

The transition will affect different types of NOCs variously: high-cost versus low-cost, exporting versus importing, gas-focused versus oil-focused. Will it be easier for NOCs in new producing countries to

transition than for established producers? However, these producers often lack the financial resources needed for such a transition.

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Petroleum Industry: is this necessary? Refinery and its future: Sri Lankan Experience

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Year 2022 – Nation in Crisis

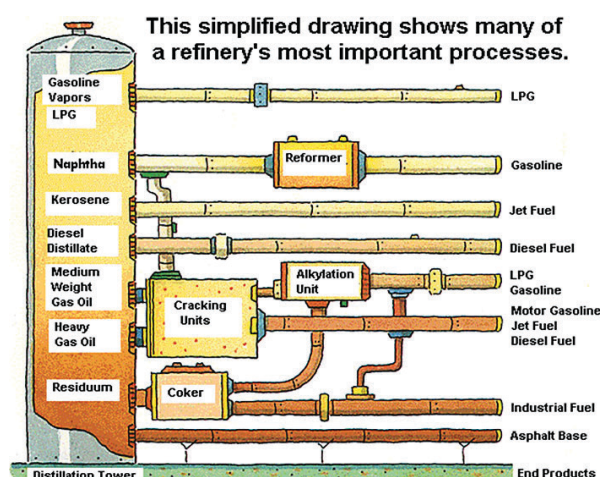
The year 2022 will go down in the Sri Lankan history as one of the most “tense” periods in the life of its citizens. Shortage of gasoline – petrol, diesel and kerosene and domestic gas (LPG) was a direct result of lack of dollars, the so called dollar crisis. The huge depreciation of the Sri Lankan Rupee (SLR) against the dollar spent most of the prices of essential goods and services sky high. The never ending queues for gas and fuel was unprecedented with several deaths being reported.

Many aspects of the operation of the refinery came into focus and attention of the nation due to the so called fuel crisis that is now part and parcel of history. When the fuel crisis was at its height, many questions were raised regarding the role of the refinery – why it was not fully functional with many workers remaining idle but drawing a salary.

It is in this backdrop that we chose the above topic to highlight some key aspects of the functions of a refinery and its importance in a national context. Unfortunately, the interest in the subject matter has now lost its momentum with some degree of normalcy prevailing as far as fuel is concerned. Hence, rather than dealing with specific details of the refinery process, we decided to highlight some general issues to rekindle the memory of the discerning reader. However, the authorities

should not let complacency set in and wait for the next crisis to raise its head in order to realize the importance and significance of our refinery.

It was highlighted that a fully functional refinery could have mitigated the fuel crisis to a great or lesser extent. It remains a mystery as in many other cases of mismanagement as to why the refinery was allowed to remain idle even as the fuel shortage was increasing by the day.



Reference: www.refinery

The pictures shown here are part of a petroleum refinery; it is complex and an expensive industrial facility

Separation, Conversion and Treatment are three of the main processes associated with a petroleum refining industry. In these processes, crude oil is converted to hundreds of products including – liquid petroleum gas (LPG), gasoline / petrol, kerosene aviation fuel, lubricants, diesel to name a few. It also provides the feed stock for many other chemicals very much needed for a developing country. Petrochemicals include many classes of compounds such as olefins, aromatics and other derivatives.

The following are few of the recent headlines doing the rounds in the web that may provide an insight into the prevailing situation in Sri Lanka:

- Sri Lanka's Sapugaskanda Oil refinery to run for 40 days (dated 21st Aug 2022)
- International Oil prices: CPC to temporarily shut down refinery
- Sri Lankan refinery shuts again after further payment problem (11th Oct 2022)
- Sapugaskanda refinery closure ignites fuel insecurity (7th Aug 2022)
- Sapugaskanda refinery to resume operations on 16th Dec 2022

What does all these imply from a national perspective? Refinery is expected to run 24 hrs x 7 days hours; in other words, it is a non-stop process; a must for its sustainability and from a cost perspective. However, due to various factors, its operation has not been continuous causing immense losses, both in terms of finances and shortage of fuel.

Let us not forget some of the well known facts about crude oil and its origin. The world prices which keep fluctuating regularly would determine many of the decisions pertaining to fuel prices of the world over. At present, many countries including Sri Lanka depend heavily on imported petroleum products including fuel. OPEC, the Organization of Petroleum Exporting Countries, plays a major role in fixing the prices of crude oil in the world market. Many factors of the quality of the crude oil would determine the structural design and construction of a refinery.

Role of NSPC (National Secretariat for the Professional Practice of Chemistry)

Professional arm of Institute of Chemistry Ceylon

The fact that there is a dire need to utilize our refinery to its fullest capacity is well understood. In doing so, there are many advantages apart from overcoming fuel shortages. At this juncture, we are importing both petrol and diesel as our distillation capacity is limited.

Sri Lanka (SL) is a country that is/was known as the pearl of the Indian Ocean. In fact, it was called a paradise in the Indian ocean that has now become a paradox – contradicting all expectations of a paradise – as a result of bad decisions. In this context, the status of fuel and its relevance for a vibrant, functional society has to be well understood; the supply chain should not be disrupted nor the price allowed to fluctuate in a manner that leads to many hardships in different forms in all strata of society.

Process of Refining crude oil is a subject that is very much part and parcel of chemists and those who study chemistry in general. Role of Chemists in this regard is very obvious and is within the scope of NSPC– to be part of setting the standards for the entire process of involving the refinery – may be from start (purchase and storage of crude) to finish (storage, transport, sale of fuel) to overcome the failure of the governments in power over the years.

The Ceylon Petroleum Corporation (CPC)

The following is an excerpt / a brief account of the development of CPC

The Ceylon Petroleum Corporation (CPC) was set up as a state enterprise by Act. No. 28 of 1961 in parliament and further amendments carried out subsequently. The main objectives of Ceylon Petroleum Corporation are the following:

“To carry on business as an importer, exporter, seller, supplier and distributor of Petroleum products. To carry on business of exploring for the exploiting, producing, and refining of Petroleum and to carry on any such business as may be incidental or conducive to the attainment of the objectives” In this regard, a few of the important dates are listed below giving an insight into the progress made over the years.

1965 CPC commenced building the first refinery at Sapugaskanda.

1968 CPC completed and commenced trial operation of the 38,000 BPD refinery (BPD – barrels per day)

1969 CPC commenced refinery operations. CPC added a lubricant oil blending plant at Kollonnawa Installation and commenced Industrial products business. Also, in the same year CPC entered into Agro Chemical business as a price regulator in the Agro-chemical market.

1971 Bunkering operations and aviation re-fueling activities were added to the Corporation's scope through amendments to the CPC Act.

1978 CPC built a plant for the manufacture of Nylon 6 yarn for textile, tires and finishing industries

1979 The capacity of the Refinery increased to 50,000 BPD by increasing the crude distiller

What has been stated above gives a brief account of the history behind the development of the refinery up to 1979.

Many of the operational details and the complex nature of its function are beyond the scope of this article. There are many references including websites that would give all relevant information regarding a refinery and related processes.

Role of the Scientific Professionals

Imagine a situation where there is no fuel!! Life will come to a standstill and the situation will be beyond once imagination. Also, let us assume that our refinery is working to its maximum capacity (24 x 7). Maybe

it is somewhat hypothetical. However, as scientists, it is our duty to look at the ideal situation and propose how we can transform the ground / real situation and move towards the ideal. The professional arm of the ICHEMC, namely, NSPC could play a major role in an advisory capacity to ensure the optimum use of the refinery and perhaps find ways and means to increase the capacity to meet all our fuel requirements.

One need not over emphasize the impact of cost of energy – fuel, electricity charges, transport to name a few – on the cost of living. SL is experiencing this in a big way and are, in fact, feeling the “heat” as it were at this very moment. Mismanagement of this sector has exacerbated the whole issue to unimaginable proportions; state of bankruptcy was officially declared, thus defaulting on the loans taken as the ultimate “solution” to this predicament.

Quote from the late President of USA

Let me wind up with the following quote, quite apt and with a very broad meaning relevant to all rulers in general.

Ask not what your country can do for you but, what you can do for your country

- John F. Kennedy

Do you know any Sri Lankan in the horizon who fits the bill in this respect? Certainly, there are many in the opposite sense. In fact, the current status of the country (crisis of all kinds including fuel shortages) could be attributed to the lack of long term policies and direction in this regard; in other words, they are “man made”.

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