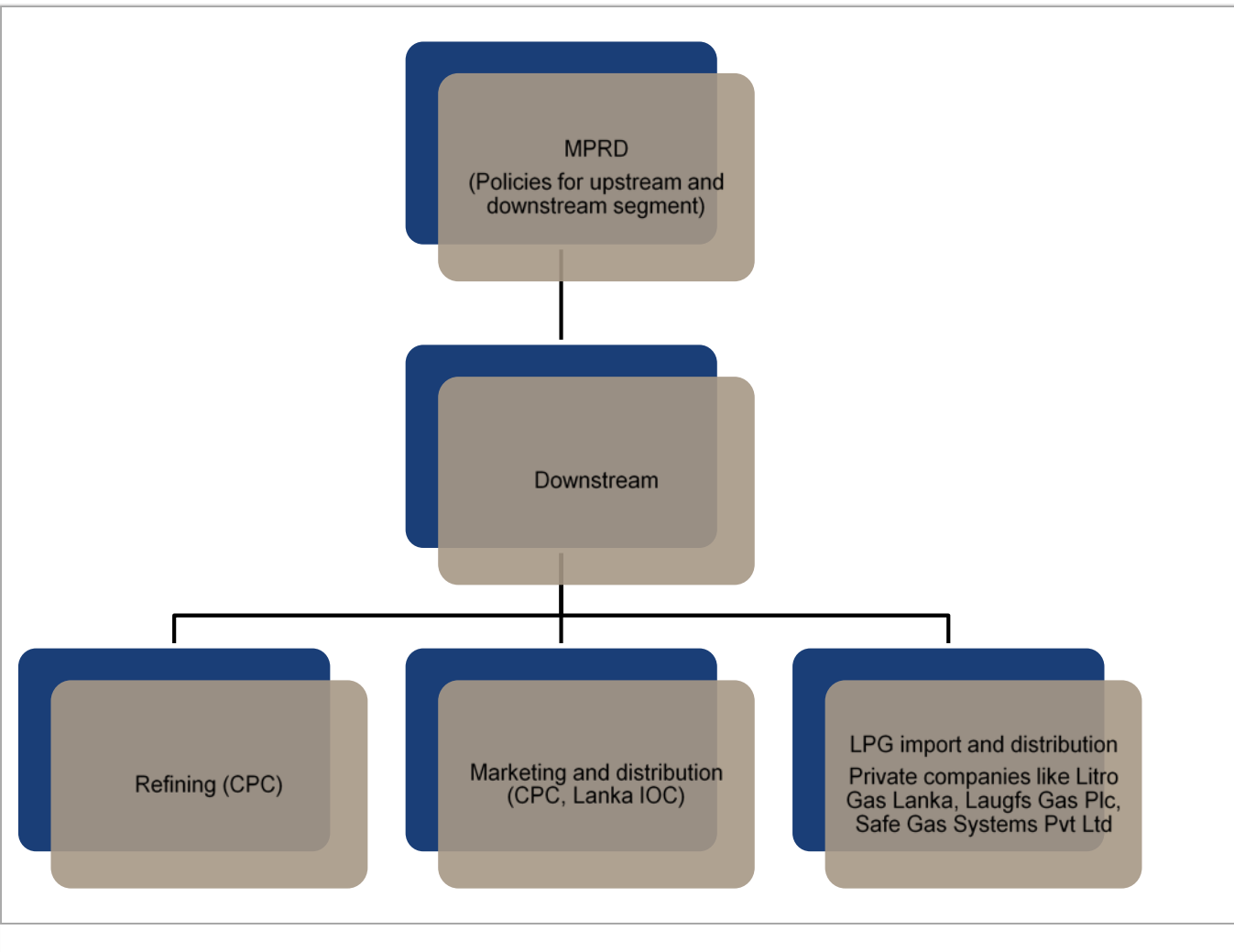
Installed refining capacity in Pakistan

Name of the refinery	Govt/private	Capacity (mtpa)
Pak-Arab Refinery Ltd	60% govt, 40% private	4.5
National Refinery Ltd	Govt	2.7
Pakistan Refinery Ltd	Private	2.1
Attock Refinery Ltd	Private	2.7
Byco oil Pakistan Ltd	Private	1.8
Byco Petroleum Pakistan Ltd	Private	5.5
Enar petrotech refining facility (I&II)	Private	0.3
Total		19.6

- The country is estimated to have total recoverable oil reserves of 332 million barrels. State-owned Oil and Gas Development Company (OGDC) currently maintains the highest explored reserves of oil and gas in the country with a share of more than 50% in local crude oil production.
- As of today, the local crude oil meets only 15% of the country's total requirements, while 85% requirement is met through imports of crude or petroleum products.
- Pakistan at present has 19.6 million tonne of refining capacity. It has both government-run and private refineries.
- Oil and petroleum products in Pakistan are primarily transported through roads in trucks and tanks. Pipeline infrastructure is inadequate despite it being the cheapest mode.
 - a 2,000-km-long White Oil Pipeline (WOP) is under implementation by PARCO for transport of the POL products to the central regions, which account for almost 60% of the total petroleum consumption of the country.
- The OMCs of Pakistan have an aggregate petroleum product storage capacity of 1,023 thousand tonne as of fiscal 2017 with 7,287 retail outlets.

Sri Lanka: Institutional Framework

Hydrocarbon institutional framework, Sri Lanka



- The Ministry of Petroleum Resources Development (MPRD) is responsible for framing policies pertaining to activities in the upstream and downstream oil and gas sector in Sri Lanka.
- The downstream petroleum industry is governed by the Petroleum Products (Special Provisions) Act No. 33, 2002, and Ceylon Petroleum Corporation Act No. 28, 1961.
- The Ceylon Petroleum Corporation (CPC), since its nationalisation in 1961, was responsible for the management of the petroleum industry until 2003. In 2003, a large part of marketing and distribution business was taken over by the Lanka IOC (a subsidiary of IOC). While the imports and distribution of majority of POL products are undertaken by CPC, LPG is largely imported and distributed by private players, with CPC contributing only 15% of the country's LPG supply through its refinery

Sri Lanka: Policy and regulatory framework

1 Policy framework for pricing of POL products

- As Sri Lanka does not produce domestic oil, it does not have any regulations pertaining to pricing of crude oil
- The government decides prices of other POL products, namely, petrol, diesel, and kerosene, sold by CPC. Being an essential commodity, price hike of LPG requires prior approval of the Consumer Affairs Authority. Though Lanka IOC is free to set its prices, given that CPC controls two-thirds of the market and is the price setter, CPC's prices effectively limit Lanka IOC's price movement
- The government under the 'automatic fuel pricing mechanism' has also introduced a formula for fuel pricing, which will vary based on Singapore prices and is reviewed on the 10th of every month. Other than kerosene, fuel subsidies have also been discontinued for petrol and diesel

2 Policy framework for alternative fuels

- In 2015, 52% of Sri Lanka's electricity was generated through fossil fuels (primarily diesel and fuel oil). Sri Lanka, at the 22nd UNFCCC Conference of Parties held in Morocco, pledged that it will switch to renewable energy completely for its electricity needs by 2050.
- In addition to the 100% RE pledge, Sri Lanka's Nationally Determined Contributions (NDCs), resubmitted to the UNFCCC on April 25, 2016, targets increasing the adoption of renewable and sustainable forms of energy. Highlights of Sri Lanka's energy sector NDC targets include:
 - Establishing large-scale wind power farms (514 MW), replacing planned thermal power plants generating equivalent amounts of electricity
 - Broadening the solar power electricity generation capacity of the country with increased participation by the private sector and adoption of advanced technologies available around the world. Sri Lanka aims to establish solar power plants of up to 115 MW
 - Promoting use of biomass (fuel wood) and waste (municipal, industrial and agricultural) by increasing its use in power generation, adding 104.62 MW by 2025
 - Promoting mini and micro hydropower generation projects as an environment-friendly option with a targeted additional capacity of 176 MW

Sri Lanka: Overview of POL Infrastructure

- Sri Lanka lacks sedimentary basins. Hence, the country is entirely dependent on crude oil imports for meeting its petroleum product requirement. Oman is the largest supplier of crude oil to Sri Lanka, accounting for ~89% of total imports in 2015.
- Sri Lanka's only refinery with a capacity of 2.5 million tonnes was built in 1969 in Colombo. This refinery caters to 30-35% of the country's petroleum products demand whereas the remainder is via imports.
- Crude oil movement in Sri Lanka from port to refinery is through a 5.8 km long pipeline, which is more than 40 years old and suffers occasional ruptures and, hence, requires replacement
 - The Petroleum Resources Development Ministry, Sri Lanka is planning to lay a cross-country pipeline for carrying crude oil from Colombo Port to Kolonnawa Oil Terminal
 - In addition to this, there are three product pipelines that transport petrol, diesel, ATF and FO from the port to the Kolonnawa storage terminal.
- There are two storage terminals at Kolonnawa and Muthurajawella owned and operated by Ceylon Petroleum Storage Terminals Ltd, which is responsible for management of downstream product handling in Sri Lanka.
- These terminals serve ~1,000 retail outlets owned by CPC and Lanka IOCL, and also large bulk consumers in various industrial sectors. The two main installations are further supported by 11 bulk depots.

Thank You