

Component 2 - 2.2.7 – Global flows of shipping and sea cables

2.2.7a – Changing patterns, trends, networks and regulations of shipping	2.2.7b – Growth and management of smuggling and people trafficking
<p>Trade is the movement of goods and services from producers to consumers.</p> <ul style="list-style-type: none"> The value of world trade and global GDP has risen by 2% annually since 1945, apart from 2008-2009 (crash) Ten nations (including China, USA, Germany and Japan) account for 50% of world trade. Consumer markets are growing in Emerging Economies – middle class diets, e.g. in China meat consumption per capita has grown from 4kg to 52kg between 1990 and 2010. China remains the world's largest exporter (US\$2 trillion in 2013). The Suez Canal (planned by the French, built by the British, now operated by Egypt) opened in 1869 and saves 8900km of travel (about 10 days) The Panama Canal (planned by the French, completed and controlled by the USA) opened in 1914 and saves 13000km of travel (about 20 days) <p>The principal shipping routes follow an east-west corridor lining North America, Europe and Asia-Pacific through the Suez Canal, the Strait of Malacca and the Panama Canal. A second major route extends from Europe to eastern South America. Containerisation is fundamental to the process of globalisation due to the economies of scale that can be achieved with larger boats and improved technology for the loading and unloading of goods.</p> <p>Global shipping trends</p> <p>Increase in number of containers - More than 600 million individual containers are moved across the oceans each year – these have become the 'backbone' of the global economy since they were invented by Malcolm McLean in Newark, NJ in 1956.</p> <p>Increase in the size of the vessels – MSC Oscar is 395m long, 48m wide, cost US\$190 million and can carry 19000 containers. In 1988 the largest vessel was 275m long and could carry 4000 containers. The average size of a vessel has increased by 90% since 2000 and the total fleet capacity in 2015 was 4 times that of 2000. The largest oil tankers can carry 3 million barrels of oil and iron ore carriers can be 400,000 tonnes. There is also an increase in the number of cruise ships, with the largest of these being 360m long carrying 6000 passengers and 2300 crew.</p> <p>Over-capacity – too many large container ships have been built at a rate faster than global trade has grown. As such, vessels are not always filled to capacity and are not profitable. Hanjin Shipping (once the 7th largest operator) filed for bankruptcy in 2016.</p> <p>Ship-breaking – older vessels are scrapped as a result of over-capacity; the majority of this process occurs in India and Bangladesh where labour is cheaper, and health and safety laws are less stringent.</p> <p>Technology – Loading and unloading of containers is highly mechanised and each container has its own unique code which allows computers to track each container and so makes the logistics of distribution to be efficient.</p> <p>Regulation of shipping and shipping flows</p> <p>UNCLOS guarantees all shipping the 'right of innocent passage' through the territorial waters of any state so long as it is 'not prejudicial to the peace, good order or security of the coastal state'.</p> <p>In the past, oil spills were common in the territories flanking shipping lanes (e.g. in 1967 the <i>Torrey Canyon</i> super-tanker struck a reef in the English Channel on its journey from Kuwait to Milford Haven in Wales. 119,000 tonnes of oil were spilled killing 15,000 sea birds, contaminating 80km of UK beaches and 120km of French coastline and was the worst UK environmental disaster).</p> <p>To reduce the risk of further spills, oil tankers are required to have double hulls, and are not allowed to use seawater to wash oil out of their tanks. Successful UNCLOS regulation has caused the trend of a significant reduction in oil spills – 19 of the 20 largest oil spills occurred prior to 2000; in the 1990s 358 oil spills of 7 tonnes and over resulted in >1 million tonnes lost, in the 2000s there were 181 spills with less than 200,000 tonnes lost.</p>	<p>In addition to legitimate trade and migration flows of people, goods, services, data and technology there are illegal trans-oceanic flows of people, narcotics, counterfeit property, stolen goods and endangered wildlife.</p> <p>People trafficking – Europol states that 90% of the migrants who cross the Mediterranean illegally, use the services of criminal networks. These networks are estimated to have a turnover of between \$3 and \$6 billion in 2015 alone due to migrant smuggling.</p> <p>Smuggling – increasing in the Mediterranean and Atlantic – it is difficult for Europe to monitor 70,000km of coastline. Illegal drugs, guns and counterfeit goods are brought into the EU by organised criminals and terrorists via its coastal margins. The UN's IMO and the ISPS Code (2.2.6) allows authorities heightened security powers to monitor shipping and control access to ports.</p> <p>Slavery – There have been allegations of exploitation and slavery in the UK's fishing fleet. This £770 million industry often employs overseas workers on ships moored offshore in British waters. These are more difficult for police and welfare officers to monitor and for human rights to be protected – the wages of some West African workers are so low as to be considered as modern slavery.</p> <p>The UN have made repeated calls for states to work together to tackle transnational organised crime flows and since 2000 there has been the UN Convention against Transnational Organised Crime (UNTOC)</p> <p>2.2.7c – Growth of seafloor cable networks</p> <p>More than 1 million kilometres of seafloor data cables carry data around the globe.</p> <p>Mid 1800s – first Atlantic telegraph cables carrying Morse code.</p> <p>1950s – Trans-Atlantic telephone cables became common</p> <p>1990s – Analogue cables replaced by fibre optic cables, carrying digital data in the form of light</p> <p>Today – 99% of all intercontinental data traffic (phone calls, texts, emails) are transmitted via seafloor cables. Demand for global bandwidth is growing at 40% per year.</p> <p>Cables used to be laid down and controlled by governments, but now MNCs own much of the infrastructure:</p> <ul style="list-style-type: none"> Microsoft and Facebook (Meta) are building Marea – a 6600km cable linking the USA, Europe, Africa the Middle East and Asia Google funded the US\$300 million FASTER cable project lining the USA, Japan and Taiwan Vodafone, BT, AT&T and Telefonica all own large seafloor cable networks. <p>Some regions of the world (USA, Europe, India, Japan) are well-served by cable networks, whereas some places remain poorly connected – much of Africa, southern South America, North Korea.</p> <p>2.2.7d – Risks to and management of seafloor cable data networks</p> <p>Risks</p> <p>Tectonic hazards, tsunami and undersea landslides – risks are mitigated using seismic profiles to avoid places at greatest risk, such as the active areas of the Mid-Atlantic Ridge. Even so, in 2006 a submarine earthquake severed the telecom link between Taiwan and the Philippines. In January 2022 Tonga's internet connection was severed by a volcanic eruption. It took 5 weeks to repair the connection. The Boxing Day tsunami in 2004 disrupted communications networks in Malaysia and South Africa.</p> <p>Cyclones and hurricanes – in 1982, Hurricane Iwa damaged 6 seafloor telephone cables connecting Hawaii</p> <p>Anchors and trawling – the greatest threat, accounting for 60% of cut-cable incidents, are caused by anchors and fishing nets. In 2008, Asia lost 75% of its internet capacity when a ship's anchor severed a cable on the seabed connecting Palermo (Italy) to Alexandria (Egypt).</p> <p>Fish and shark bites – rare occurrences of sharks biting cables causing damage.</p> <p>Sabotage and theft – common during both world wars, and in 2007 theft of cables has been reported in Vietnam</p> <p>Management</p> <p>Now under UNCLOS, the Convention for the Protection of Submarine Cables was signed in 1884. No-Fishing and no-anchoring zones surround important cables. All states enjoy the freedom to lay cables in the EEZs and continental shelves of other states. There are no laws protecting vulnerable ecosystems from cable-laying. The ICPC Ltd (International Cable Protection Committee) fosters international cooperation between 80 companies from 40 nations to uphold UNCLOS rules.</p>

