

Study Guide

For CityU Model United Nations Conference 2013



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Part I. Committee Introduction

United Nations Environmental Programme (UNEP)



The United Nations Environmental Programme (UNEP) was established under the United Nations (UN) in 1972. It is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the UN system and serves as an authoritative advocate for the global environment.

The United Nations Environment Assembly (UNEA)

In March 2013, the United Nations Environment Assembly (UNEA) was set up to replace the 58-member Governing Council as the main governing body with universal membership of the UNEP (General Assembly resolution GA 67/251). It aims to promote international environmental cooperation and coordinated environmental activities within the UN system.

The UNEA encompasses the following functions:

- Setting the global environmental agenda;
- Providing overarching policy guidance and defining policy response to address emerging environmental challenges;
- Undertaking policy review, dialogue and exchange of experiences;
- Setting the strategic guidance on the future direction of UNEP;
- Organizing a multi-stakeholder dialogue;
- Fostering partnerships for achieving environmental goals and resources

In this year CityUMUNC, we would like you to represent one of the member-states of the UNEA to voice out your country's concerns regarding to the two topics (A) *Securing Water* and (B) *Precaution and Response to Oil Spills*.

Part II. Topic A: Securing Water

Background

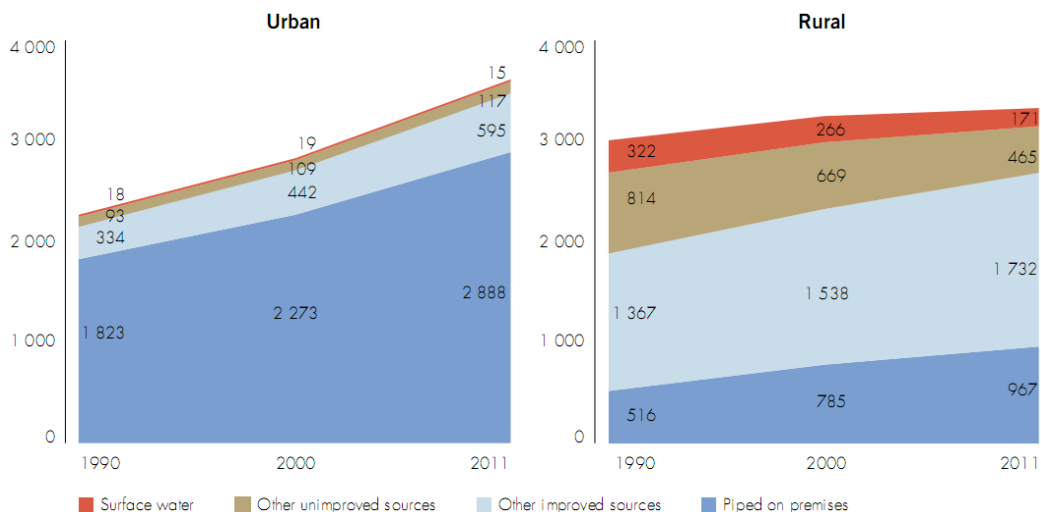
Water is significant for human. Clean drinking water ensures the quality of life of human, fulfilling the basic demand of our health. Sustainable cleaning water supply supports the economic and social activities of human.

As the Millennium Development Goals puts it, “Halve by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation” (UN, 2013), we have a rigorous target to achieve. However, the status quo of clean water among the world, especially in the least developed countries (LDCs), is disappointing. According to the survey of WHO, more than 3.4 million people die each year attributing to unclean water, sanitation and other hygiene-related causes. Among the deaths, developing countries take up over 99% (World Health Organization (WHO), 2008). Thus, securing drinking water has been an urgent issue for all the countries to solve, which calls for the efforts among all the delegates.

General Issues

(1) Insufficient freshwater supply. Nearly 780 million people lack access to guaranteed drinking water. The insufficient water supply is especially severe in Africa; there are 345 million of people that do not have access to fresh water (WHO/UNICEF Joint Monitoring Programme (JMP) , 2012). This also applies to other areas in the LDCs. The causes of lacking of water vary. For African countries the direct reasons lie in the lack of source and the limited professional technologies to obtain the fresh water. Moreover, the imbalance of drinking water source also matters. As shown in the graph, for rural areas, the source of water is less than the urban areas, which results in the imbalance of water distribution and deepens the situation in rural areas.

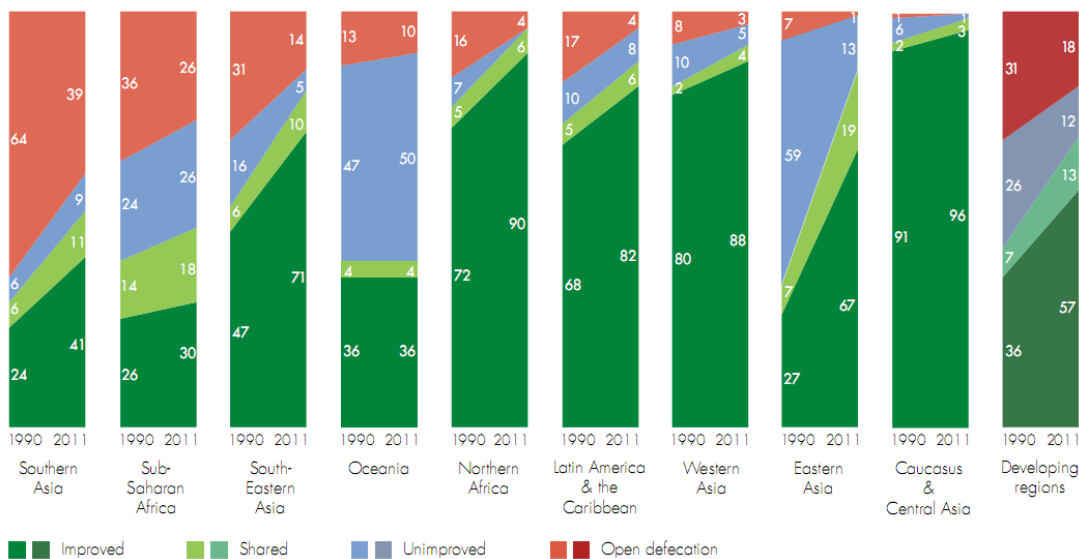
Population with access to drinking water, urban and rural areas, 1990, 2000 and 2011 (Millions)



(Source: UN MDGs)

(2) Lack of water treatment. Proper water treatment is essential to secure clean drinking water. Owing to the improper or insufficient water treatment facilities, such as the infrastructure and technologies for purifying water and protecting clean water, there are still a large population cannot obtain freshwater even although they have adequate water supply. As shown by the graph, there are a lot of areas where facilities need to be improved.

Proportion of population by sanitation practices, 1990 and 2011 (Percentage)



(Source: UN MDGs)

(3) Water contamination. In the past decades, most of the developing countries have experienced rapid industrialization. However, many industries release untreated chemicals into the water sources and thus caused harms to the environment. This results in water contamination and directly threatens the water safety. What's more, local agriculture and exploitations in the mining process worsens the situation; and this lowers the freshwater supply.

(4) Social issue. The habits of using water are another point need to be concerned. Incorrect habits, such as opening tap water while not using and throwing rubbish into the river source, can affect the water supply and cleanness. The awareness of water safety is not highly recognized as well for certain less educated people.

(5) Sustainability. In order to develop the local economy, countries might turn to sacrifice the nature environment. Thus, the drinking water security has been threatened. As the case in African countries, the over-exploitation of oil without advanced technology has caused a great ecology disaster as a great amount of fresh water has been contaminated. It is the same case as in China. However, without these development of industry, the economic condition of the areas cannot be ensured, which in turns, might lead to the poverty of the areas. Therefore, it is urgent for the delegates to find a resolution to protect the local fresh water resource in case of industry pollution such that the fund to protect the drinking water could be sustainable.

Historical Account

1. **Integrated Water Resource Management (IWRM), 2011**

Location: Sudan & South Sudan

A research on the Water Security Risk Index revealed the top ten countries at risk of water shortage and Sudan ranked the third place (Maplecroft, 2010). In Sudan, the people have a huge demand for water for livelihood. This can be supported by 80% of the population works in agricultural sector, which accounts for 97% of its water use. Therefore, we can see the demand for water is so high but its availability to the country's inhabitants continually remains low (Barton, 2013). The insufficient water has resulted in food insecurity and poverty.

In South Sudan which became independent in 2011 after the Sudan's 22-year civil war, large influx of refugees from Sudan increased water demand. Although South Sudan had sufficient water access, the increasing burden on the water supply could not cope with the need of the refugees. Besides, over decades of Sudanese Civil War, the state's water supply and sanitation facilities could hardly functioned. UNICEF records showed that out of the 6,500 rural water points recorded in the national database, only 35 percent may currently be operational because of the war, lack of operation and maintenance (O&M), and poor quality of construction (USAID, 2009).



UNEP has supported the government in the development of national IWRM vision, and has promoted several IWRM activities, including the construction of small dams for water supply, the implementation of ground water recharge and carrying out capacity building to support drought contingency planning in camps and cities. UNEP has also spearheaded the development of a screening tool that aims to encourage humanitarian organizations to consider the environment in its planning processes. In 2011 over 50% of all humanitarian projects in Sudan incorporated some environmental components into their projects. In 2012 this screening tool was also expanded within Sudan and to South Sudan (Logan, 2012)

2. The Country with the Poorest Sanitation and Water in the Sub-Saharan Africa

Location: Ethiopia

Despite the large number of water resources available in the country, a study on the percentage of population with access to safe drinking water conducted in 1990 and 2000 showed that Ethiopia has the lowest figure among all the countries in the Sub-Saharan Africa and remained in about 25% (UNICEF, 2002). The lack of access to safe drinking water is compounded by poor hygiene habits, causing increases in water-related diseases and child mortality. Water borne illnesses, such as cholera or diarrhea, are the leading cause of death in children under five years old in Ethiopia (Global Giving Foundation, 2013).



Climatic and financial factors could be attributed to the shortage of clean water. Because of the drought in the past twenty years, people living outside of the cities collect water from these shallow water sources, which are often contaminated with human and animal waste, worms, or disease. Besides, being one of the poorest countries, there is limited resources to improve the situation. Although the Ethiopian government has drawn up an ambitious

programme that seeks to achieve 100% water accessibility by 2012, there is a discrepancy between the needs of the country and the capacity of the government to meet it (We Are Water Foundation, 2013).

3. Water Contamination Accident in Tuojiang River, 2004

Location: Sichuan, China

The largest water contamination accident in China took place where an industrial company Qingbaijiang District Chuanhuagufen Limited, without getting the production approval from the government department, started the production with the use of the technical-transformed equipment. In pre-production period, failure occurred and large number of contaminated industrial wastewater flew into the river. A million citizens in five cities of Sichuan Province faced insufficient water available. The direct economical lost amounted to RMB ¥219 million.



The numerous water contamination caused by the industries in China was believed to be a result of meager financial penalty in which this emboldens industries, especially the profitable ones, to ignore rules and discharge untreated wastes (Yang, 2011). Up until the Tuojiang incident, fines levied under national environment protection and pollution control regulations on enterprises causing pollution were in the region of only RMB ¥100,000 (US\$12,050) (China Daily, 2004). The penalties do not compensate for the damage to the ecological system.

Areas of Focus

Securing drinking water is important action to improve our daily lives and our health. Different foci such as making sufficient water supply, improving the quality of water, avoiding people or organizations from contaminating water, raising people's awareness of the correct use of water and maintaining sustainability of water usage are addressed in this conference. UNEP, as the organization that promotes and assists sustainable development in environmental dimension, should be aware of the issues and make the greatest contributions to help human have a better living.

Questions to be Concerned

(1) Social field

- How to emphasize the importance of sanitations / water treatment in order to avoid hygiene-related problems, for example, open defecation?
- How to raise public awareness of this problem, for example, public promotion?

(2) Governance and management

- Are there any reliable assessment systems to report the status quo on a regular basis?
- In terms of legislation, are there any existing rules and regulations that are implemented to solve drinking water problem?
- How do they take effect? Are there any punishments for lawbreakers?
- Who are responsible for these regulations? Who supervises these actions?
- At present, are they being executed? What is the situation of the execution? What is the effect?
- How to improve the regulations to make it better?

- Which NGOs and international organizations are responsible and working for securing water? How to make full use of them?
- Are there any emergency systems for water pollution accidents, like oil leak?
- Are there any cooperation among governments and organizations? What is the effect?

(3) Economics field

- Are there any funds or debts for tackling freshwater problem? How are they working?
- How to maximize the utility of the funds?
- What is the situation of water trade? Does it work?
- What is the situation of fund and technology aid? How to improve it?
- For developed countries, are there any problems of water crisis?
- How to strike a balance between the use of freshwater and economic development, since agriculture and industry will contaminate water to a large extent?

(4) Environment field

- Do you think the MDGs for water safety can be achieved by 2015? How to improve the details to achieve it?
- How to protect the existing fresh water source?
- How to achieve sustainability and long-term system?

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Part III. Topic B: Precaution and Response to Oil Spills

Background

We always hear about the report on oil price, as an important influential factor, oil spills has already become an international issue. Crude oil is a volatile, viscous mixture of organic compounds containing aliphatic and aromatic hydrocarbons, which can be found in marine areas, and due to humans' activities of the extraction of crude oil, it created a form of pollution. And other compound light hydrocarbons, some of which are known to bring about cancer in human beings.

Its bad effects can be divided into two parts. First of all, it does harm to humans. An oil spill represents an immediate fire hazard. The Kuwaiti oil fires produced air pollution that caused respiratory distress. The Deep-water Horizon explosion killed eleven oil rig workers. The fire resulted from the Lac-Mégantic derailment killed 47 and destroyed half of the town's center.

Spilled oil can also contaminate drinking water supplies. For example, in 2013, two different oil spills contaminated water supplies for 300,000 in Miri, Malaysia and 80,000 people in Coca, Ecuador. In 2000, springs were contaminated by an oil spill in Clark County, Kentucky. Contamination can have an economic impact on tourism and marine resource extraction industries. For example, the Deep-water Horizon oil spill impacted beach tourism and fishing along the Gulf Coast, and the responsible parties were required to compensate victims. In addition, oil spill's clean-up activities can cause adverse effects to the volunteers

Secondly, environment situation is destroyed. Oil penetrates into the structure of the plumage of birds and the fur of mammals, reducing their insulating ability, and making them more vulnerable to temperature fluctuations and much less buoyant in the water. Animals that rely on scent to find their babies or mothers died due to the strong scent of the oil. This may cause babies to be abandoned, leaving the babies to starve and eventually die. Oil can impair a bird's ability to fly, preventing it from foraging or escaping from predators. Heavily furred marine mammals exposed to oil spills are affected in similar ways. Oil coats the fur of sea otters and seals, reducing its insulating effect, and leading to fluctuations in body temperature and hypothermia. Oil can also blind an animal, leaving it defenseless.

The most significant part is oil-related clean-up activities. There are some general methods. Bioremediation: use of microorganisms or biological agents to break down or remove oil; such as the bacteria *Alcanivorax*. Controlled burning can effectively reduce the amount of oil in water. Besides, dispersants can be used to dissipate oil slicks. Sometimes, just watch and wait:

in some cases, natural attenuation of oil may be most appropriate, due to the invasive nature of facilitated methods of remediation, particularly in ecologically sensitive areas such as wetlands. Dredging is another way for oils dispersing with detergents and other oils denser than water. The techniques used to clean up an oil spill depend on oil characteristics and the type of environment involved; for example, open ocean, coastal, or wetland. Pollution-control measures include containment and removal of the oil (either by skimming, filtering, or in situ combustion), dispersing it into smaller droplets to limit immediate surficial and wildlife damage, biodegradation (either natural or assisted), and normal weathering processes. Individuals of large-sized wildlife species are sometimes rescued and cleaned, but micro-sized species are usually ignored. Oil spill countermeasures to clean up and remove the oil are selected and applied on the basis of many interrelated factors including ecological protection, socioeconomic effects, and health risk. It is important to have contingency plans in place in order to deploy pollution control personnel and equipment efficiently.

Outstretched ideas—what can we do?

1. for what have happened

(1) To improve clean-up methods by the development of techniques

Controlled burning can effectively reduce the amount of oil in water while it can only be done in low wind and can cause air pollution.

(2) Acute (short-term) solution and chronic (long-term) solution

Based on the fact that oil spill can cause the acute (short-term) and chronic (long-term) effects of oil to the environment, different methods should be adopted.

(3) Control power and management responsibility

Oil will transfer with waves and go into different countries' areas so the responsibility becomes blurry. Since situations are diverse in different affairs, the following is an example of the oil spill in the Gulf of the Mexico. The U.S. Coast Guard has the leadership role and the ultimate say; however, significant assistance is provided from other federal agencies such as, but not limited to, the United Nations Environment Program, the National Oceanic and Atmospheric Administration, the Environmental Protection Agency, the Department of Health, the Department of Interior-Mineral Management Service, the Department of Homeland Security-Federal Emergency Management Service, the Department of Defense, the U.S. Navy, Governors' offices, and numerous state agencies, e.g., in Mississippi, the Department of

Marine Resources, the Department of Environmental Quality, universities, research facilities, non-profit organizations, civic organizations, and thousands of volunteers.

2. *for what probably happen*

(1) Prevention

There are some basic information on the cost and prevention. The cost of an oil spill are both quantitative and qualitative. Quantitative costs include loss of the oil, repair of physical facilities, payment for cleaning up the spill and remediating the environment, penalties assessed by regulatory agencies, and money paid in insurance and legal claims. Qualitative costs of an oil spill include the loss of pristine habitat and communities, as well as unknown wildlife and human health effects from exposure to water and soil pollution. Prevention of oil spills has become a major priority; and of equal importance, efforts to contain and remove oil that has spilled are considered to be prevention of secondary spills. The costs associated with oil spills and regulations governing offshore facilities and operations have encouraged the development of improved technology for spill prevention. The Oil Pollution Act of 1990 was enacted by the U.S. Congress to strengthen oil spill prevention, planning, response, and restoration efforts. Under its provisions, the Oil Spill Liability Trust Fund provides cleanup funds for oil pollution incidents

(2) International cooperation












What are the main existing conflicts which are usually being omitted, what measures should we do to make the system more congruous instead of being partial?

(3) Regular meeting or the establishment of new organization

There is the Oil Spill Prevention Containment and Countermeasures (SPCC) program by the United States Environmental Protection Agency. Yet, the scope is so limited.

Historical Account

Largest oil spills, ordered by tons^[3]

Spill / Tanker	Location	Date	*Tons of crude oil (thousands)	Barrels (thousands)	US Gallons (thousands)	References
Kuwaiti oil fires ^[6]	 Kuwait	January, 1991 - November, 1991	136,000-205,000	1,000,000-1,500,000	42,000,000-63,000,000	[3]
Kuwaiti oil lakes ^[6]	 Kuwait	January, 1991 - November, 1991	3,409-6,818	25,000-50,000	1,050,000-2,100,000	[4][5][6]
Lakeview Gusher	 United States, Kern County, California	March 14, 1910 – September, 1911	1,200	9,000	378,000	[7]
Gulf War oil spill ^[6]	 Kuwait, Iraq, and the Persian Gulf	January 19, 1991 - January 28, 1991	818–1,091	6,000–8,000	252,000–336,000	[5][9][10]
Deepwater Horizon	 United States, Gulf of Mexico	April 20, 2010 – July 15, 2010	560-585	4,100-4,900	172,000-180,800	[11][12][13][14][15]
Ixtoc I	 Mexico, Gulf of Mexico	June 3, 1979 – March 23, 1980	454–480	3,329–3,520	139,818–147,840	[16][17][18]
Atlantic Empress / Aegean Captain	 Trinidad and Tobago	July 19, 1979	287	2,105	88,396	[19][20][21]
Fergana Valley	 Uzbekistan	March 2, 1992	285	2,090	87,780	[22]
Nowruz Field Platform	 Iran, Persian Gulf	February 4, 1983	260	1,907	80,080	[23]
ABT Summer	 Angola, 700 nmi (1,300 km; 810 mi) offshore	May 28, 1991	260	1,907	80,080	[19]
Castillo de Bellver	 South Africa, Saldanha Bay	August 6, 1983	252	1,848	77,616	[19]
Amoco Cadiz	 France, Brittany	March 16, 1978	223	1,635	68,684	[19][22][23][24][25]

KEY PAST EVENTS FOR OIL SPILL

1. Gulf War, 1991

Location: Kuwait

Gallons: 240 to 336 million



How It Happened:

As Iraqi forces retreated from Kuwait during the first Gulf War, they opened the valves of oil wells and pipelines in a bid to slow the onslaught of American troops. The result was the largest oil spill history has seen. Some 240 million gallons of crude oil flowed into the Persian Gulf. The resulting oil slick spanned an area just larger than the size of the island of Hawaii.

The Cleanup:

Coalition forces managed to seal off some of the open pipelines using smart bombs, but most recovery efforts had to wait until after the war. At that point 25 miles of booms (orange ropelike products that contain the oil that is floating on top of the water) and 21 skimmers (machines that separate oil from water) were deployed in the gulf, mostly to protect the water intakes of desalinization, industry and power plants. Together with vacuum trucks, about 58.8 million gallons of oil was recovered from the gulf.

2. Ixtoc 1 Oil Well, 1979

Location: Bay of Campeche, Mexico

Gallons: 140 million

How It Happened:

In June 1979, an oil well in the Bay of Campeche collapsed after a pressured buildup sparked an accidental explosion. Over the next 10 months about 140 million gallons of crude spouted into the Gulf of Mexico from the damaged oil well.

The Cleanup:

In order to slow down the flow of oil from the damaged well, mud and later steel, iron and lead balls were dropped down its shaft. According to PEMEX (Mexican Petroleum), half the oil burned when it reached the surface and one-third evaporated. PEMEX also hired a company to spray dispersants over 1100 square miles of oil slick. Dispersants effectively act like dish soap, breaking up oil so that more of it can mix into the water. That way, they can reduce the effect of the oil slick on shorelines. On the Texas side of the gulf, skimmers and boomers were placed in the water to protect the bays and lagoons of the Barrier Islands.

3. M/T Haven Tanker, 1991

Location: Genoa, Italy

Gallons: 42 million

How It Happened:

An apparently shoddily maintained tanker exploded and later sunk off the coast of Italy. The accident killed six people. Immediately after the incident, an effort by the Italians to tow the Haven to shore failed, and the 820-foot-long vessel sank off the coast of Genoa. Today it is believed to be the largest shipwreck in the world and is a popular tourist destination for divers.

The Cleanup:

Immediately after the incident Italian authorities scrambled to fight the fire and control the spread of the spillage using six miles of inflatable barriers that were submerged below the water surface around the vessel. The rest of the surface oil was sucked up using vacuums.

4. The Exxon Valdez oil spill

Location: Prince William Sound, Alaska

Gallons: 11 million

How It Happened:

It occurred on March 24, 1989, when Exxon Valdez, an oil tanker bounded for Long Beach. It is considered to be one of the most devastating human-caused environmental disasters. However, Prince William Sound's remote location, accessible only by helicopter, plane, or boat, made government and industry response efforts difficult and severely taxed existing plans for response. The region is a habitat for salmon, sea otters, seals and seabirds. The oil, originally extracted at the Prudhoe Bay oil field, eventually covered 1,300 miles (2,100 km) of coastline, and 11,000 square miles of ocean. Exxon's CEO, Lawrence Rawl, shaped the company's response.

A figure of 11 million US gallons was a commonly accepted estimate of the spill's volume. the National Oceanic and Atmospheric Administration and environmental groups are maintaining that the volume of the spill, which was calculated by subtracting the volume of material removed from the vessel's tanks after the spill from the volume of the original cargo, has been underreported. Alternative calculations, based on the assumption that the official reports underestimated how much seawater had been forced into the damaged tanks, placed the total at 25 to 32 million US gallons.

The Cleanup:

There was the use of a dispersant, a surfactant and solvent mixture. A private company applied dispersant on March 24 by a helicopter and dispersant bucket. Because there was not enough wave action to mix the dispersant with the oil in the water, the use of the dispersant was

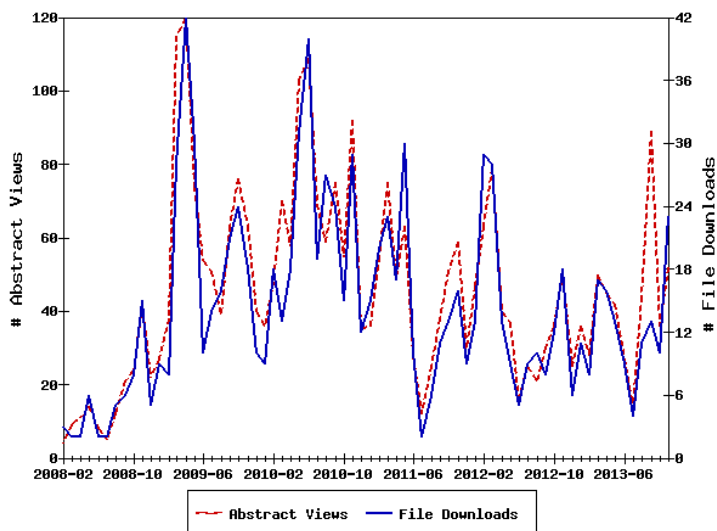
discontinued. One trial explosion was also conducted during the early stages of the spill to burn the oil, in a region of the spill isolated from the rest by another explosion. The test was relatively successful, reducing 113,400 liters of oil to 1,134 liters of removable residue, but because of unfavorable weather no additional burning was attempted. The dispersant Corexit 9580 was tried as part of the cleanup. Corexit has been found to be toxic to cleanup workers and wildlife while breaking down oil.

Mechanical cleanup was started shortly afterwards using booms and skimmers, but the skimmers were not readily available during the first 24 hours following the spill, and thick oil and kelp tended to clog the equipment. Despite civilian insistence for a complete cleanup, only 10% of total oil was actually completely cleaned.

Statistics:

A Contingent Valuation Study of Lost Passive Use Values Resulting From the Exxon Valdez Oil Spill

Richard T. Carson, R.C. Mitchell, W.M. Hanemann, Raymond John Kopp, S. Presser and Paul A. Ruud
[MPRA Paper](#) from University Library of Munich, Germany



Guiding questions for precaution and response of oil spill

Economic Aspect

- How can countries contribute to develop and improve the technologies on oil exploration and refinement to benefit their economies?
- How the cost on refining facilities and other high technology equipment can be shared or minimized?
- Since fossil oil is a scarce resource, what strategy(s) can be adopted to recover the spilled oil?

Social and Technological Aspect

- How can information be shared or database be established for oil spill for incidents review and risk assessment?

Environmental Aspect

- What responses and strategies can stop the spreading of oil as well as the catastrophe after an oil spill accident? (effective recovery and segregation of oil from sea can minimize the damage)
- What measures can be done, locally, regionally or internationally, to avoid the conflicts between environment protection and natural resource discovery?

Governance and Management Aspect

- Competition for oil between countries or regions links to the issues of cooperation on resource capture, and issues of environment-conflicts. These are environmental, economic and social problems. Apparently, oil is the primary factor to motivate conflicts. How can the problem be solved?
- How to balance between the sustainable development and the environmental development?
- What policy, international law, regulation or guideline can be made or improved for oil spills?
- Any national cooperation can be initiated in management, training and exercises on different levels of spill?

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