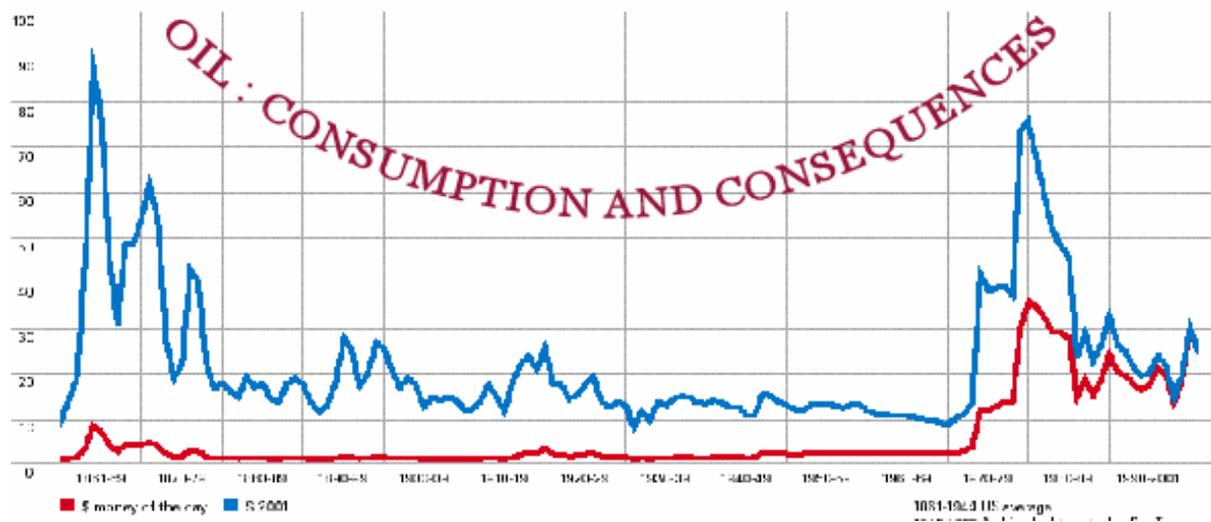


# Baconnet Thomas Marchand Jean Remy Roynette Hugo



# **OIL : CONSUMPTION AND CONSEQUENCES**

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## INTRODUCTION

Oil is a black liquid, mostly used for its energetic functions. The roots of this word came Latin, which means « oil coming from the stone ». In the eighteenth century, coal was the main energy source, as well as the main raw material. Yet, since the twentieth century and the second industrial revolution, oil has taken the place of coal. Moreover, this material called « black gold » has got much influence on the economy.

What's more, transports depend on oil. Everything begins with the extraction of oil, from the oil platform to the private consumption by the way of a complex system of transport and, finally, treatment. Furthermore, some countries base their economy on oil exploitation. Other countries cannot subsist without its consumption. On top of that, on the economic sector, before the crisis and inflation, oil was cheap and plentiful. Since 1973 and the first energy shock, the price of oil is no longer increasing.

Oil has had a complex route since its discovery. From extraction to its role in economy, what does the consumption of oil on everyday life imply?

The different steps of the transportation of oil will be described. First, its discovery will be highlighted. Then, all sorts of transports, what happens to it and its distribution to the world market will be underlined.

Then, we will introduce the producers and the consumers, who they are and what they do. All problems created by oil will be focused on. We will also see what solutions are to be discovered.

To finish with, the whole crisis and their consequences on the price of oil will be dealt with. We will focus on the 1973 world oil shock. Indeed, it had provided an impetus on the rise of prices.

## I Transportation of oil and exchanges.

Getting oil from the well to the refinery and then to the service station requires a complex transportation and storage system. After that, a huge organisation is necessary for its export.

### A) Extraction and transportation of oil.

Millions of barrels of oil are transported every day in tankers, pipelines, rails and trucks. This transportation system has always been a problem for the oil industry. And the emergence, for example, of global terrorism has made these difficulties even more important.

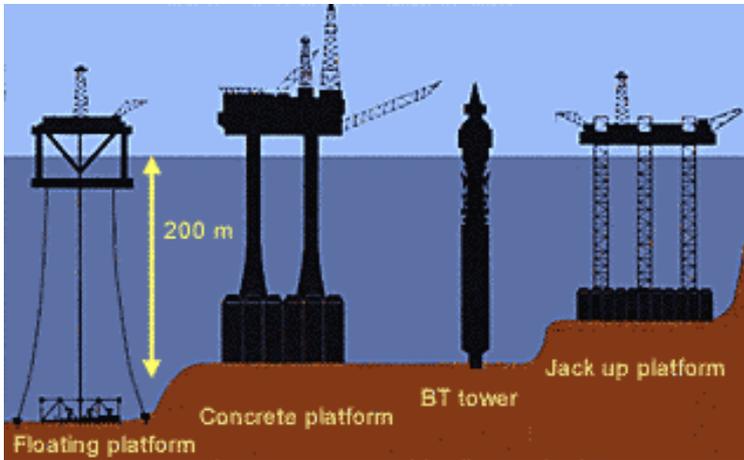
#### 1) The oil rig.

Extracting oil takes place in oil fields areas. Each field can have a number of platforms drilling for oil. The largest oil field in the world is in Saudi Arabia and is seventy kilometres long and thirty kilometres wide.



North Sea oil and gas fields. There are also more than twenty gas fields - shown in pale blue. Again, these all have names. Only Viking is shown here.

There are several kinds of oil rigs or platforms. Oil platforms are huge structures. Some may be attached to the ocean floor or others may be floating.



Here are some of the types of oil platform. Notice how tall they are compared to the BT tower in London. The water in the North sea is often over 200 metres deep.

Moreover, some have concrete legs that sit on the sea bed. They had to be made in a shipyard and towed out to sea. Other platforms have metal legs and they are sometimes jacked up.



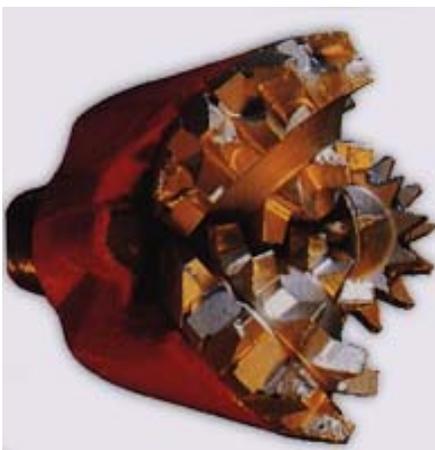
These legs are being built for a platform in the Brent oil field. They are over two hundred metres tall. That's the length of two full size football pitches end to end.

Their aim is to drill exploration wells under the sea to look for oil. They used to drill into an oil field to extract the oil. The floating rig on the following document is used to drill test holes and to find oil. It is held in place by anchor chains or computer-controlled propellers.



An example of an oil platform. This one has got metal legs.

Drilling for oil requires a special drill component. It rotates like the power tools that are used to drill into wood. A drill component is made of steel with industrial diamonds on the cutting edges.



A drill component, made from precious diamonds.

Diamonds are very hard and can cut through rock. The drill part is connected to the end of the sections of spinning pipe and the spinning part cuts through the rock.

What's more, an oil platform is like a small village and people who live and work in there have to go to work by helicopter. The oil industry provides many thousands of jobs in Britain. 1,400 people are regularly employed and 900 of these are considered as permanent staff. There are many different jobs – some of them are technical and others are for support. On top of that, an oil platform includes administrators, engineers, scientists, drilling crews, divers and medical staff. Oil platforms can be isolated but the work is well paid. For example, drill deck workers can earn up to \$355 per day, that is to say more than 47 dollars a year.

The Offshore Installation Manager is the equivalent of a ship's captain. He is in overall charge of the platform, its crew and its operations. His job is varied and interesting and involves many of the skills needed to manage a small business - leadership, motivation, awareness of regulations and, above all, attention to safety. People who work on the rigs are at the sharp end of the business. They are called rig workers. For example, they can aim at attaching sections to a drill :



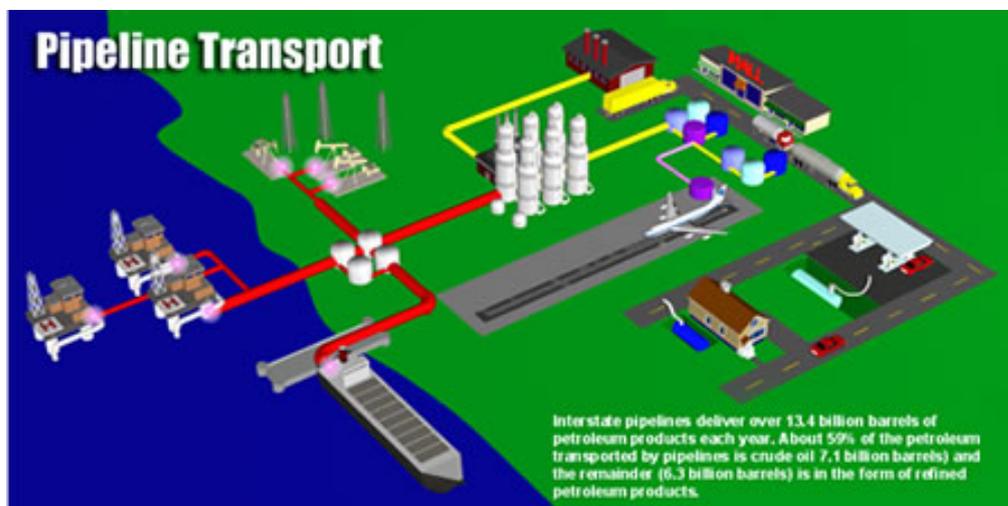
A drilling crew. These men are attaching sections to a drill thread. But there are other jobs too.

Like most of the platform crew, they spend two weeks on the platform and three weeks off. The work is hard, but the pay is motivating and the time spent onshore makes up for the two weeks away.

Moreover, the Captain's platform has two sorts of engineers. The production engineer maximises the output from the wells. The process engineer looks after the equipment that separates the crude mixture. Eventually, there is a resident chemist on most platforms. The chemist will test samples of the crude oil mixture from the wells to help develop and optimise ways of treating it.

## 2) To the refinery.

Oil is often located in remote places or under the sea. After having been found, it has to be transported to an oil refinery. Although oil is often used far from its natural site, several means may be used along the way to carry it. The oil transport system is global, mainly including supertankers and continent crossing pipelines.



The way to transport crude oil. From oil rigs to the refinery, using tankers and pipelines.

About two thirds of the world's oil trade, as well as both crude oil and refined products, move by tankers. Oil tankers are huge ships, especially made and adapted to carry large quantities of oil from oil rigs or platforms, to refineries.



This is an example of an oil tanker. This one is so huge that it is called a *supertanker*.

There are approximately four thousand in operation, plying the world's oceans. On top of that, they are often more than 450 metres long, 60 metres wide and 25 metres deep. The largest one is known as the Norwegian *Jahre Viking*, and it is able to carry more than half a million tons of crude oil at a time.

Oil tankers have made intercontinental transport of oil possible, as they are low cost, efficient, and extremely flexible. About 43 million barrels per day of that trade is crude oil.

The other important way to bring oil to the refinery lies in the use of the pipeline. Oil pipelines are giant tubes, measuring a thousand kilometres long, which aim at crossing vast lands in order to carry oil. They are made from steel tubes with an inner diameter from 30 to 120 cm.



A pipeline being laid in the 1970s. You can notice the length of such an installation, which is now invisible in the landscape.

Where possible, they are built above the surface. However, in more developed, urban or environmentally sensitive areas they are buried underground at a typical depth of about 1 metre. The oil is kept in motion by a system of pump stations built along the pipeline. It usually flows at a speed of about 1 to 6 m/s. One of the largest oil pipelines in the world is the Trans-Alaska Pipeline system. It is 1,300 kilometres long and can transport 350 million litres of crude oil each day. It crosses three mountain ranges and 800 rivers or streams. Pipelines are cheaper than any alternative such as rail, barge, or road so they are much in demand.

On the other hand there are often risks for these ways to transport crude oil. Indeed, tankers and pipelines are very vulnerable targets. So they can be easy preys for terrorism. Tankers are too slow and cumbersome to manoeuvre away from attackers; they don't have any protection and they have nowhere to hide. Each one of the numerous tankers in the world may be attacked in high seas, or while passing through narrow straits. For example, In February 2004, the southern Philippines-based *Abu Sayaf* claimed responsibility for an explosion on a large tanker that caused more than a hundred casualties. As for pipelines, they are no less vulnerable. A simple explosive device could puncture a pipeline, deeming it non-operational. These kinds of threats are often led by terror organizations like al-Qaeda and its affiliates, by cutting oil transportation routes.

Nevertheless, this is to acknowledge that most crude oil transportations reach their goal. That is to say, their next step: refinery.

## B) Treatment and export of oil.

Crude oil doesn't always look the same – it depends on where it comes from. Sometimes it is almost colourless, or it can be thick and black. But crude oil usually looks like thin, brown treacle. To make exchanges all over the world, it must have been warily treated, and respect a lot of conditions.

## 1) Inside the refinery.

The following step, as far as the transportation of oil is concerned, is the refinery. An oil refinery is a large industrial site where crude oil is turned into a whole range of useful substances.



This is a photo displaying the Martinez oil refinery, which is settled in the United States.

The oil refinery is operated by a highly automated control room.

A typical large refinery costs billions of dollars to build and millions more to run and upgrade. It runs around the clock 365 days a year, employs hundreds of people and occupies as much land as several hundred football pitches. Some are so big and sprawling that workers need to ride bicycles just to get from one part of the refinery complex to another. What's more, it is usually separated into two parts.

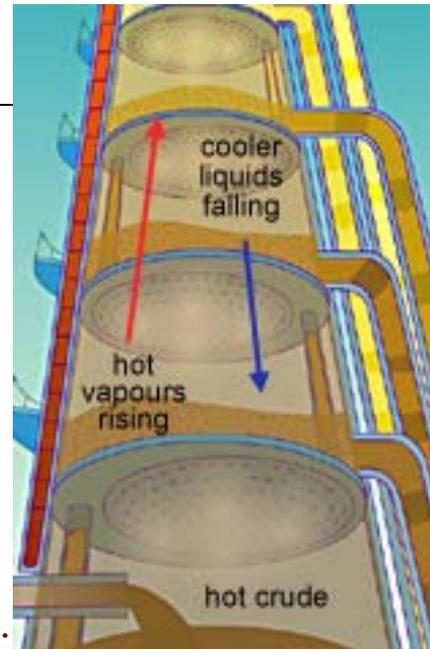
First, the terminal section is where crude oil is delivered by pipelines and tankers. The crude oil is pumped into large round storage tanks. Each tank can hold up to 100 million litres of oil. Yet the reserves do not stay there for long.

The next stage is the refinery section. It aims at changing crude oil into many useful products. Indeed, crude oil is not very serviceable in the form it comes in out of the ground. It needs to be broken down into several parts and then refined before use. Furthermore, it is a complicated mixture of compounds, and most of them are various types of hydrocarbons. This mixture is split up into different fractions, in what is called the *distillation tower*. It can also be known as a *still*. This is highlighted by the following documents.

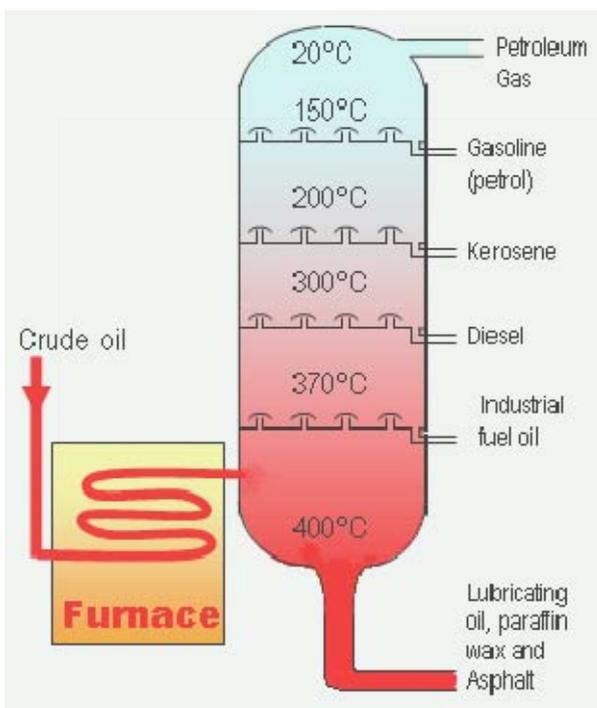


The distillation tower.  
(also named the still)

These pictures are depicting a distillation tower seen from the exterior and from the interior. Boiling hot temperatures are reached in this part of the refinery. Products (fractions) resulting from the occurring transformations leave the large column by the right.



The next picture shows the familiar diagram of the fractions' names, and the levels at which they come out of the distillation tower. Crude oil is used to arrive from the furnace and then is submitted to significant temperatures.



An overview of one of the refinery processes. It emphasizes the way in which a distillation tower works. You can notice several temperature steps. These ones produce different fractions, like diesel or petrol.

The crude oil is heated in a furnace at about 370°C and is pumped into the bottom of the distillation tower. Most of the hydrocarbons are gaseous, so the very thick ones are still a liquid even at this temperature. The tower acts as a heat exchanger, removing heat from the vapours as they rise. Some of them condense back into liquids and fall back down the column. So the temperature gradually decreases as you go up the column. Different groups of hydrocarbons condense at different heights. Indeed, it is important to realise that the column is hot at the bottom, and cool at the top. When crude oil emerges from the furnace, it is in two parts: a liquid and vapour. Both are mixtures but the vapour contains a higher proportion of the more volatile (which means it is easy to boil) hydrocarbons.

Once this step is complete, some of the fractions won't require numerous additional proceedings. However, most molecules will need much more processing to become products of high value.

The treatment is the final step before tanker trucks and railroad cars head out of the refinery to deliver oil to our local gas station. This includes adding the finishing touches. Besides, to make petrol, refinery technicians carefully combine a variety of streams from the processing units.

To conclude, thanks to oil refineries, it is possible to obtain the petrol that powers our cars, the diesel fuel that brings our food to market and the jet fuel that flies our planes. Without all their work, no one could be provided with the energy needed to get from place to place, quickly and comfortably.

## 2) Last procedures and personal consumption.

Once the crude oil has been treated and prepared, it is not yet ready to be consumed. Firstly, it has to be transported in storage tanks for it to be sent, later, to requesters. This is an intermediary step.



These storage tanks aim  
At preserving oil after its  
treatment in the refinery.  
It is now ready to be  
exported.

Afterwards, for example, a European industry asks for oil and tries to set up negotiations with the exporting country. Both of them aim at making benefices by rising the price of oil up for the exporting country, or down for the importing one. Sometimes this may have consequences on the economy; so it will be highlighted later.

Lots of conditions are to be respected, for the exporting countries to be able to realize exchanges internationally. Indeed, there are numerous constraints illustrating the complicated side of realizing exports on the world scale.

For any exporting country, it is compelled to precise, for instance, the exact place where the export takes place, or the kind of oil product which is to be exported. There are also conditions such as stating the total exported quantity of oil; and specify the consignee and the destination of oil in the importing country. In short, nowadays, contrary to the past, every detail must be known for a country to be able to export oil. All these precautions are set up to ensure the reliability and the safety of exchanges.

Undeniably, the use of oil takes place in many aspects of the everyday life. It is essential in the whole transportation system. It is also used as a raw material, in the chemical industry and in the motor-fuel production. With its derivatives, it is very important in medicine, plastic materials, painting, and electric or rubber production as well. Moreover, we can also point out that oil influences economy. Let us see how it expresses itself on this domain.

## II Economy founded on oil

The low prices of oil at the beginning of the twentieth century made many countries become dependant of it. Moreover, some states earn a lot of money thanks to it. For example, the duties put on petroleum in France are the third source of earnings for the State. We thus can say that the economy of the world, and particularly of the developed countries is based on the oil market.

### A) Producers

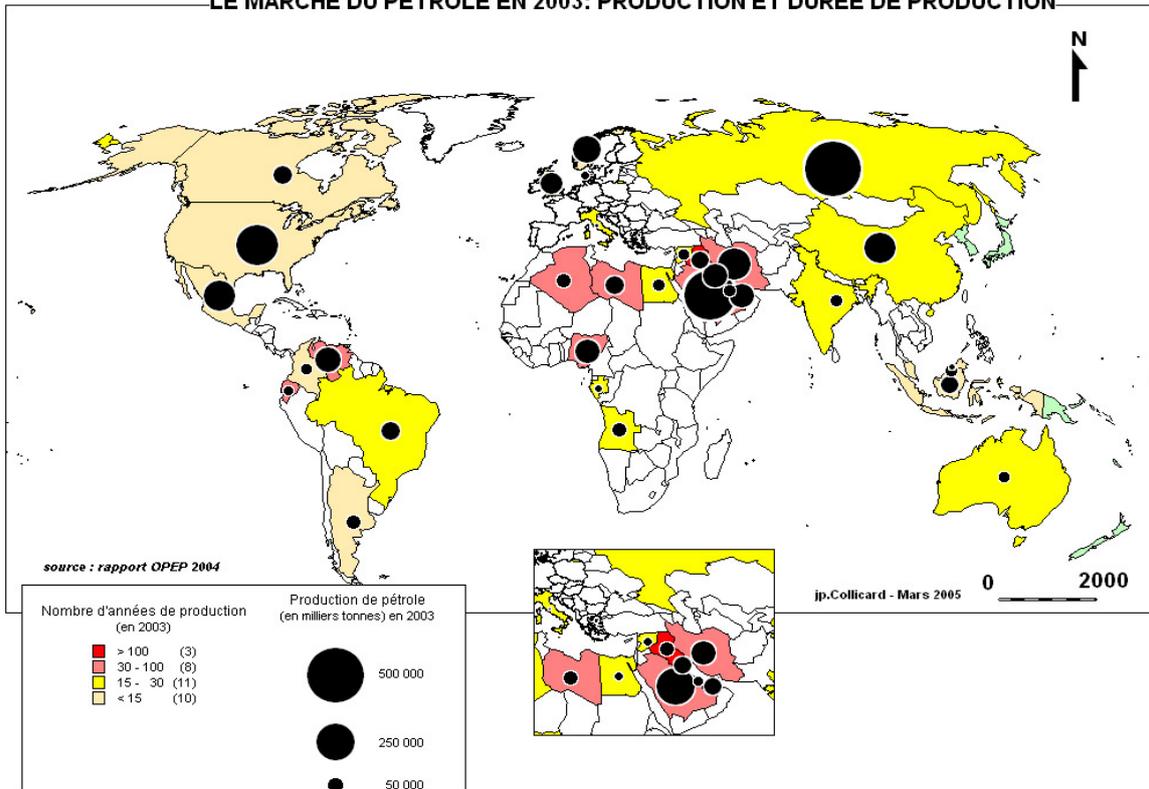
Some regions of the world have based their economy on the selling of oil. They produce, then export oil to other countries.

#### 1) Main producers.

Firstly, when we talk about producers of oil, we talk about countries which produce oil.

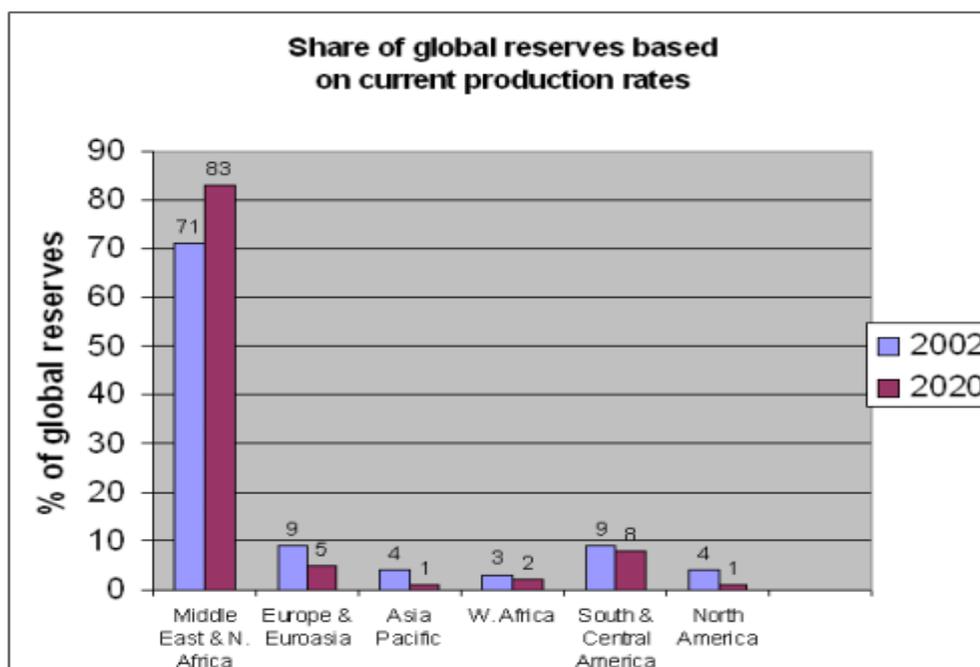
The main production countries, regions or association of oil are the Middle East, Russia, Norway, United Kingdom, China, Mexico and USA, and the OPEC. The biggest part of production is made in the Middle East. This region enjoyed a ground full of these goods. We can see that the oilfields are 66.5% in the Middle East, 8.86% in South America (7.1% in Venezuela), 7.4% in Africa (2.9% in Libya, 2.2% in Nigeria), 5.6% in ex-URSS (4.8% in Russia), 5.4% in North America(2.8% in Mexico, 2.1% in the USA) and 1.8% in the west of Europe.

LE MARCHÉ DU PÉTROLE EN 2003: PRODUCTION ET DUREE DE PRODUCTION



This map shows the regions of the world where oil was mostly produced in 2003. When the circle is big, the production is big. The colours shows the amount of time countries have been producing oil, white pink is less than 15 years, red is more than 100 years. This illustrates where oil has been most extracted.

Next, many countries establish reserves of petroleum, to be able to hold on if a crisis arises. In this way, they are able to sell oil even if they don't produce anymore.



This document shows the reserves in the ground of every region in the world. We can see that the Middle East has sharply most of it.

## 2) OPEC

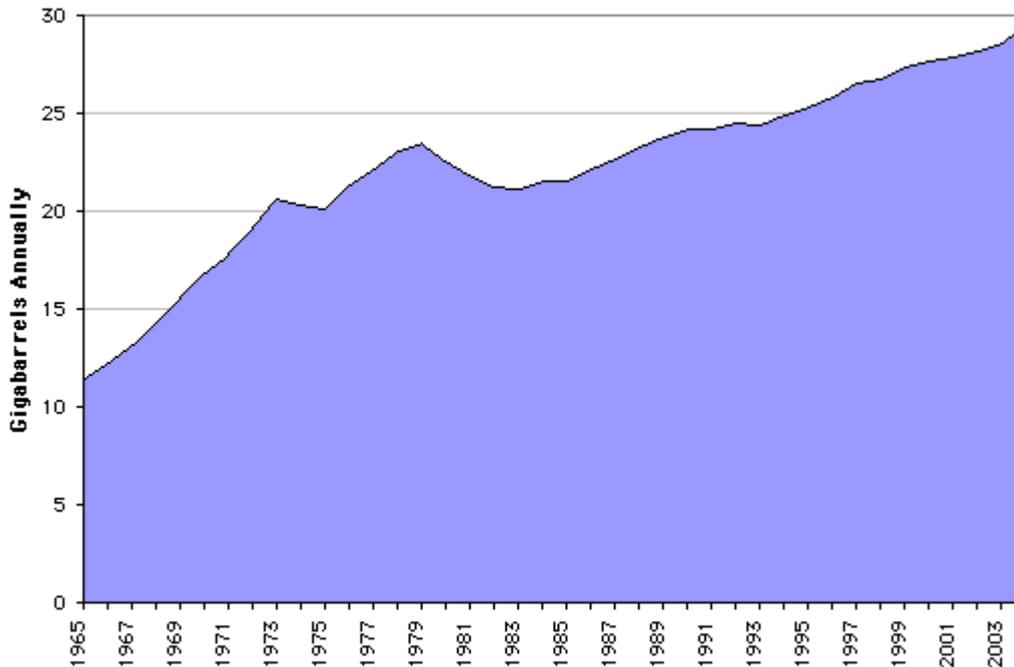
The Organisation of Petroleum Exporting Countries (OPEC) is the main producer of oil in the world. This organisation is composed of eleven countries :

Saudi Arabia, Iraq, Iran, Kuwait, Venezuela, Qatar, United Arab Emirates, Algeria, Indonesia, Nigeria, Libya. They are classed by their elder in OPEC.

The founders of this association are Saudi Arabia, Iraq, Iran, Kuwait and Venezuela. We can notice that six members are from the Middle East. The objective of the corporation was in the past century, to have oil stability, which will make them earn money. Since 2001, their goal became the expansion of prices of crude oil in order to earn money. Some years ago, the reference price for a barrel of oil was between twenty two and twenty eight dollars, but this price exploded since the beginning of the twenty first century and particularly since

the eleventh of September 2001. Events of life influence on the prices. For example, when the USA announced the war in Iraq in 2004, prices of the barrel increased by ten dollars. The price brackets change but are more and more high. (we will more develop it in the last part)

OPEC makes 50% of the world's total production but it has 75% of its reserves. It represents 684 billion barrels, or 744 756 billion litres of petroleum.



This graph shows the production of petroleum in the world per year, in gigabarrels. We can see that the production increased, it must adapt itself to the consumption.

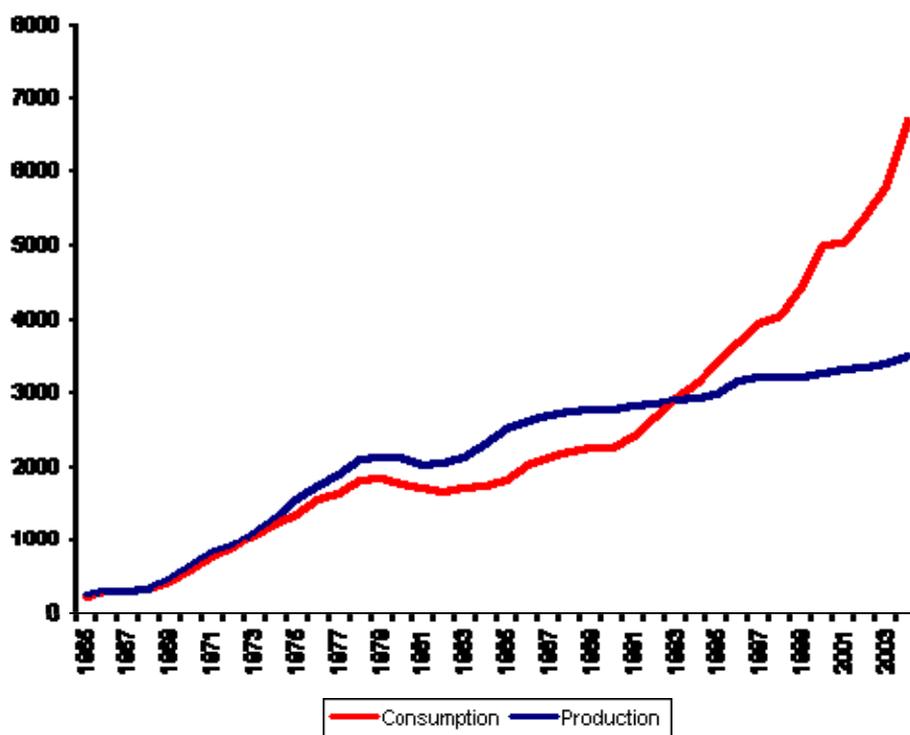
## B) Consumers

On the one hand, half of the world's imports of raw materials are oil imports. On the other hand, we can notice that the developed countries take advantage of it. Almost a hundred percent of imports of petroleum are in developed countries like Western Europe or Northern America. The prices vary a lot with unforeseen events.

## 1) Main consumer countries

The main consumer regions in the world are Western Europe, Northern America and Eastern Asia. Asia, in itself, imports almost thirty percent of the world's total imports. China is the biggest importer of Asia, it imports ten percent of the world total imports. In Northern America, the USA are the main importers. They import a quarter of all imports. Western Europe imports as many petroleum as the USA, as to know twenty five percent of the world total imports. We can see that eighty percent of imports are made by these countries. The last twenty percent are shared between low importing countries.

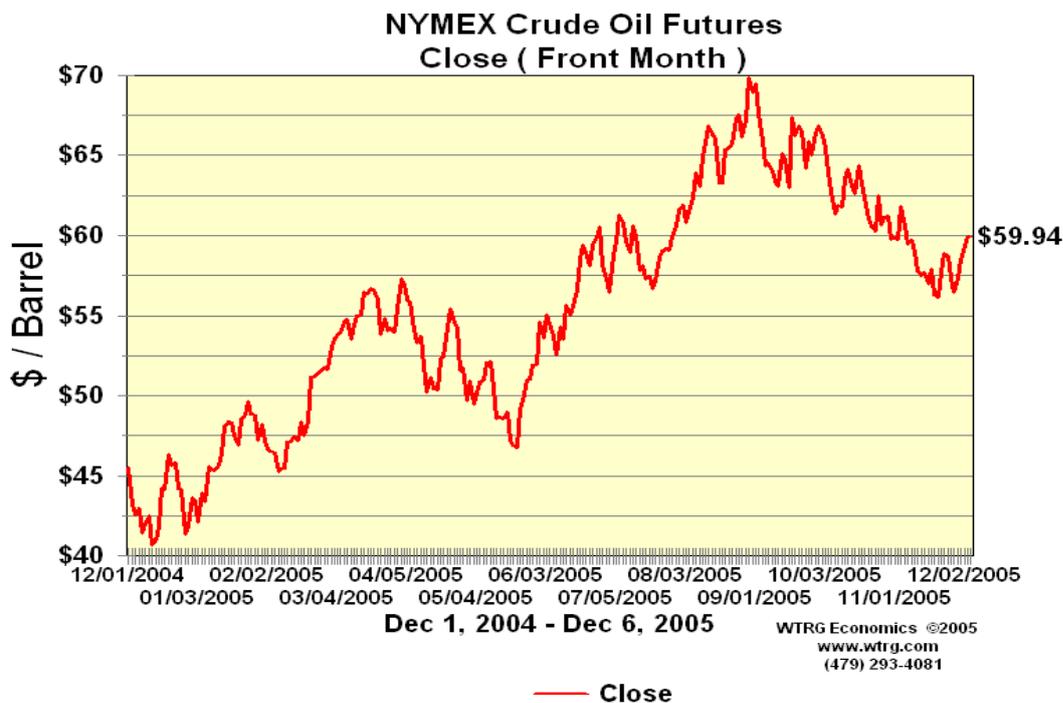
For example, let's see the case of China. This country is growing, the population is getting high. Moreover, its economy is rising, and it needs a lot of petroleum. In fact, the consumption of China of petroleum has increased of more than fourteen times for the lasts forty years. The problem is that before, China could support itself by its production of oil, but since 1975, the consumption has exceeded the production widely.



This graph depicts the consumption of oil in China between 1965 and 2004. As we said and we can see, it increased a lot.

## 2) Price brackets and duties.

We can see in the history of oil that its prices have increased more and more. These prices can vary with different organisations which extract it, but there is always a reference price. Around this reference, the prices change in a price bracket. Since the first oil crisis, these price brackets are increasing. For example, in 1978, the reference price bracket was around twelve and sixteen dollars per a barrel, but in 1981, it rose from thirty three to thirty seven dollars per barrel. A barrel represents a hundred and fifty nine litres of petroleum. Nowadays, the reference price bracket has reached around fifty five dollars a barrel.



This illustrates what we have just said, as to know the increase of the prices.

The main utilisation of oil is for transport and making energy, by the intermediary of fuel. Logically, the price of fuel increases when the price of oil increases, but fuel is not expensive only for this reason. Indeed, the creation of fuel makes a difference to the price of

crude oil and fuel. Furthermore, countries importing petroleum add duties to the price. In consequence, the prices are very important ...

Limits of fluctuation of the price of the barrel had been put in place. These limits represent an increase or a decrease of less than three dollars per day. For example, if a barrel costs 20 dollars this morning, this evening, it will not be more expensive than 23 dollars, or cheaper than 17 dollars.

### C) Private individuals

Private individuals are also touched by the changes in oil's economy. Tensions are created, and many solutions are suggested.

#### 1) Problems

First of all, we know that pollution comes often through petroleum. We have seen many examples of boat transporting oil which split, creating oil slicks. Furthermore, the consumption of oil creates other types of pollution, like the creation of carbon dioxide, which warms the Earth.

Next, as the prices of oil -in consequence of fuel- are high, the tensions are affecting everyone. Every person has to put a form of petrol into their car. Oil is becoming a luxurious good, and today, not everybody can afford it. Many people manifest for its price to decrease because it was cheaper in the past.

Conflicts like war can rise from tensions caused by oil. The example of the last war in Iraq is the biggest of all. We can't prove this, but we can notice that president Bush, the vice president Cheney and the secretary for commerce Donald Evans are all businessmen who have worked with the question of oil, and Iraq is the country which produces the more petrol in the world...

Finally, governments try to find solutions to this problem.

## 2) Solutions

Governments try to find solutions to this problem by decreasing their taxes or by putting pressure on exporting countries in order for them to decrease their prices. Obviously, these countries never agree with each other. For example we can notice this interview of King Abdullah bin Abdel Aziz of Saudi Arabia. The situation is that Saudi Arabia has vowed to continue to provide “enough” oil supplies, but called on leading consumer countries to cut taxes on petroleum products to alleviate increases in world prices.

“The policy of the kingdom is based on reaching a reasonable and fair price for oil and to provide enough supplies to all the consumers”, stated King Abdullah bin Abdel Aziz.

“But all the efforts of the producing countries will not bear fruits if they are not met with a positive position by main consumer states”, he exclaimed at the opening of the permanent seat of the International Energy Forum in Riyadh. He continued :

“These states should alleviate the ordeal of their citizens by cutting taxes on petroleum products when prices increase”. No answer has really been made.

On the other hand, scientists also try to find solutions. They try to find new energies, less polluting, more efficient and less expensive. Actually, transitions are made to preserve the environment, but it won't be soon that petroleum will be forgotten.

As you see, we have underlined the fact that the producers and the consumers are numerous. Both have made lots of exports since the using of oil in industry and technology. Producers are continually increasing the price of their exports since the 1973 oil crisis. From this shock to nowadays, oil have triggered several crisis and even the world economy has suffered.

### III Crisis and consequences

When extractions began around 1870 and the second industrial revolution, oil was cheap and the price was stable. But in 1973, the prices rose because of the oil crisis and several crises followed and continued the increase in prices. It got higher and higher. On top of that oil is rare so the prices are still going up. Nowadays the price of a barrel is very expensive.

#### A) 1973: the first oil crisis

The first oil crisis of 1973 began on October 17th when Arab members of the Organization of Petroleum Exporting Countries (OPEC) announced that they would no longer ship oil to nations who supported Israel in its conflict with Egypt. This conflict is the Yom Kippur War and it was the triggering element of the shock. This declaration was destined to the United States and its allies, that is to say several countries in Western Europe. At the same time, OPEC members agreed to increase oil prices all over the world. They quadrupled the price of the barrel and completed the dependence of the industrialized countries as well as the economy founded on oil. The USA, which is the most developed economic country could not stand that Middle Eastern countries are better producers of petroleum than they are. These Asian countries also dominated Western Europe and Japan.

#### 1) Status of oil in the 1973 world oil shock.

The Arab-Israeli conflict started an energy crisis. Before it, the industrialized West, especially the USA, had taken cheap oil for evolving. Indeed the American cities after World War two depended on the automobile as the main means of transport. So oil was

essentially consumed as fuel. Between 1945 and the late 1970's the West developed countries and Japan consumed more oil and minerals than it had used in previous recorded history. Oil consumption in the United States had more than doubled between 1950 and 1974. With only 6% of the world's population, the United States was consuming 33% of the world's energy. At the same time, America's economy accounted for a quarter of total global production. America became the country which developed the economy of oil and it spread because oil was paid with American dollars and because the value of oil is fixed on American dollars. So oil was the best way to improve its economy.

The American government understood it and based its development on petroleum. But the USA were already developed, the economy grew slowly and the American president, Richard Nixon had inherited it. During the summer of 1971, Nixon was under public pressure, he had to choose either rising prices or general economic stagnation. He decided to release the dollar consequently it had been devalued by 8% in December 1971 and devalued again in 1973. This fall increased world economy and including the devaluation of the dollar. This devalorization and this devaluation of dollars weakened a conflict on natural resources which resulted on a struggle for the best favourable sharing of these resources between rich countries and oil-exporting nations of OPEC. They decided on a strategy to get fragile industrial economies of countries founded on oil. As a consequence USA and its allies declined to give their help to the Middle Eastern countries in the West pro-Israeli conflict. The OPEC were angry and decided to increase the price of the barrel of oil in the exportations with the countries that refused to help OPEC' allies.

## 2) The progress of the crisis

The persistence of the Arab-Israeli conflict finally triggered a response that transformed OPEC from a simple cartel into a strong political force. In 1967 the Arab members of the OPEC formed a separate, overlapping group (Organization of Arab Petroleum Exporting Countries) for the purpose of centring policy and exerting

pressure on the West over its support of Israel. Later, the Yom Kippur War of 1973 increased Arab opinion. Furious at the decline of developed and powerful countries to give help to Egypt and Syria against Israel, in 1973 the Arab world imposed an oil embargo against the United States, Western Europe and Japan. Those countries wanted to test the motivation of the OPEC and by the early 70's the great Western oil conglomerates suddenly faced a unified block of producers. So the Yom Kippur War triggered a crisis and the Western power could not continue to increase its energy with paying low oil prices. This was underlined by the Shah of Iran, whose nation was the world's second largest exporter of oil and the best ally of the United States in the Middle East at this time. The Shah said to the New York Times in 1973:

"Of course [the world price of oil] is going to rise,[...]Certainly! And how... You [Western nations] increased the price of wheat you sell us by 300 percent, and the same for sugar and cement... You buy our crude oil and sell it back to us, redefined as petrochemicals, at a hundred times the price you've paid to us... It's only fair that, from now on, you should pay more for oil. Let's say 10 times more."

This declaration increased the tensions between OPEC and USA. In October 16th, 1973, OPEC cut the production of oil, and placed an embargo on shipments of crude oil to the West, with the USA specifically targeted as part of the political strategy that included the Yom Kippur War. With the rise in prices, the demand for exportations fell. So OPEC imposed an oil embargo on industrialized countries . This first oil crisis triggered several consequences on the economy.

### 3) Consequences of this shock on the economy.

The effects of the embargo were immediate. OPEC forced the petroleum companies to increase their price. Indeed the price had been multiplied by four, it went from twelve to forty-two per barrel. This increase had a dramatic effect on oil exporting nations especially for the Middle East countries which did not make part of OPEC (just their allies) and who had long been dominated by the industrial powers. Western countries had taken control of the Middle Eastern nations and

stopped giving incomes to producers and exporters. Some of these incomes were dispensed to aid these underdeveloped countries whose economy had been struck by a higher price of oil and lower prices of than their own exports.

Contrary to some OPEC-member states which withheld the prospect of nationalization of the companies in the countries of the Third World. As the other members of OPEC followed, the economies of all the nations rose a lot. With the onset of the embargo, United States imports of oil from the Arab countries dropped from 1.2 million barrels (190,000 m<sup>3</sup>) a day to a mere 19,000 barrels (3,000 m<sup>3</sup>). Daily consumption decreased by 6.1 percent from September to February, and by the summer of 1974, it dropped by 7 percent as the United States suffered its first fuel shortage since the Second World War.

Moreover this crisis marked an end to the improvement of developed countries. For instance, in France it spelt the end of the « Trente glorieuses » and in the United States the shock increased unemployment and the way of life of the unemployed people had been worse.

## B) Other oil crisis

From 1973 to nowadays, several crisis took place which made the oil's price constantly increase. The main shocks occurred in 1979, 1990, 2001 and 2004. But the whole crisis had similarities like the main powers which were responsible for the crisis were still the same ones: United States and members of OPEC. Also, they all began with a conflict or a war.

1) 1979 : the peak of prices.

The second oil shock is the consequence of Iranian revolution. The revolutionary Ayatollah Khomeini caused a revolution against the Iranian government especially the Shah of Iran. Khomeini increased protests to gain control, to make Islamic alliances and to overthrow the Shah's government. Iranian people were occupied to

improve their conditions with the revolution and their expansion concerning the oil sector was cut off. The revolution burst some Iranian oil sectors. While the new regime led by Khomeini took over oil exports, it was inconsistent and at a lower volume, which drove up prices. Saudi Arabia and other OPEC nations increased production to offset the decline, and the total loss in production was just about 4%. However, a widespread panic resulted, driving the price far higher than it would be expected under normal circumstances. On top of that, in 1980, following Saddam Hussein's Iraqi invasion of Iran, oil production in Iran nearly stopped, and Iraq's oil production was severely cut as well.

Moreover, American people wasted 150000 barrels of oil per day because of consumption of oil as gas for their car. During this period, many people believed that the lack of oil were artificially created by the oil companies in order to raise prices, rather than created by natural factors. So the economy fell because of the rise in prices. To stop this decline, the American president, Jimmy Carter encouraged conservation of oil energy with the installation of solar panels and a wood stove on the roof of the White House. He tried to show the example to conserve energy and to increase the American economy. But his successor Ronald Reagan ordered the solar panels and the wood stove to be removed and dismantled. After this destruction, Carter made a speech arguing that the oil crisis was "the moral equivalent of war". He also, as part of his administration's effort, proposed to remove price control that had been imposed in the administration of Nixon during the 1973 oil crisis. The Congress agreed for this to be removed but Reagan also dismantled it in 1981 so the crisis had been increased. So all Carter's effort had been inefficient and prices were still rising.

The second oil crisis is less violent than the first because the government had already fought this kind of situation, but it had the same consequences as the first one. Also two different sides of the crisis appeared: the one in Middle East and the one in American. The two most important economies in the petroleum sector had been struck by the shock. The crisis was marked by the highest price obtained by

the barrel of oil. The price rose over the amazing sum of ninety dollars.



During the 1979 oil crisis, coupons for gas rationing were printed, but never used. It showed the extreme and delicate situation in the United States during this economic chock. The government was obliged to use limitation cases and these tickets were the proof of their fear.

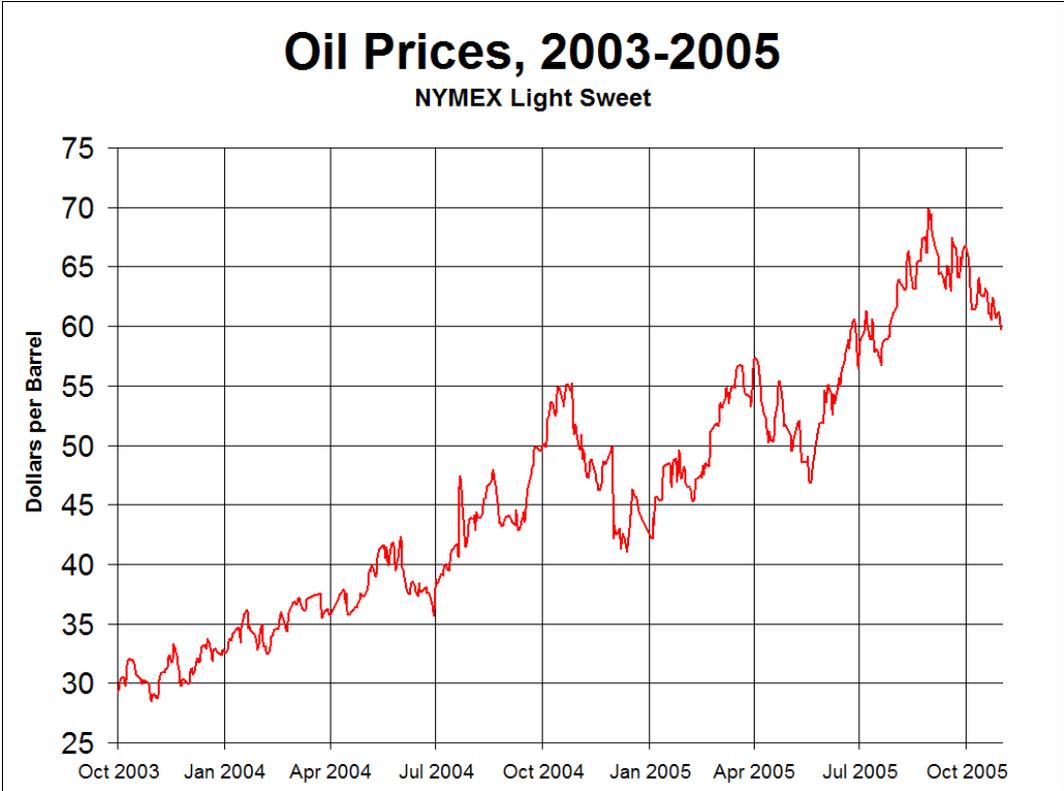
## 2) The other shocks.

Firstly, the third shock of 1990 was the most brief of all crisis because it only lasted six months. It was the result of the Gulf War which conflicted the United States and Iraq. The consequence of this war and this shock was the rise the price of oil until 40,42 dollars per barrel. Moreover oil fields of Kuwait were set on fire by Saddam Hussein in the goal of depriving United States of their oil mines. Then the crisis of 2000 is not a real crisis but it referred to the « United Kingdom fuel protest » and the series of protests which began in September. Britain demonstrated against the cost of petroleum

because the price of crude oil increased by 0,81 dollars per barrel. Also, in 2001, with the event of the eleventh of September and the American invasion of Afghanistan, the price of oil increased abruptly. This conflict between the United States and the Tailbone in the Middle East countries increased the price of oil by around seven dollars. The last energy shock happened in 2004. It occurred after the Iraq war and the protagonists of this conflict were the United States and members or allies of the OPEC again. This shock nearly reached the peak of oil's price which had been obtained during 1979 crisis.

Each one of the different shocks, from 1973 to 2004, had caused an abrupt rise of the price of oil and each one was the result of a war or a conflict between industrialized and developed countries, especially the United States, against a member of several members of the OPEC.

3) Nowadays



In September 2003, crude oil was under \$25/barrel and by the 29th of August 2005 this price rose to 70,85 dollars per barrel. It is not the peak of 1979 shock when prices were over 90 dollars per barrel but the abrupt increase is amazing. Moreover the demand is still increasing instead of stocks of oil which are decreasing seriously. The United States requests a lot of oil and the American market is the most important one. Indeed, today they represent one quarter of the whole demand. Also emerging countries like India and China are developing as the Western nations, so the consumption is increasing as their demands. On top of that, supplies are reducing because of the Iraq war, Iran's nuclear program, political instability in West Africa... Also, hurricane Katrina destroyed lots of refineries and reserves including the rise in the price of oil.

To conclude from 2003 to nowadays, the price of oil is rising strongly and quickly but it is not reaching the peak of 1979, fortunately for world economy.

## GENERAL CONCLUSION

Thus we have seen that oil is a product resulting of long and complicated steps. To make it reach the refinery and then the service station, many transport ways have been settled. On top of that, its exploitation includes plenty of treatments and complex procedures to finally get ready for exporting.

Then, some countries export it, many are situated in the Middle East. Other buy it, they are part of the developed countries. These two categories of countries have their economy based on petrol. We have also seen that oil is surrounded by problems, by the prices or consequences on environment, and some solutions are in elaboration. Unfortunately, no one has already been selected. As we said, many countries have based their economy on oil, but there had been crisis.

Indeed these crisis especially the 1973 and the 1979 shocks had provoked the bankruptcy of some. The United States and members of OPEC had always been the agitators of the whole crisis. Moreover economists panicked during the 1979 crisis because of the peak of prices reaching beyond 90 dollars per barrel. On top of that, nowadays, the price are turning around 70 dollars per barrel and the threat is still increasing.

Moreover, oil became rare and the price are forced to increase again in the future. Thus economies of developed countries and their governments must find solutions to replace oil by an other energy. Scientists who deal with “oil’s problem” searched especially to develop solar energy, because it is much better for world economy and environment. Human had already think about this problem in using the natural elements : the water (hydraulic energy), the air (wind energy, windmills), the earth and the fire (geothermal science). However, these energies stand for only 1% of world energy today. For instance, oil is necessary to our survival.

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We also got information from several interesting books and dictionaries. And we were helped by some documents, given by a teacher.