

# Countering Global Oil Theft Impact and Solutions

Etienne Romsom

Kathryn McPhail



**EnergyCC**

September 2023



**UNU  
WIDER**

UNU-WIDER VIDEO ON OIL THEFT

[https://www.youtube.com/watch?v=gWhy-DsvK\\_M](https://www.youtube.com/watch?v=gWhy-DsvK_M)



# A sample of the discovered / reported oil thefts

**Europe** fuel fraud causes **US\$4 bln / yr** in lost taxes

**Turkey** fuel smuggling at 2.7 mtpa costs **US\$2.5 bln / yr**

**Syria** (2015) ISIS illegal oil refineries sold to brokers at **US\$40 mln/month** into Turkey and to Assad regime

**Algeria** fuel smuggling costs **US\$1.3 bln per year** (2013)

**Mexico** fuel theft, 12,500 illegal taps (2018) **US\$3 bln/yr**

**Benin** 80% of fuel demand is smuggled from Nigeria, cost **US\$863 mln/yr** (2010)

**Nigeria** theft 400,000 bopd (**US\$12 bln** per year), +1 mln bopd shut-in with **US\$20 bln/yr** tax deferred

**Brazi** (2020) fuel adulteration at retail stations + inter-state fuel tax evasion (2021) **US\$4.1 + 1.3 bln / yr**

**Malaysia to Thaliand** fuel smuggling over land (only) **US\$1.2+0.54 bln / yr** TH+MY

**Shell Bukom** (2007-18), 2 syndicates, gas oil theft 340,000 mt, **US\$150 mln**

**US** (2021) Colonial Pipeline digital hijack – **45% of fuel demand** on East Coast

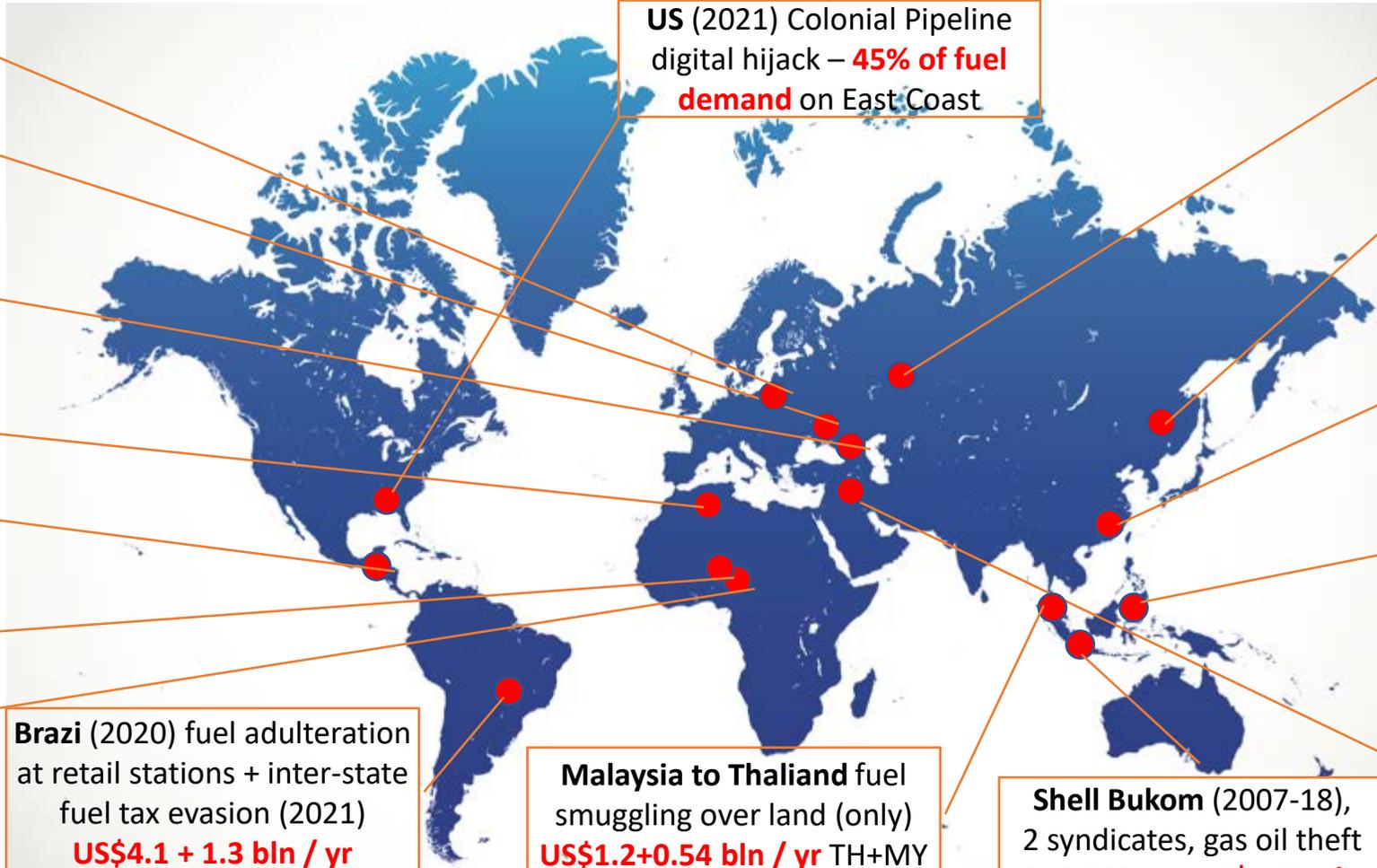
**Russia** (2013) companies lose **US\$1.8-3.5 bln/yr** oil theft

**China** (2015) 250 people from 2 crime syndicates arrested for illegal import of untaxed fuel worth **US\$355 mln**

**China** (2021) illicit trade and sales of light cycle oil (LCO) avoids taxes **US\$3.9 bln / yr**

**SEA** (2011-15) 42 tanker hijacks for siphoning of oil/fuel; SEA illegal maritime fuel trade **US\$10 bln / yr**

**Iraq** UN oil-for-food program (1996–2003) corrupted by 2,200 companies from 66 countries, kick-backs to Sad'm Hussein regime **US1.8 bln**



# Oil theft observations

- Oil theft is a global phenomenon, not just a developing country problem
- The scale of oil theft is immense: \$133 billion / yr (5% to 7% of the global market for crude oil and petroleum fuels), but indirect loss is much greater
- Modalities vary greatly: piracy, theft and extortion under violence, 'accounting' theft, artisanal refineries, smuggling, fuel adulteration, meter tampering, tax fraud schemes, bribery and corruption, digital hijacking and ransomware, ...
- Oil theft occurs across the supply chain
- Oil theft follows distinct patterns, e.g. from opportunity crime to organized crime

# The various modalities of oil theft

Oil theft syndicates are formed in various ways:

- by aligning theft activities by companies or their employees
- existing crime organizations diversify their criminal activities to include oil theft
- to finance war efforts or political independence struggles
- as a means re-appropriation of wealth and as a form of protest ( 'moral economy' )



**Jail for former Shell employee who masterminded S\$128m marine fuel heist at Pulau Bukom**



THE REFINERY RACKET

**Mexico's drug cartels, now hooked on fuel, cripple the country's refineries**

MEND fighters and hostages in Nigeria



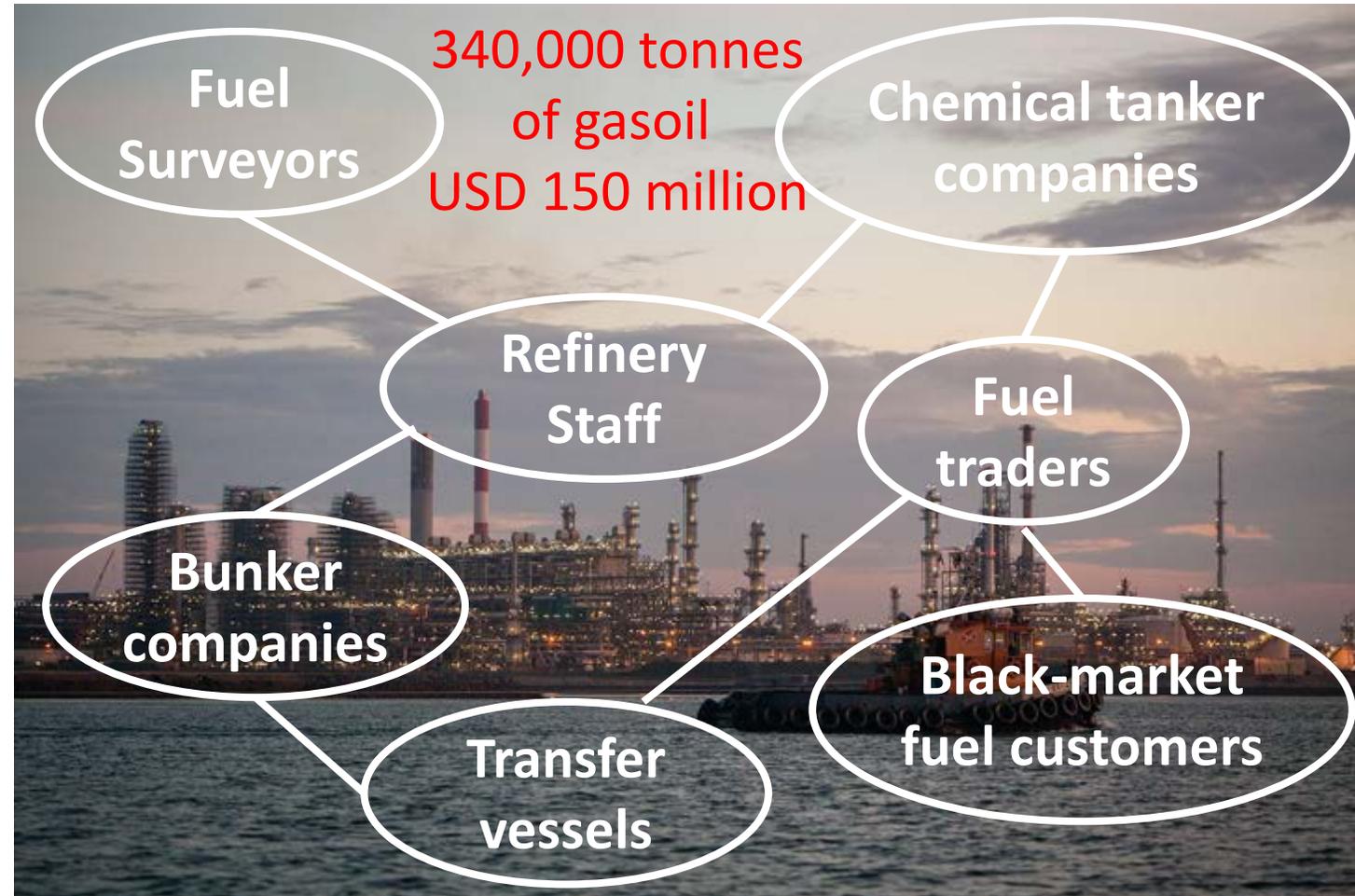
images by Dulue Mbachu, International Relations and Security Network, taken on 22 February 2006, reproduced from Flickr.com under CC BY-NC-ND 2.0

# Oil theft criminals expand activities and professionalize their networks

Repeating, long term theft business:

- Relatively low risks
- high profit margins
- opportunities to upscale thefts
- ability to combine multiple elements of the oil supply chain

The Shell Bukom Heist networks  
(2007 - ) 2014 - 2018



Source: image by budak, taken on 12 March 2016, reproduced from Flickr.com under CC BY-NC-ND 2.0.

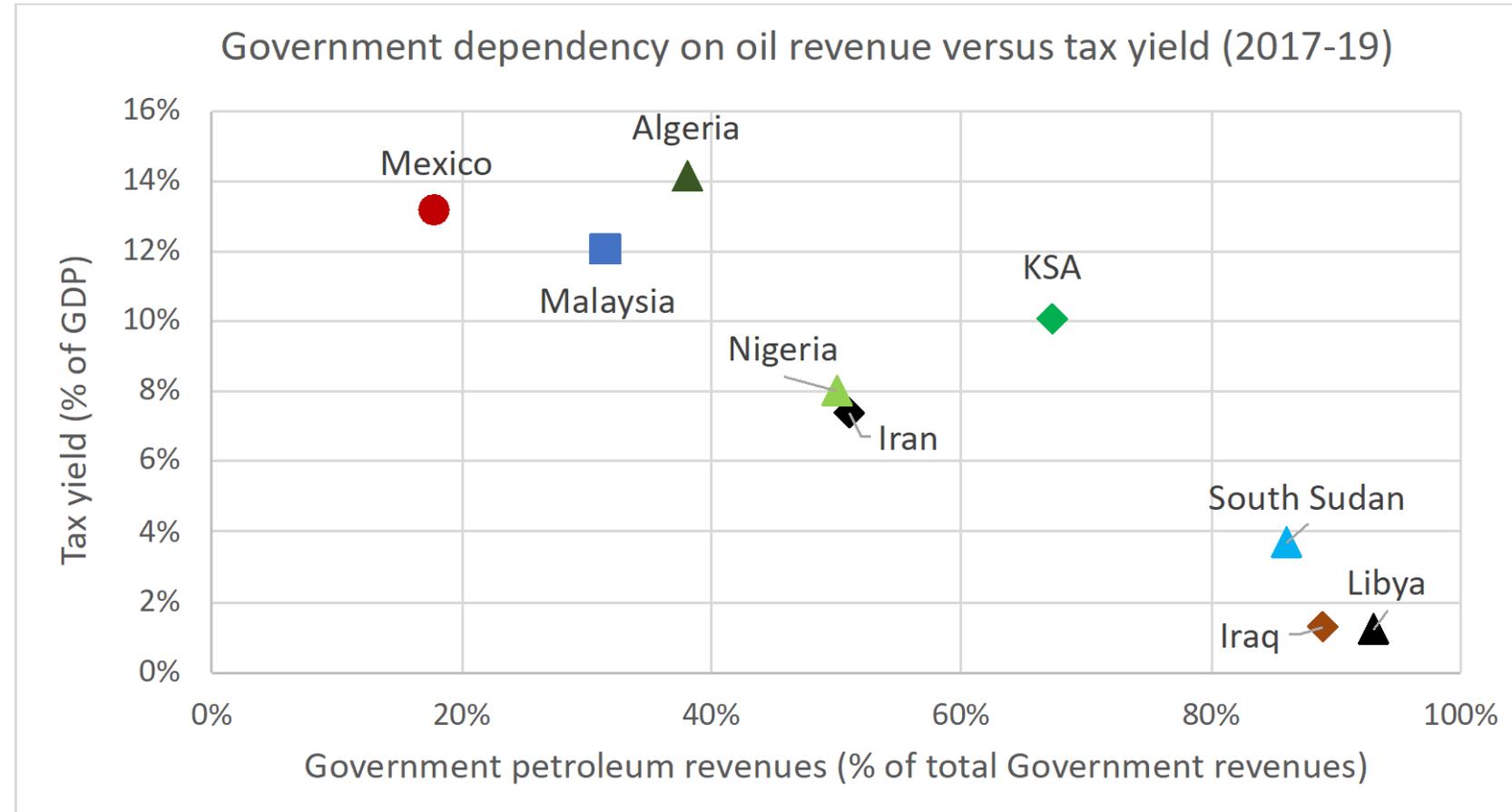
# Oil theft impact is severe and multi-faceted

- Direct impact on government revenues
- Impact on regional business confidence
- Significant environmental impact
- Health impact from use of adulterated fuels
- Escalation towards violence and hard crimes
- Erosion of social fabric and trust in governments

**Oil is the world's largest stolen natural resource, while fuel is the global number one most smuggled natural resource**

# Oil theft highly substantial to government revenues, particularly if economies are not well diversified

- For many developing countries, government tax yield is less when the dependency on petroleum revenues is larger.
- Most oil-producing countries aiming for accelerated growth and development are overexposed to petroleum revenues
- IMF's minimum criterion of 12.75% tax-to-GDP ratio for accelerated growth and development outcomes.



# Governments of developing countries dependent on oil revenues are particularly exposed to oil theft, when not well diversified by other sources of (tax) income

## Tax yield analysis of developing countries—impact of oil theft

Domestic revenue mobilization— tax yield analysis	IMF tax yield benchmark study for 72 developing countries (% of GDP)	Tax yield of 30 developing countries affected by oil theft (% of GDP)
Commodity exporting developing countries	14.7	9.2
Non-commodity exporting developing countries	16.2	15.0
Total data set developing countries	15.3	13.6

Balima et al. 2020\*

Romsom 2022

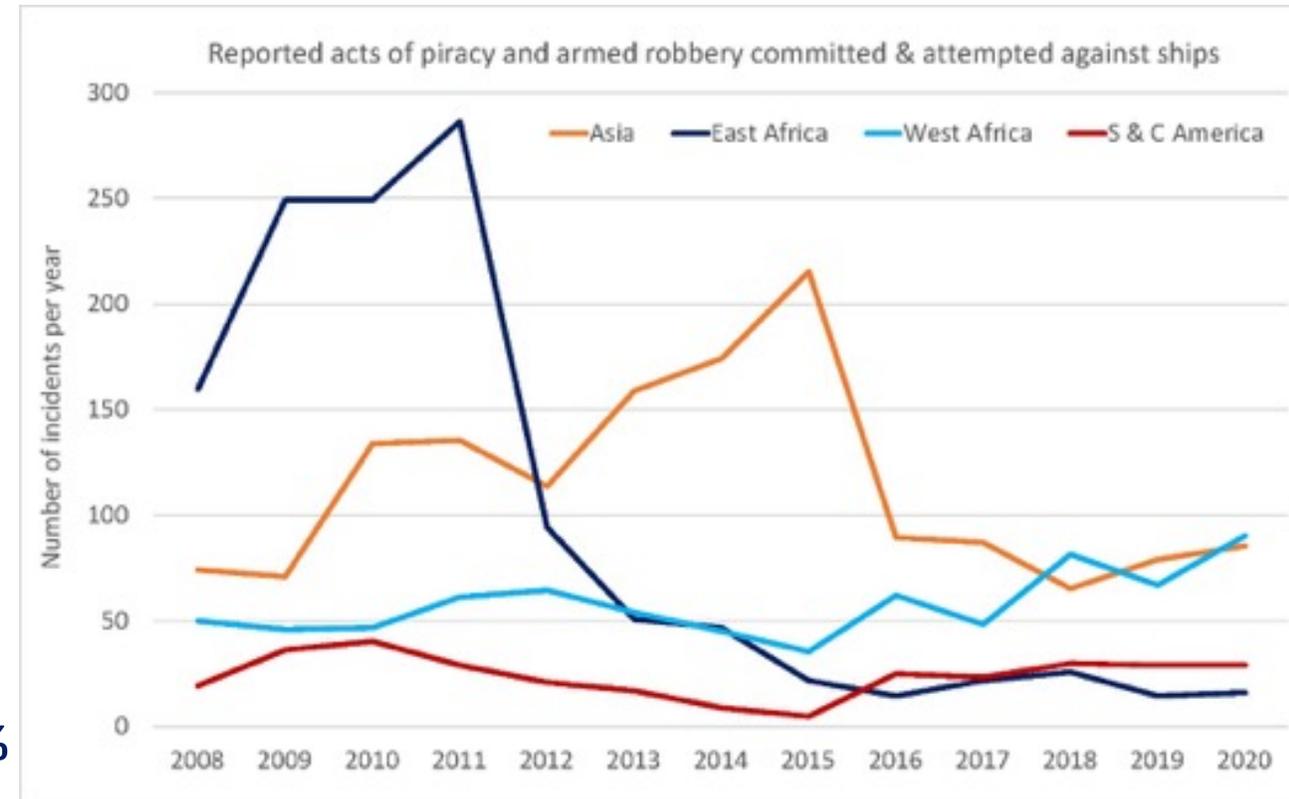
Developing countries that produce and export oil are affected significantly worse by oil theft than those that import and consume oil

# Oil piracy cripples Benin economy

Shifting geographical patterns of maritime piracy and armed robbery at sea, 2008–20

Oil theft not only deprives governments of internal revenues but it also has direct and indirect impacts on the economic development of neighboring countries

- Oil theft causes regional insecurity
- In 2011, 22 pirate attacks were conducted off Benin's coast, mainly targeting oil product tankers
- Maritime insurance companies reclassified Benin as high risk. Ship insurance premiums rose drastically
- Port of Cotonou 2012 traffic declined by 70%, **causing government revenues to fall by at least 28%**
- Benin does not produce any oil and has very little official fuel imports



**Note:** the graph above shows piracy and armed robbery incidents against all types of vessels, including tankers.

**Source:** author's elaboration based on various IMO piracy reports.

# Example of market distortion: Illicit cross-border price arbitrage in SEA

Disparity in prices  
incentivizes transnational  
fuel smuggling and fraud

- 3 mln liters of fuel smuggled daily over land alone, from Malaysia to Thailand; annual loss: US\$1.2 billion (Thailand) + US\$0.54 billion (Malaysia)
- Price differentials incentivize syndicates to buy fuels in Malaysia and arrange smugglers to transport these in modified trucks across the land border at a service charge of US\$0.13 per liter
- Large-scale smuggling at sea use 'open fuel stations' in Malaysian waters where multiple fuel tankers gather to sell Malaysian fuel to Thai vessels
- Fuel smuggling vessels are seized regularly. In 2014, Malaysian authorities captured 4 vessels at open fuel station with 3.7 million liter of diesel
- LPG smuggled out of Thailand, 40% of Malaysian subsidized LPG reported lost due to smuggling into Thailand and onwards to other countries
- Oil theft syndicates are well diversified. In 2013, a Thai fuel smuggling syndicate was apprehended that also engaged in drug and human smuggling and was allegedly funding insurgents in S Thailand



Malaysian smuggling vessel seized (4 March 2022)



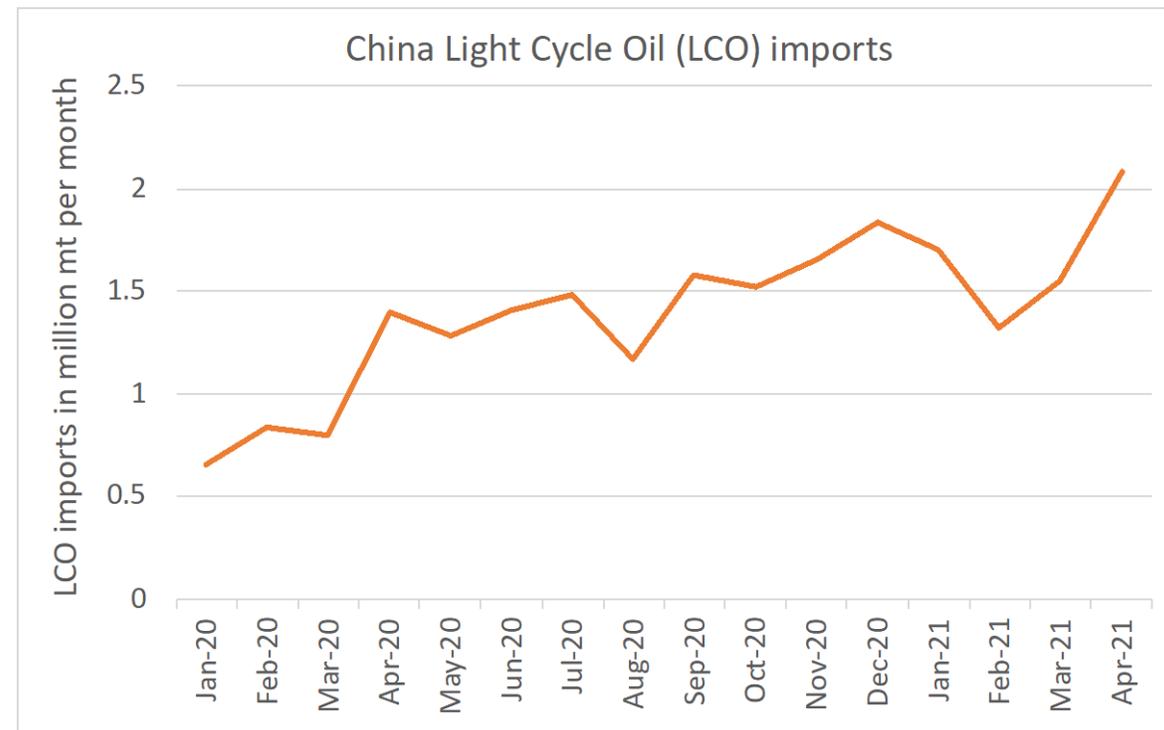
Petrol fuel drums ready to load (680,200 liters)

Images by PDRM

# Example of market distortion: China LCO fuel adulteration (2021)

- LCO was exempted from consumption tax and can be used as a diesel substitute (tax \$29/b)
- Low LCO price compared to other fuels invited large-scale fuel adulteration of high-grade diesel with low-grade LCO
- China's LCO demand grew 360% to 511,500 bpd in April 2021, up from 142,000 bpd in 2019
- When China decided to stop LCO misuse, it created major repercussions in Asian fuel markets. South Korea, which had supplied 63 per cent of China's LCO demand in 2020, saw shipments reduced by 60% and spot premiums halved
- China's fiscal action is expected to cause a systemic lower repricing of LCO in Asian markets

Unnaturally strong demand increase for LCO in China caused US\$3.9 billion in avoided fuel taxes (annualized)



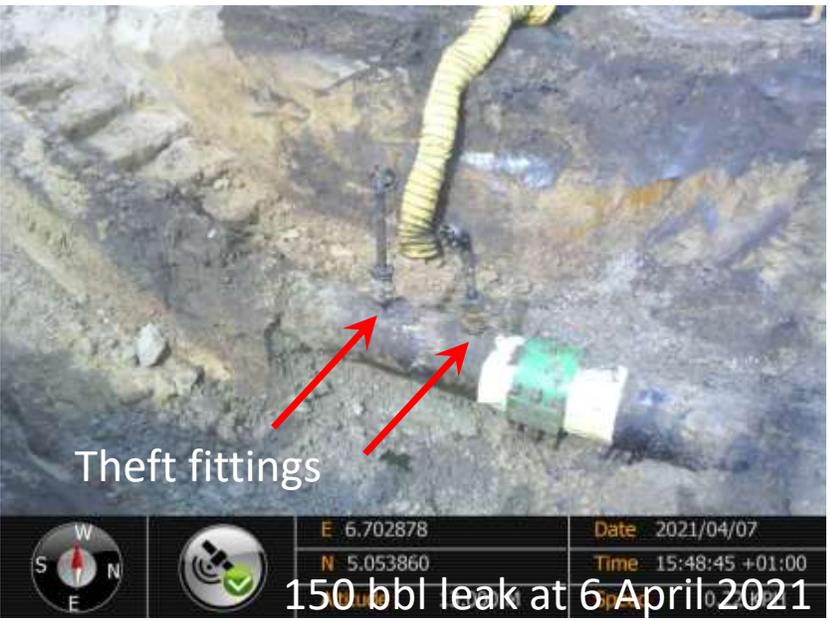
# Oil theft causes great harm to health and the environment

- Adulterated fuels impair engines and cause increased emissions
- Oil pipeline taps cause significant leakages and soil contamination
- Oil pipeline taps regularly cause fatal explosions
- Artisanal (bush) refineries cause enormous harm

An example of an artisanal refinery in Nigeria



An example of an illicit pipeline tap



Source: images by Stakeholder Democracy, taken on 21 and 27 November 2012, reproduced from Flickr.com under CC BY-NC-ND 2.0

Source: courtesy of Shell Nigeria

# Interlinkages between oil theft and organized crime groups

- Oil theft is lower risk and more financially lucrative than other ‘hard’ crimes; this facilitates natural progression towards more professional approach and larger scale oil theft
- To control larger portion of the supply chain (increase profits), oil thieves evolve into crime syndicate organizations
- Oil theft can be conducted to finance other criminal or destabilizing activity
- The skill sets required for oil theft and for other crimes overlap
- Oil smuggling routes/methods are often used to smuggle weapons, drugs, and for human trafficking
- Oil is often stolen / smuggled under arrangements with state organizations, eroding public trust
- Crime syndicates prefer to diversify their operations to manage their risks
- Hardening of competition between crime syndicates stimulates violence and crime-on-crime activities
- Illicit money flows from oil theft intersect with those used to fund other transnational crimes and terrorist undertakings



...tapping a Mexican pipeline of refined oil for only seven minutes could earn a cartel \$90,000\*

\*“Downstream Oil Theft: Global Modalities, Trends, and Remedies”  
ATLANTIC COUNCIL

# Oil theft undermines the fabric of society

ISIS used oil theft to finance its terrorist wars

Nigerian criminal groups involved often described their own activities as economically rational, politically necessary, morally defensible, and socially productive\*

Crime-on-crime activities and turning local populations into sympathetic audiences for their cause are what make the activities of oil theft syndicates, criminal cartels, freedom fighters, and terrorist groups remarkably similar

Table 6: Mexico oil theft by market share (in 2016)

Rank	Organization	Market share (%)	Annual value of oil stolen (US\$ million)
1	Los Zetas	38.9	372
2	Jalisco New Generation Cartel	21.4	212
3	Gulf Cartel	16.3	187
4	Beltrán-Leyva	7.6	89
5	Sinaloa Cartel	6.3	74
6	La Familia Michoacana	2.5	29
7	Knights Templar	1.3	15
8	Juárez Cartel	0.7	8

Source: author's compilation of Atlantic Council report (Ralby 2017).

\*Chatham House study published in 2013

# Four key reasons for the low priority that the international community seems to give to actions against oil theft

- 1) It is seen as a domestic problem (mistakenly, as oil theft compromises the integrity of foreign markets and international financial systems)
- 2) The secretive and violent characteristics of this illegal trade render very difficult any intelligence-based action
- 3) The transnational organized crime networks involved are too flexible, mobile, creative, and diffuse to easily cut the illegal oil trade
- 4) Government officials are unenthusiastic about doing anything substantial to disrupt the illegal trade

Colombia's local economy disrupts when Venezuela lacks oil to smuggle



image by Carlos Felipe Pardo, taken on 21 August 2009, reproduced from Flickr.com under CC BY-NC-ND 2.0

# A key concern is the mix of legal commercial operations with illegal oil theft activities

Oil theft erodes regional business confidence, investment, and domestic development

A local petrol station selling a mix of legal and illegally refined products



Source: images by Stakeholder Democracy, taken on 18 November 2012, reproduced from Flickr.com under CC BY-NC-ND 2.0.

# Why countering oil theft is difficult, but necessary

- Oil theft is most common, yet it is also most covert
- There is a lack of basic data, including:
  - how much oil is stolen,
  - what the stolen oil movements are, and
  - how illicit oil transactions are conducted.
- Oil theft crime syndicates continuously show great flexibility to adjust oil theft execution strategies and business models
- They know how to exploit gaps in transnational jurisdictions as well as the limited capacity in law enforcement to move to new targets and methods

A key concern is the mix of legal commercial operations with illegal oil theft activities.

Crime syndicates work under the cover of and with the support of legal businesses, insiders, and government organizations to provide them with technical/operational support, information & business stability

This not only facilitates oil theft and thwarts detection/clampdown but it also contaminates oil markets and financial markets with illicit oil and money.

# International solutions to counter oil theft

Technologies Collaboration Enforcement Regulations

## Stolen oil volumes

- Designer tracers or markers for crude oil and fuels
- Protection of pipeline systems exposed to potential illegal taps
- Improved fuel and cargo management systems (including metering technology, measures to avoid meter tampering)
- Standards, regulations and enforcement practices across fuel bunkering value chain
- Discovering oil theft patterns through: data analytics, drone inspections, satellite imaging, remote radar detection
- Transparency on oil theft crimes (SPDC on oil spills, ReCAAP on oil tanker attacks).

## Stolen oil transport & trade

- Inhibit incentives for fuel smuggling (fuel pricing policies, stop fuel subsidies)
- Targeted checks at strategic oil theft transportation choke points
- Maritime co-operation between domestic and international navies
- Data analytics on ship transponder signals, satellite detection of radar signals and emissions from ships.
- Steep penalties for manipulation of ship transponder signals (bar ships from ports)
- Digital technology to limit manipulation of data (Singapore bunkering operations)
- Tamperproof business processes for third-party surveyor and certification

## Stolen oil money

- Stringent regulation of cryptocurrency services to break the criminal links with off-the-book payments
- Anti-money-laundering activities: commercial banks as whistle-blowers
- Precise oil theft sanctions: 'do-not-trade' lists, bar vessel insurance, etc.
- Financial due diligence by banks that fund oil trading and bunkering co's liquidity
- Block chain technologies and non-fungible tokens (NFTs) can provide proof of authenticity of the origin
- A more active role of international courts
- Prosecution for bribery (FCPA)

# A call to action

- No single solution would prevent current pervasive acts of global oil theft. However, in combination these actions could certainly create significant hurdles and constrain crime syndicates from exploiting the enabling environments for theft
- Each country may emphasize different aspects in this repertoire of measures, depending on the local situation and progress already made to curb oil theft.
- International co-ordination would be an important part of any holistic solution
- As oil theft threats and practices change, particularly into areas of cybercrime and ransomware, specialist advice and support are increasingly important to protect energy installations and fuel supplies against disruption and extortion.

The international maritime sector, through organizations such as IMO, ReCAAP, and Stable Seas, promotes a holistic approach to addressing piracy and armed robbery against ships. Its guidance and methodologies are likely to benefit efforts to counter other types of oil theft

# Opportunities for action and collaboration

Potential collaborating parties:

- 1) Oil companies (Bunker companies: e.g. Trafigura and Mercuria)
- 2) Banks and other financial institutions
- 3) International legal associations
- 4) Business associations (international bunker industry association )
- 5) Government institutions (EITI, IMO, ReCAAP, UNODC, UNCTAD, MPA, RTF)
- 6) NGOs (TRACIT, One Earth Future Foundation, Basel Institute on Governance, Stable Seas)



# Source materials

include UNU-WIDER peer-reviewed, published research\*

UNU-WIDER Report 1:

Global oil theft: impact and policy responses

<https://doi.org/10.35188/UNU-WIDER/2022/147-1>

UNU-WIDER Report 2:

Countering global oil theft: responses and solutions

<https://doi.org/10.35188/UNU-WIDER/2022/166-2>

UNU-WIDER VIDEO ON OIL THEFT

[https://www.youtube.com/watch?v=gWhy-DsvK\\_M](https://www.youtube.com/watch?v=gWhy-DsvK_M)



Source: image by Carsten ten Brink, taken on 27 December 2010, reproduced from Flickr.com under CC BY-NC-ND 2.0