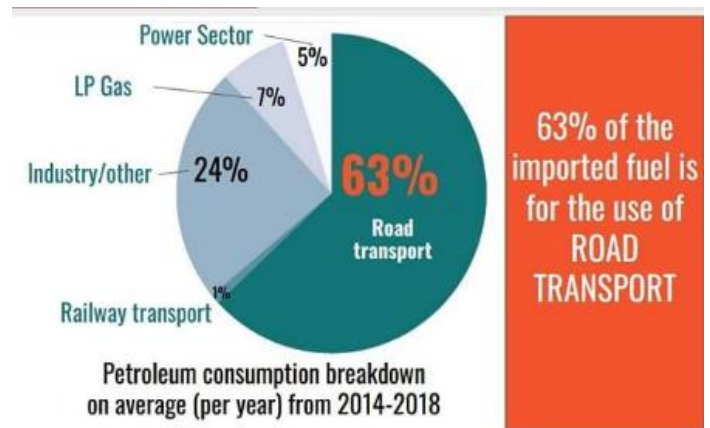
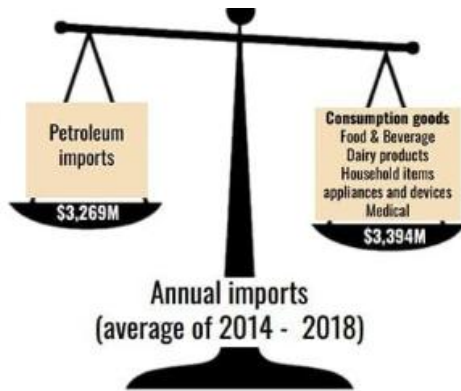


# Jatropha or Castor oil as a Diesel substitute

Sri Lanka is absolutely dependent on imports, be it fossil fuels or renewables such as solar. The SL fuel import cost was USD 3.2million when crude oil was around USD50/barrel. Worse, it cost as much as all other imports<sup>1</sup>. Now that crude oil is round USD140 and rising, combined with loss of foreign exchange sources the situation is dire.

The amount Sri Lanka spends on fuel per annum is nearly equal to the total amount spent on consumption goods.



63% of the imported fuel is for the use of ROAD TRANSPORT

Above image source unknown. Please let me know and will credit.

So it is imperative there is at least partial self sufficiency in imports including fuel. Maybe bio fuels such as jatropha or castor oil is a partial answer. Jatropha grows on marginal lands, Areas such as in Sri Lanka's North West (Mannar area) and East Coast (Batticaloa) could be used. Average yield of Jatropha is 1892 liters and Castor 1,400 liters of oil per year which very roughly equivalent of one metric ton of Diesel<sup>1</sup>. The highest import of Diesel to Sri Lanka was 2,194 Metric Tons in 2017<sup>2</sup> (1 metric tonne of Diesel is 1176.4 liters). . So, it would appear 2,000 acres of marginal land would make Sri Lanka self sufficient in Diesel. (would appreciate cross check of numbers).



Jatropha Curcas  
Rata-erandu, Weta erandu (රට එරඳු , වැට එරඳු )  
[https://en.wikipedia.org/wiki/Jatropha\\_curcas](https://en.wikipedia.org/wiki/Jatropha_curcas)



Castor Plant (Ricinus Communis)  
Thel Enderu  
<https://en.wikipedia.org/wiki/Ricinus>

Extraction of Jatropha or Castor oil does not require expensive refineries, just mechanically using rams or screw presses. Such as small scale coconut oil extraction presses readily available and locally made. As such ideally suited for a cottage industry and intercropping of jatropha or castor. Assuming price of LKR 200/liter (half price of Diesel at the moment) that's about LKR 200,000 per year per acre.

NOTE: Jatropha oil does not need to be converted to bio-diesel to be used in older diesel engines such as SiFang hand tractor engines. Even older Mercedes or Volkswagens can run on Jatropha or Castor oil and even used frying oil from restaurants<sup>3</sup>. (Rudolf Diesel used peanut oil for fuel when he invented the engine in the 1890s). For cars the oil needs to be preheated to 71C/160F to get same viscosity as diesel. Use of veggie oil as a fuel is prohibited in the US (and I think in the UK too)<sup>4</sup>.

<sup>1</sup><https://jatropha.pro/vegetable-oil-yields/>

<sup>2</sup> <https://www.ceicdata.com/en/sri-lanka/petroleum-products-supply-and-demand/petroleum-products-demand-annual-local-sales-auto-diesel>

<sup>3</sup><https://www.theglobeandmail.com/life/my-volkswagen-runs-on-veggie-oil/article689985/>

<sup>4</sup>Environmental Protection Agency, which recently issued a statement stating flatly that using vegetable oil as fuel is a violation of the Clean Air Act and that modifying a car for vegetable oil subjects the owner to a \$2,750 fine