An Analysis of the Role of OPEC as a G77 Member at the UNFCCC

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Summary

The G77 and China bloc of developing countries has always played a crucial role in the climate negotiations. With the current lack of leadership from key developed countries, future successful negotiations will depend upon G77 and China taking an active role in climate change mitigation and adaptation in accordance with the principle of common but differentiated responsibilities enshrined in the Climate Convention. Within G77 and China, the Organisation of Petroleum Exporting Countries (OPEC) has often been a driving force. OPEC is comprised of 11 developing countries whose economies are heavily reliant on oil revenues. Saudi Arabia is OPEC's most active member, but this is a very heterogeneous group.

OPEC's role in G77 has been simultaneously positive and negative: positive in so far as it brings to G77 a large team of experienced lawyers and negotiators; negative in so far as OPEC is largely concerned with the impact of climate policies on their oil export and revenues rather than in reducing greenhouse gas emissions or in developing policies and measures to facilitate adaptation. OPEC and in particular Saudi Arabia have close associations with the oil industry, in particular US companies. This has led them to oppose greenhouse gas reductions, disrupt the whole negotiation process (by asking for equal progress on all issues) or by holding certain issues that are important to other G77 countries (e.g., adaptation) hostage by linking progress on them to progress on the impacts of response measures. This has created some resentment and frustration on the part of G77 delegates.

OPEC and in particular Saudi Arabia are not particularly well viewed by G77 delegates because of the tactics they have used in the negotiations: controlling the process and agenda items; misrepresentation of G77 positions, etc. Their tactics have implications for all Parties, even OPEC member states. Saudi Arabia's positions are not aligned with most OPEC countries interests to attract CDM projects, diversify their economies and reduce regulatory uncertainty. For many G77 groups such as AOSIS, LDCs, the African Group and other vulnerable developing countries the implications are much more significant as issues that are important to them (assistance for adaptation) are not advancing because they are linked to OPEC issues such as response measures.

This report highlighted cases on how OPEC and in particular Saudi Arabia roles in negotiation processes and what are the implications for other G77 members.

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1. Introduction

The Organisation of Petroleum Exporting Countries (OPEC) is an important and diverse group of developing countries in world affairs and in the climate negotiations. They bring precious human and financial resources to the Group of 77, but they also create major problems for the group because of the extreme positions of certain OPEC member states such as Saudi Arabia. Their close links to industry also create a problem for the group as they are seen as a proxy for the fossil fuel lobby. Nonetheless, OPEC has been a key player in G77 and the climate negotiations in the last 15 years.

This report examines in-depth the role of OPEC as a member of G77 in the climate negotiations. This was done through a mixture of literature review and in-depth interviews. The literature in this area is thin, but references used and further bibliography is listed in the end of the report. Ten in-depth interviews were conducted between June and November 2004. Most interviews were conducted face-to-face at the Twentieth Session of the Subsidiary Bodies of the UNFCCC in Bonn, Germany (in June 2004) and also in the UK. Two interviews were carried out over the phone. The majority of those interviewed belonged to the Group of 77 (of which two representatives were from an OPEC country delegation), with two representatives from Annex I, one from an intergovernmental organisation (IGO) and one from a non-governmental (NGO) organisation. On average interviews lasted around one hour. The identity of those interviewed remains confidential; interviewees are identified by numbers.

Section 2 describes the structure of OPEC and its member states. Section 3 examines the links between OPEC and the oil industry. Section 4 looks in detail at the role of OPEC in the climate negotiations. This includes a historical account of the development of the climate regime and OPEC positions, selected case studies (on the Special Climate Change Fund and the impact of response measures) and a picture of how OPEC is viewed in G77 today. Section 5 discusses the implications of OPEC’s positions and tactics for G77 members, including OPEC member countries.

"OPEC is a political organization of economically heterogeneous countries of clashing national interests … oil ministers are politicians and, by definition, politicians look always to the short term" former Acting OPEC Secretary-General, Fadhil Al-Chalabi (1992; cited in Kohl, 2002)

2. OPEC and its Member Countries

The Organization of Petroleum Exporting Countries (OPEC) is an intergovernmental organisation comprised of 11 developing countries: Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela (Ecuador and Gabon were former members). These countries are united by a heavy reliance on oil revenues as their main source of income. OPEC was created in 1960 to rival the so-called "seven sister" multinational oil companies because developing country oil exporters felt they were being exploited by Western governments and their multinational corporations. Its objective is to co-ordinate and unify petroleum policies among Member Countries, in order to secure fair and stable prices for petroleum producers; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the industry. The Ministers of the OPEC member countries responsible for energy and hydrocarbon affairs meet twice a year to review the status of the international oil market and the forecasts for the future in order to agree upon appropriate actions which will promote stability in the oil market. The OPEC Secretariat (based in Vienna, Austria) carries out the executive functions of the Organisation in accordance with the provisions of the OPEC Statute and under the direction of the Board of Governors.[1] In 1976, OPEC member countries established the OPEC Fund for International Development, a multilateral development finance institution aimed at promoting cooperation between OPEC and other developing countries, in particular the least developed countries (LDCs). It does this mainly by providing financial resources to assist the latter group of countries in their economic and social advancement.[2]

OPEC is a very heterogeneous group. Table 1 and 2 try to contrast the different member countries in terms of population, oil reserves and production and economic structures.

[1] It provides the Conference with support facilities; carries out research into energy, economics and finance; prepares reports and statistics; provides information on the Organization and its activities through various publications; receives visitors from different parts of the world; and organizes seminars, briefings and lectures.

Table 1. OPEC members states population and oil data (based on BP, 2004).

Country	Population 2003 (thousand)	Population growth (1983-2003) (%)	Proved reserves at end of 2003 (thousand million barrels)	Production 2003 (thousand barrels daily)	Reserve/production ratio (2003) (yrs.)
Algeria	31,840	2.12	11.3	1857	16.7
Indonesia	216,950	1.55	4.4	1179	10.3
Iran	67,050	1.98	130.7	3852	92.9
Iraq	25,150	2.63	115	1344	>100
Kuwait	2,430	2.10	96.5	2238	>100
Libya	5,660	2.33	36	1488	66.3
Nigeria	124,390	2.78	34.3	2185	43.1
Qatar	620	3.52	15.2	917	45.5
Saudi Arabia	22,670	3.30	262.7	9817	73.3
UAE	3,120	4.30	97.8	2520	>100
Venezuela	25,710	2.19	78	2987	71.5
OPEC	525,590	2.08	881.9	30384	79.5

Altogether OPEC accounts for half a billion people, most of whom live in Indonesia (the fourth largest country in the world) and Nigeria. In 2003, OPEC countries accounted for 77% of proved oil reserves in the world and roughly 40% of its production. The largest reserves are situated in the Middle East comprising over 60% of the world´s proven oil reserves. Saudi Arabia has by far the largest reserves and production worldwide (twice as much as its closest OPEC competitor, Iran). In terms of oil reserve/production ratios, one can divide member countries into *major OPEC* (Iran, Iraq, Kuwait, Saudi Arabia, UAE and Venezuela) and *minor OPEC* (Algeria, Indonesia, Libya, Nigeria and Qatar). OPEC member countries' GDP per capita (Table 2) ranges from the very low (Nigeria, Iraq and Indonesia) to the very high (Qatar, UAE and Kuwait). Most OPEC countries (except Indonesia) are heavily dependent on oil income.[3] Few OPEC countries have managed to reduce their dependency on oil in the last 20 years; overall OPEC has become more dependent with an average of 27% of GDP coming from oil exports. Kohl (2002) argues that they remain dependent on oil income for a range of reasons including the mismanagement of their economies, high levels of debt, and a strategic failure to diversify their economies.[4]

[2] By the end of July 2004, the level of cumulative development assistance extended by the Fund stood at US$7,098.0 million.

[3] We have defined dependence simply as the value of petroleum exports dived by the GDP (at current market prices). Fluctuations in oil prices have an impact on dependence but this has not been taken into account.

[4] However, this is essentially a development problem. For example, Nigeria has some significant historical disadvantages; Algeria has had a low level war of independence; Iran and Iraq have had plenty of problems that come with oil wealth and which prevent diversification; Indonesia has a whole set of problems that impede the development of a diversified economy. Indeed, diverse income sources is almost synonymous

Table 2. Macroeconomic indicators for OPEC member countries in 2003 (including 1983-2003 average dependency and population growth) (based on OPEC, 2003).

Country	GDP at current market prices (m $)	GDP per capita ($)	Total external debt (m $)	Dependence (petroleum exports/GDP) (%)	Dependence (Average 1983-2003) (%)
Algeria	56,221	1,766	23,353	29.3	17.0
Indonesia	208,288	960	136,749	4.6	6.3
Iran	134,738	2,010	12,100	19.4	13.4
Iraq	19,854	789	93,893	37.9	23.7
Kuwait	43,598	17,942	14,077	43.1	39.3
Libya	23,001	4,064	4,194	59.0	33.8
Nigeria	55,769	448	30,033	39.8	36.4
Qatar	20,426	32,945	17,498	43.2	39.3
Saudi Arabia	211,440	9,327	32,536	40.2	30.2
UAE	75,640	24,244	21,464	33.3	35.3
Venezuela	89,030	3,463	33,048	24.5	20.3
OPEC	938,005	1,785	418,945	27.2	21.0

2.1 Minor OPEC

Most Minor OPEC countries have large populations and small oil reserves (such as Algeria, Indonesia and Nigeria) which means considerable amounts are used internally. Indonesia has a relatively diverse economy and therefore is not heavily dependent on oil. Furthermore, in 2005 Indonesia is expected to become a net oil importer for the first time in decades (EIA, 2004) – this might have implications for its membership of OPEC. However, Indonesia is also a very poor country with a large external debt. Nigeria is the poorest of OPEC member countries (in GDP per capita terms) despite its huge oil wealth. According to the World Bank, around 80% of Nigeria's oil and natural gas revenues accrue to just 1% of the population, while the other 99% receive the remaining 20% of revenues (EIA, 2004). Countries like Algeria and Qatar are slightly less dependent on oil due to their large natural gas reserves (exported through pipeline or liquefied natural gas), but some countries have been more successful than others in diversifying their economies away from oil (e.g., Qatar).

with high GDP: rich countries export and import many things from many places, poor countries export and import very little, and with few trading partners.

2.2 Major OPEC

The UAE is an example for an OPEC country that has managed to slightly diversify their economy, moving increasingly towards services (tourism, banking, re-exports, and information technology) (EIA, 2004; see also Table 2). Kuwait and the UAE are the only two Gulf states which are relatively indifferent to oil prices because of the structure of their finances; the other Gulf states will continue to need higher oil prices to fund their increased levels of expenditure (Kohl, 2002). Venezuela has little political common ground with the Middle East oil producers except on oil matters. Its considerable proven oil reserves are important to world energy markets, in particular the US. Like other major OPEC countries Venezuela's economy is heavily reliant on the petroleum industry. Iran is OPEC's second largest oil producer with 11% of world's proven oil reserves. Its economy relies heavily on oil exports revenues. Iran also has the world's second largest natural gas reserves, which remains largely undeveloped, meaning that Iran has huge potential for gas development. Iraq has been severely hampered by numerous wars in the last decades: Iran-Iraq War (1980-1988), the 1990/1991 Gulf War, the most recent war in March/April 2003. It was until recently an absolute dictatorship; it is still unclear when democracy will be restored. Iran and Iraq have been subject to sanctions by the US and the UN respectively over the last decade. Saudi Arabia is the world's largest crude oil producer, a leader in OPEC's production quota decisions and certainly the most active member of OPEC. Oil dependence continues to dominate the Saudi economy as indicated in Table 2. Income from non-oil sources remains weak. As a result, the government's budget is highly vulnerable to oil price volatility. Meanwhile, the Saudi population continues to expand rapidly, which is a major reason for its declining standard of living (Human Development Report, UNDP, 2003). The population has tripled since 1976 and is now over 20 million. Population pressure, high rates of unemployment (15-20%) and a generous welfare system (especially to the members of the royal family) represents a serious long-term economic challenge for Saudi Arabia.

"These [OPEC] states have been in close contact with the fossil fuel lobby groups, which have assisted them by supplying strategic information and political support in the negotiations." (Newell, 2000)

3. Links with industry

OPEC member countries are directly linked to their respective national oil companies[5] because these are state owned. In fact, various OPEC country policy-makers that attend the climate negotiations work in the Ministry of Petroleum and Mineral Resources or the Ministry of Oil (e.g., Saudi Arabia and Kuwait respectively). Other OPEC delegations have a mix of attendance between the Ministry of Environment and national petroleum companies (e.g., Nigeria and Indonesia). It is particularly obvious whose interests they are representing in the climate negotiations. Almost all delegates interviewed thought there were close links with the oil industry, in particular with US companies, but also with the US government. For example, one G77 delegate mentioned that he/she had observed Nigeria being briefed by the US (G77 delegate, 2004e). Several OPEC delegates have been continuously lobbied by industry associations such as the Global Climate Coalition or the Global Climate Council and act as a surrogate for their interests. The Global Climate Coalition (GCC) was the main umbrella organisation for the oil, coal and auto industries response to the global warming issue.[6] The focus of GCC lobbying was to highlight the uncertainty of climate science, emphasise the economic cost of Kyoto-type mandated emission reductions, and advocate for developing country commitments. Since 1996 the GCC began to lose members as major oil and car companies, such as BP and Shell, shifted their position on climate change. By 2002, the GCC had withdrawn from the international climate arena altogether.[7] According to many observers the GCC was pathetic or even benign when compared to the Global Climate Council, a group headed by Donald (Don) H. Pearlman whose main aim was to water down any policy-response to climate change.

[5] E.g., Saudi Aramco in Saudi Arabia, Pertamina in Indonesia, PDVSA in Venezuela, etc.
[6] Board members Included the American Petroleum Institute, Amoco, Arco, Philips, Texaco, DuPont and Dow Hydrocarbons. Shell and BP were members.
[7] For more on the oil Industry and climate change see: Rowlands, 2000; Skodvin and Skjærseth, 2001; Skjærseth and Skodvin, 2001.

Don Pearlman was a former under-secretary in the Department of the Interior during the Reagan years, now a lawyer in Washington.[8] Leggett (1998) offers substantial anecdotal evidence that Pearlman and colleagues heavily lobby countries like the United States and Saudi Arabia to achieve their goals:

"On the first evening in Sundsvaal [August 1990] … Don Pearlman was seated in the lobby with five diplomats, all Arab, including the head of the Saudi delegation. They had their heads down, copies of the draft negotiation text for the IPCC final report open in front of them. He looked like a professor holding a tutorial class. As I walked passed, I saw him pointing to a particular paragraph and I heard him say, quite distinctly, 'if we can cut a deal here …'. (Leggett, 1998 p11).

"Pearlman had enjoyed four years of virtually unrestricted access to the Saudi and Kuwaiti delegations at the talks [March-April 1995]. Nobody had ever hindered his transparent interactions with them, as he issued instructions and conducted tutorials over text". (Leggett, 1998 p195)

"… Pearlman and the other carbon-club lobbyists had recently tried to neutralize a meeting of the IPCC scientific working group and nearly succeeded [September 1994, Geneva]. … was getting very fed up with Mr Pearlman and the shameless way he used the Saudi Arabian delegation as a proxy for his stalling tactics. … Pearlman and the other oil- and coal-industry people, working with their OPEC proxies, were having an unopposed run at watering down the science and the policy-response recommendations." (Leggett, 1998 p176-7)

"'HIGH PRIEST OF THE CARBON CLUB' announced the headline above a photo showing Don Pearlman with the head of the Kuwaiti delegation, Atif Al Juwaili. Al Juwaili had his hand up, trying to block the camera; Pearlman was turning towards the photographer … The reporters had opened their piece with an account of how they had watched Pearlman give out his orders of the day. But Pearlman … kept the clients of his lobby group secret. All anybody knew was the he worked for Washington law firm Patton, Boggs & Blow, well known for its influence in the lobbying world. … A former employee of the firm had gone on record as saying, 'the biggest compliment you can give any lawyer from Patton is that he'll do anything for money'. … A Dutch climatologist had told them [the *Der Spiegel*'s team] about Pearlman's tampering, via the Kuwaitis, in the IPCC process. At a critical meeting, the Kuwaitis had evidently tried to submit amendments, in Pearlman's own handwriting, of otherwise undisputed statements. The

[8] See http://www.pattonboggs.com/ourlawyers/a-z/dpearlman.html ; Articles in the national media have listed him among "the key players" on this issue, including recently noting that he is "credited with doing more to advance industry's agenda than any other."

article went on to describe the scene at a vital late-night session of talks in New York in February where the carbon club had so blatantly ferried instructions to the OPEC delegations that shocked governments had complained. UN officials had then told all lobbyists to quit the negotiating floor. Pearlman refused, until a UN official had threatened to have guards thrown at him." (Leggett, 1998 p199-200)

"This watering-down [at the IPCC Second Assessment Report meeting in Madrid in November 1995] was achieved entirely by the carbon club, the Saudis and the Kuwaitis, who knew the scientists would have to exercise compromise while at the same time racing against the clock." (Leggett, 1998 p227)

".. the NGO newspaper *Eco* reported, Don Pearlman was overheard talking to a Nigerian delegate. Gleefully he chuckled that if developing countries were to dig in and react to the Senate resolution, insisting on no new commitments, then the Kyoto protocol would be dead in the water. 'We can kill this thing,' Pearlman told the OPEC man." (Leggett, 1998 p268)

Newell (2000) offers a few more examples of the influence of fossil fuel lobbies over OPEC member states such as Saudi Arabia and Kuwait in advancing their minimal action agenda during the negotiations:

"Don Pearlman of the Climate Council and John Schlaes of the GCC were reported to have drafted a number of US-Saudi amendments designed to stall negotiations on a protocol to the convention. For instance the proposal by Saudi Arabia that protocols to the convention should be adopted by three-quarters of the parties instead of the present two-thirds was 'widely believed to have been drafted by US fossil fuel lobby interests'. This delaying tactic was said to have had 'Pearlman's fingerprints all over it'. Head of one delegation at the climate talks, said of Pearlman, 'He has tremendous influence and countries depend on him. I've seen fossil fuel producers consult with him before making a decision'. An incident was recounted in which a Middle Eastern delegate asked for a vote at a closed meeting to be delayed while he went to the bathroom. The chair sent an escort along and found Pearlman waiting outside. Indeed it was the lobbying antics of Don Pearlman at INC 11 that resulted in NGOs being banned from the floor during the negotiating sessions. Pearlman 'was standing there writing out interventions on pieces of paper that his runners were then taking to his client states in such a blatant way that it led to all the NGOs being banned. The Climate Council, which Pearlman heads, is said to have greater influence with the OPEC states, while the GCC had closer relations with the JUSCANZ grouping. The ties run both ways however, and Grubb et al. (1999) argue that much of the negotiating strength of the OPEC group in the climate negotiations derives from their links with US-based industries. ” (Newell, 2000 p108)

“Moreover the absence of a lobbying organisation for a certain sector can be evidence of the extent of its representation within government, and the lack of countervailing challenges to its position of strength. An extreme example of this is the case of the OPEC states, where there is no need for oil lobbies to press their interests on governments whose stability rests on pursuing the same interest: ‘OPEC states don’t need any lobbying from business’. (Newell, 2000 p119)
These are just a few excerpts of what is otherwise a rather undocumented relationship between particular industry groups and a few OPEC member countries.

"Their [OPEC's] strategy has been to hold up negotiations as much as possible by referring to rules of procedure, disputing the minutiae of draft texts and fiercely resisting the input of environmental NGOs during the negotiations." (Newell, 2000 p13)

4. OPEC in the UNFCCC

OPEC is an intergovernmental organisation, but formally it is its member countries that participate in the climate negotiations as they are the Parties to the Convention. Like other groups OPEC member countries have daily meetings at the climate negotiations sessions and sometimes present positions as a group, but they operate mostly as a sub-group of the Group of 77 (G77): a UN developing countries lobbying group that was founded in 1964 and later expanded to represent 132 nations.[9] Recently, various OPEC countries have taken up the G77 chairmanship (see Box 1). The OPEC Secretary provides logistical support for its member countries at the climate negotiations by organising meetings and preparing documentation/reports prior to the sessions.

Box 1. Why have so many G77 chairs been members of OPEC?

As the largest Third World coalition in the United Nations, the Group of 77 provides the means for the developing world to articulate and promote its collective economic interests and enhance its joint negotiating capacity on all major international economic issues in the United Nations system (including climate negotiations), and promote economic and technical cooperation among developing countries. The G77 is arranged in Chapters (in New York, Geneva, Nairobi, Paris, Rome and Vienna), where the work is coordinated by a chairman who acts as its spokesman. The chairmanship rotates on a regional basis (between Africa, Asia, and Latin America and the Caribbean) and is held for one year in all the Chapters. For the purposes of the climate negotiations it is the New York chapter that matters since that is where the UN headquarters is based.

[9] China is not a member but an associate of the Group of 77.

Table 4. Chair of G77 in New York since 1998

Indonesia	1998
Guyana	1999
Nigeria	2000
Iran	2001
Venezuela	2002
Morocco	2003
Qatar	2004

In the last seven years five out of seven G77 chairs have come from OPEC countries (see Table 1). According to most delegates interviewed this is partially due to a resource issue since OPEC countries are wealthier than other developing countries and thus can take on the costs associated with the chairmanship of G77. According to one G77 delegate the reason large developing countries have not taken up the chairmanship appears to reside in their capability of influencing the negotiations within G77 without being chair and perhaps this also avoids the perception that they are controlling the process if they were chairs. Another reason OPEC countries have not passed on the opportunity of chairing G77, is the fact that on their own they may feel isolated from other developing countries so by being chairs they can exert more influence in the workings of G77 (G77 delegate, 2004e).

In the early period of negotiations, Saudi Arabia, Kuwait, Venezuela and Iran were the most active members of this group (Box 2 provides some excerpts from the literature on OPEC's role in the early climate negotiations until Kyoto). As the years went by, other OPEC members also became more active (Indonesia and Nigeria), perhaps as a function of having the G77 chair at the time (see Table 4). Without doubt, the single most active member of OPEC throughout 15 years of climate negotiations has been Saudi Arabia, supported by various Gulf States such as Kuwait and the UAE.

Box 2 History of the UNFCCC and OPEC

In the early days of climate negotiations OPEC (in particular Saudi Arabia and Kuwait), like the US, sought to avoid any binding commitments to specific quantitative reductions in carbon emissions by a fixed date. Representatives of these countries consequently emphasized the scientific uncertainty about climate change and the flaws in existing economic analysis. They went to great lengths to minimise any specific commitments to emissions reductions, avoid any reference to energy and generally to delay the conclusion of an agreement. They advocated for a "go slow" approach. Many of those involved in the Intergovernmental Negotiating Committee (INC) process thought they preferred not to have an agreement. It is curious to note that in those days various negotiators wondered if Saudi Arabia or Kuwait would ever ratify the Convention since they had so many reservations about it.

In the run-up to Berlin several sessions of the INC took place in preparation for COP-1. During these sessions and despite all the evidence, the OPEC countries (well-briefed by business lobbyists from the Global Climate Coalition and The Climate Council) refused to accept that the Convention's commitments be called "inadequate". To make matters worse, the OPEC countries insisted that a protocol had to be adopted by consensus and that they should be granted a seat on the Bureau of the COP. This demand prevented agreement on the Rules of Procedure of the Conference of the Parties. At COP-1 the Berlin mandate was supported by a so-called "Green Group" of developing countries led by India (G77 minus OPEC) and the EU. The pressure was on the US and OPEC, but eventually the US delegation agreed to a compromise.

COP-2 provided the opportunity to determine the future direction of the process. OPEC members insisted that the prevailing uncertainties did not justify using the IPCC reports as the basis for elaborating a protocol, as requested by the majority of the countries. The procedure for adopting the Geneva Ministerial Declaration proved to be as important as its content. The Ministers who signed on to the Declaration wanted COP-2 to "endorse" or "take note of" it, so as to enhance its importance for the future negotiations. It was obvious that OPEC would try to block any such move in the COP. The overwhelming majority of Parties, however, decided that this small minority would not be allowed to hinder progress. With no agreed rule on voting in the COP, another procedure was found that satisfied the formal consensus requirement, despite the opposition of a small number of Parties. The solution was to adopt the Declaration by "consensus minus x". Opponents of the Declaration, such as OPEC, could only file reservations or object to it, but they could not prevent its formal recognition by COP-2. Proving its ability to act against a minority, even in the absence of formal voting rules, the majority thus sent a strong signal to OPEC and Russia that it was unwilling to let these countries progress on formal grounds.

After their defeat at COP-2, OPEC countries modified their strategy; instead of attempting to obstruct the protocol negotiations, they tried to broaden support for their position among G77. In the run up to Kyoto, OPEC countries suggested that a Compensation Fund be established for adverse impacts arising from implementation of response measures by Annex I countries on developing countries (See FCCC/AGBM/1997/MISC.1). This proposal was formally included in the G77 position unveiled in 1997, in order to secure OPEC endorsement of the position, but compensation never received widespread support.

As a result, the issue was not even on the agenda of a contact group in Kyoto. Nonetheless, informal consultations on this issue occurred but Annex I countries rejected the idea. OPEC tried to argue within G77 that the group had presented the compensation fund and the clean development mechanism as a ‘package’, but that did not work. Instead Article 2.3 and 3.14 emerged. During AGBM meetings OPEC had at least one of its member countries in the informal working groups of G77. The Policies and Measures group, for example, had 4 OPEC countries out of 17 Parties, with Saudi Arabia and Venezuela as coordinators.

(Based on excerpts from Borine and Ripert, 1994; Mintzer and Leonard, 1994; Oberthur and Ott, 1999; Mwandosya, 2000)

All OPEC member countries, except Iraq, have ratified the UNFCCC, but only Indonesia has ratified the Kyoto Protocol (in 28 June 2004). National communications to the UNFCCC have been submitted by four OPEC member states (Algeria, Indonesia, Iran and Nigeria). It is curious to note that only Iran’s National Communication (NC) mentions the impact of response measures. In fact, there is in-depth treatment of this issue and how the Kyoto Protocol could affect Iran in their NC. No other OPEC country mentions this issue in their NC. Nigeria has a large focus on future climate change scenarios, and vulnerability and adaptation assessment. This perhaps signals the importance of adaptation for this country. Indonesia’s NC is very much focused on their inventory of greenhouse gases and previous AIJ (Activities Implemented Jointly) experience. Their NC seems to want to attract CDM projects. No vulnerability or adaptation assessment was performed implying that perhaps this is not a priority for Indonesia. Adaptation is, nonetheless, mentioned in the context of preparing coastal zones for sea level rise and CDM projects. Algeria seems to have a balanced NC that reports on both greenhouse gas emissions and adaptation measures.

Table 3 also shows the observed global warming that has taken place in each OPEC country during the 20th century and the mean expected warming during the 21st century. Both Algeria and Venezuela have warmed up considerably in the last century. In the future, most OPEC countries will experience increased surface temperatures, higher than the global average. We also show a very simple measure of vulnerability to the adverse effects of climate change that combines the amount of change to which humans may have to face with their capacity to adapt as measured by GDP per capita divided by the mean temperature change in the 21st century. On this basis, Nigeria, Iraq, Indonesia, Algeria and Iran are the most vulnerable countries to climate change while the small Gulf states are the least vulnerable.

Table 3. OPEC member states and climate change (compiled from UNFCCC website, Human Development Report 2004 and Mitchell and Hulme, 2001)

Country	UNFCCC ratified	Kyoto Protocol ratified	First National Communication submitted	CO_2 emissions per capita (2000)	Observed 20th century warming (ºC)[1]	Predicted 21st century mean warming (ºC)[2]	Vulnerability to climate change ($/per capita/ºC)[3]
Algeria	√		√	2.94	1.43	5.2	900
Indonesia	√	√	√	1.31	0.5	3.3	800
Iran	√		√	4.87	0.83	5.5	1,000
Iraq				3.29	0.55	5.3	500
Kuwait[4]	√			21.87	0.78		
Libya	√			10.91	0.38	4.6	1,700
Nigeria	√		√	0.28	-0.06	4.6	200
Qatar	√			69.55	0.1	4.6	3,700
Saudi Arabia	√			18.06	0.57	5.1	1,800
UAE	√			18.14	0.17	5.1	3,500
Venezuela	√			6.53	1.68	4.4	1,800

1 – Trend in annual temperature between 1901-1998
2 – Average results from five state-of-the-art global climate models
3 – GDP per capita data for 1998-99 divided by the mean temperature change in the 21st century
4 – Spatial resolution of the global climate models is too coarse to identify this country appropriately

4.1 OPEC's positions on key issues

Like G77, OPEC is not a cohesive grouping of countries at the international climate negotiations. Therefore, some member countries take some issue more seriously than others, while some are more constructive than others. According to many of the delegates interviewed Saudi Arabia was seen as the least constructive OPEC country while Iran was seen as perhaps the most constructive (see Box 3).

Nonetheless, at the core of their positions on almost any issue under negotiation is the question of the impact of response measures. Oil consumption is responsible for some 25% of greenhouse gas emissions, so efforts to reduce emissions would seem likely to affect the market for oil. This is of serious concern for OPEC member countries. The seriousness of this concern is demonstrated by the inclusion of Article 4.8 in the United Nations Framework Convention on Climate:

Box 3. How OPEC is viewed within G77 today?

These findings are entirely based on the interviews conducted with G77 delegates. As elaborated earlier, OPEC is a very heterogeneous group and this is acknowledged by most interviewed G77 delegates. Therefore, their answers were predominately focused on the most active members of OPEC in the climate negotiations, mainly Saudi Arabia. Respondents saw OPEC as having a negative, obstructive role in the process and in G77 (G77 delegate, 2004bcde). One G77 delegate said OPEC could not be taken seriously; she/he had lost faith in Saudi Arabia particularly because of their delaying and destructive tactics during the negotiations. (G77 delegate, 2004e). Another delegate perceived OPEC's role as largely negative and self-focused, creating resentment with other delegations and diplomats (G77 delegate, 2004e). One delegate said Saudi Arabia had a cunning approach towards issues; they are patronising towards newcomers because they haven't been involved in the process for all long as OPEC delegates (G77 delegate, 2004c). Most delegates thought OPEC had ties with industry (in particular oil industry) and with some Annex I countries (in particular the US) (G77 delegate, 2004bcde). One delegate said most countries disliked Saudi Arabia because they see them as US cronies. One OPEC delegate was aware of these issues and responded by saying that there was little chance to explain the OPEC position; that there was a misperception that they are filthy rich (G77 delegate, 2004a). Another OPEC delegate thought OPEC was well regarded in G77 due to their understanding of the problems of big developing countries, their good relationship with LDCs (through the OPEC fund) and for being the first intergovernmental developing country organisation (IGO delegate, 2004).

"In the implementation of the commitments in this Article, the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures, especially on: … (h) Countries whose economies are highly dependent on income generated from the production, processing and export, and/or on consumption of fossil fuels and associated energy-intensive products;"

The inclusion of Article 4.8 in the UNFCCC was required by OPEC countries in exchange for their support for the Convention, which not only reveals the global nature of this agreement but also the power levered by this group of countries. The issue of adverse effects and impacts of response measures are intrinsically linked in the Convention though they relate to quite different concerns. With the entry into force of the Convention in 1994 and the start of negotiations on a Protocol in 1995, OPEC continued to emphasise the importance of the impact of response measures. As a result, Article 3.14 of the Kyoto Protocol contains a number of articles pertaining to this issue. In the long-term perhaps the most problematic of these is Article 2.3, which refers to the obligation of Parties to minimise the impacts of any policies and measures on 'international trade … on other Parties, especially developing country Parties and in particular those identified in Article 4.8 & 4.9, of the Convention'. This linking of the impacts of implementing the Protocol to international trade "has the potential to become the most heavily litigated of the Protocol's provisions" under the World Trade Organization's dispute settlement procedures (Yamin 1998: 117). Such efforts are already under way, with Saudi Arabia having challenged OECD climate policies at the WTO's Committees on Trade and Environment and the Non-Agricultural Market Access Negotiating Group (WTO, 2002).

The principal difference between Article 4.8 and 3.14 is that the latter refers to the obligation only of developed countries to 'strive to implement' their commitments 'in such a way so as to minimize adverse social, environmental and economic impacts on developing country Parties', particularly those identified in Article 4.8 of the Convention. The particular identification of developed countries as the source of minimising activities in Article 3.14 makes it more important to members of OPEC because it is these countries that are required by the Protocol to reduce emissions, and these countries are the largest consumers of OPEC oil.

The impact of response measures theme permeates through the Convention and its Kyoto Protocol but since the adoption of the Buenos Aires Plan of Action[10] in 1998 this theme substantially enlarged its scope of activities on a number of issues (see also Appendix 1). For example, a Special Climate Change Fund was established under the Convention to finance climate change activities relating to adaptation, technology transfer and activities to assist OPEC countries in diversifying their economies. With respect to Article 3.14, the Marrakech Accords require developed countries to provide annual information on how they are striving to minimise adverse social, environmental and economic impacts on developing countries as they implement their Kyoto commitments. This was a major achievement for OPEC, who also insisted that this

[10] An ambitious work programme on some of the most pressing issues (financial mechanism, technology transfer, adverse effects, activities implemented jointly (AIJ) under the pilot phase, the Kyoto mechanisms, and a compliance regime for the Protocol) to be finalized by COP-6.

information should be considered by the enforcement branch of the compliance committee, but which ended up in the facilitative branch due to developed country insistence.

Like other developing countries, OPEC also firmly believes that industrialised countries should take the lead on combating climate change and developing countries should not take on any commitments to reduce emissions:

“Finally it should not be forgotten that the established industrial nations bear the principal responsibility for the purported phenomenon of global warming, and not the developing countries. The onus, therefore, is upon the rich nations to minimize and finance the negative impact of their response measures on the poor countries of the south. Developing countries should not be roped into making commitments to emissions-reduction targets, which could have enormous cost implications for their fragile economies. Instead, every assistance should be given to them to develop their economies in an efficient, environmentally harmonious and sustainable manner.” (Dr. Rilwanu Lukman, OPEC Secretary General in COP-6).

Other issues where some OPEC member countries have a strong position have barely progressed, for example, aviation bunker fuels.

4.2 The Special Climate Change Fund

The Special Climate Change Fund (SCCF) is a recent example of OPEC driving G77 position and negotiation. After much horsetrading and negotiation it was decided that the SCCF will finance climate change activities, programmes and measures in the areas of: adaptation, technology transfer, certain specific sectors, and activities to assist oil-exporting countries diversify their economies. This was of course a major feat for OPEC and perhaps their *quid pro quo* for accepting the Marrakech Accords (together with the other provisions mentioned). At COP-8, in New Delhi, Parties decided to initiate a process to provide further guidance to the GEF so that a decision would be adopted at COP-9.[11] At SBI-18, it was noted that Parties identified adaptation (to the adverse effects of climate change) as a top priority for funding, as well as technology transfer and its associated capacity building activities.[12] At COP-9 negotiations began in an encouraging spirit, but as soon as the co-chairs of this contact group tabled draft text, dissatisfaction and frustration became apparent. In particular, the funding of economic diversification became a hotly contested issue. The EU was refusing to fund these activities because they argued that laws in individual EU countries were prohibiting them from agreeing to fund economic diversification in oil-exporting countries. For G77 this was “backtracking” on the

[11] Decision 7/CP.8
[12] FCCC/SBI/2003/8

adopted Marrakech Accords (even Argentina and China showed support for this position in plenary).[13] Negotiations could not be resolved in the SBI contact group so it was taken up by the COP president. Economic diversification is a very important issue for OPEC countries. While some member countries see this as a real opportunity within the climate negotiations (e.g., Iran) others use this to torpedo the negotiations and create deadlock and animosity between North and South (e.g., Saudi Arabia). After various protracted and tense negotiations in small groups agreement was reached within, and between, negotiating groups, and a decision was adopted in the last day of the conference. The adopted decision gives top priority to adaptation activities and will also finance technology transfer and its associated capacity building. The controversial issue of economic diversification was simply postponed until COP-10, leaving the fund or other issues to be held hostage until this issue is resolved. The adoption of a decision at COP-9 was an important step for G77 countries seeking assistance for adaptation (especially non-LDC countries). However, it is curious to note how the whole G77 was supporting what could be called an OPEC position. In part this is because of the issue of re-writing the Marrakech Accords, but also a general deception of the lack of leadership by developed countries. The battle over economic diversification in the SCCF was postponed, but it won't go away easily.

4.3 Saudi Arabia tactics in the negotiations

Being the most active and powerful member of OPEC it is worth examining the tactics of Saudi Arabia in the climate negotiations. This sub-section is entirely based on the interviews conducted:

- "Equal progress" or "package deal": in order to delay agreement or create deadlock, Saudi Arabia constantly uses the argument that we cannot have progress on one issue without having progress on another issue (usually something of interest to this group that is unacceptable to other Parties).
- Controlling the process and the agenda items that are important to them: within G77 this happens by Saudi Arabia (and other OPEC countries) chairing a number of working groups (e.g., aviation, National Communications) and asking to have representation on all boards through the Asian group. Sometimes they don't consult other Parties of the working group when drafting text. In some occasions Saudi Arabia does not show up to meetings and so there is no G77 position.

[13] The G77 coordinator of this working group was an OPEC member, Nigeria.

- Misrepresentation of the G77 position: sometimes OPEC countries talk on behalf of G77 even though they have no mandate or they go beyond the agreed G77 position. They have been reprehended but nothing much happens (this is documented briefly in Mwandosya, 2000)
- Silly text: In many occasions Saudia Arabia has introduced text that does not make any sense or text that is totally unacceptable to other Parties in order to cause delays and deadlocks. These tactics led interviewed delegates to say that "The delegation of Saudi Arabia does not defend the interest of its people, but of the oil industry" (Annex I delegate, 2004a). SA is asking for unreasonable things that are deliberately unpatable (G77 delegate, 2004e).

5. Implications for G77 members

OPEC and in particular Saudi Arabia's role in the climate negotiations is so pervasive that all Parties to the Convention are impacted in some way or another, even OPEC member countries (see Box 4). For example, as they implement their Kyoto commitments all developed countries will have to provide annual information on how they are striving to minimise adverse social, environmental and economic impacts on developing countries. If OPEC countries see irregularities in this information then it can be taken up in the facilitative branch of the compliance committee.

OPEC tactics in the climate negotiations, however, are much more detrimental to the Group of 77 and its members, in particular the most vulnerable countries to climate change. In arguing that progress in Article 4.8 and 4.9 of the Convention, and 2.3 and 3.14 of the Protocol (now progress in implementing decision 5/CP.7) be equal, OPEC countries obstruct progress on assistance to developing countries for adaptation to climate change. Article 4.8 is key because not only does it consider OPEC concerns (as explained earlier), but also funding, insurance and technology transfer arising from the adverse effects of climate change, especially on: small island countries; countries with low-lying coastal areas; countries with arid and semi-arid areas forested areas and areas liable to forest decay; countries prone to natural disasters; countries with areas liable to drought and desertification; countries with areas of high urban atmospheric pollution; countries with areas with fragile ecosystems, including mountainous ecosystems; and land-locked and transit countries. There is a particular Article (4.9) for the specific needs and special circumstances of the Least Developed Countries. While OPEC held this issue hostage for many years, to the disadvantage of the developing countries identified (in Article 4.8 and 4.9; which mainly comprises of AOSIS, LDCs, the African group and various other developing countries), the Marrakech Accords saw some progress with the adoption of several decision separate of OPEC issues. For example, a LDC fund and a LDC expert group was established to support the LDC work programme that is now considerably detached from the response measure issue, albeit being in the same decision.

Box 4. The impact of Saudi tactics on other OPEC member states.

One G77 delegate said OPEC could not be taken seriously anymore; he/she had certainly lost faith in Saudi Arabia (G77 delegate, 2004d). All delegates interviewed ranked Saudi Arabia as the most powerful and active member of OPEC in the climate negotiations. Their role was largely seen as negative and obstructive. So are Saudi Arabian tactics helpful to other OPEC member countries?

By using delaying and obstructive tactics in the climate negotiations Saudi Arabia perpetrates uncertainty in the international regulatory framework. OPEC member countries need reliable estimates of future oil demand to make optimal investments to ensure that production capacity expands to match future demand. As the Secretary General of OPEC noted at COP-9 "uncertainty is making it difficult for decision-makers in the energy industry to formulate policy and devise effective investment portfolios". Saudi Arabia's negotiation tactics in the climate negotiations prolong exactly the sort of uncertainty OPEC needs to avoid to make secure investment decisions. Saudi Arabia is actually doing a disservice to OPEC as a whole by acting in this non constructive way.

By delaying and obstructing progress in the negotiations, Saudi Arabia and other gulf states are jeopardising the interests of most OPEC member countries. Albeit with some reservations, most OPEC countries would like to see progress in the climate negotiations. This is evident by Indonesia's recent ratification of the Kyoto Protocol and Qatar's conclusion that ratification of the Kyoto Protocol is prudent (Ahmed and Maslamani, 2004). Indonesia is keen to attract CDM projects and deal with the adverse effects of climate change (G77 delegate, 2004f). Climate change policies that encourage fuel switching into less greenhouse gas emitting energy, such as natural gas, could benefit many OPEC countries such as Iran and Qatar, but also Nigeria and Algeria. It is not surprising that Qatar, Iran and the OPEC Secretariat are keen to pursue this further, possibly through the CDM.

There is evidence to suggest that declines in oil revenue will be less important to some OPEC countries than the adverse effects of climate change proper on other important economic sectors such as agriculture. This is certainly the case for Nigeria, Iran, Indonesia and Algeria as shown by the agriculture sector percentage of GDP (compared to oil export revenues) in Table 4. Indonesia is particularly vulnerable to sea level rise because it consists of thousands of islands.

Middle East OPEC countries are highly vulnerable to the impacts of climate change in the water resources and food and fiber sector according to the IPCC. Losses in revenue from damages in agriculture and other climate sensitive sectors due to climate change may far outweigh losses in oil revenue due to climate change policy. It may therefore be in most OPEC countries' best interest to support substantial emissions reduction measures and measures to assist in adaptation to climate change. This runs counter to Saudi Arabia's opposition of emission reductions and hostage holding tactics of adaptation over response measures.

Table 4. Value added of agriculture and oil as a percentage of GDP in 1999 and 2003 (Data from World Bank Development Indicators 2004 and OPEC, 2004b).

	1999		2003	
Country	Agriculture	Oil	Agriculture	Oil
Algeria	11.45	17.23	11.06	29.3
Indonesia	19.61	4.67	16.58	4.6
Iran	20.88	14.50	10.8	19.4
Iraq		47.58		37.9
Kuwait		37.78		43.1
Libya		25.37		59
Nigeria	36.56	33.36	37.35 (2002)	39.8
Qatar		38.53		43.2
Saudi Arabia	5.71	27.88	5.11 (2002)	40.2
UAE		27.22		33.3
Venezuela	4.92	16.04	2.58	24.5

Decision 5/CP.7 amalgamates the issues of impact of adverse effects, implementation of Article 4.9, impact of response measures and further multilateral work (mainly deals with workshops) although they have different sections in the document. In recent sessions (COP-9, and Summer SBs of 2004), Parties have been dealing with the issue of "Progress on implementation of Decision 5/CP.7", but without success. OPEC's stance on this issue has prevented any agreement, thus delaying potential assistance to developing countries for adaptation to climate change, insurance, etc. Decision 5/CP.7 is just one example of where LDCs, AOSIS and other developing countries' concerns have been put on hold because of OPEC. Others include the Special Climate Change Fund.

The implications of OPEC tactics for the larger developing countries such as India, China and Brazil are not straightforward. One northern delegate argued that within G77, OPEC was one of the few groups that had vision (Annex I delegate, 2004a). China, India and Brazil let them (OPEC) do what they want in matters that are not of interest to them, which would imply no implications. However, in the long term, when developing countries start taking on commitments this might prove otherwise. As a whole, OPEC tactics tend to put Annex I countries against G77 because of the unreasonable positions that are included in their positions. As shown by the SCCF case study this can polarise North and South, which OPEC, in particular Saudi Arabia, galvanises upon to create a further deadlock and widen the rift between these groups.

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Appendix 1. Impacts of the Kyoto Protocol on OPEC: where does the 63 billion USD per year come from?

"As it stands, the Kyoto Protocol, if fully implemented, would lead to a dramatic loss of revenue for oil-exporting countries, as a result of a heavy reduction in demand for petroleum. *Independent studies estimate the loss at tens of billions of US dollars per year for OPEC's Members*. This would strike at the very heart of these countries' economic and social infrastructures, causing a radical scaling down of development plans and entailing huge cutbacks in such vital services as education and health care. It would also affect the ability of these countries to invest in future production capacity." Dr Rilwanu Lukman, OPEC Secretary General at COP-6 in The Hague, Netherlands, November 13-24, 2000.

OPEC has consistently claimed that the implementation of the Kyoto Protocol (or any climate mitigation policy) will have vast and serious consequences to oil-exporting countries, as the statement above exemplifies. These claims are based on global energy-economy models such as the OPEC World Energy Model (OWEM; Ghanem *et al.* 1999). These models and their results depend almost entirely on the assumptions taken, which leads to results that range from insignificant impacts to serious economic damages. Barnett et al. (2004) conducted a thorough review of models that address the impact of the Kyoto Protocol on OPEC. They documented over one dozen of the most important assumptions which explain the uncertainties within and differences between all model results. These include assumptions about: revenue recycling, backstop technologies, the international policy regime, baselines, cartel behaviour, carbon leakage future availability of oil reserves, and substitution, innovation and capital turnover. For example, assumptions about the reference scenario from which the cost of deviations due to the Protocol are calculated have an important impact on results; the higher the baseline, the greater the estimated cost of reducing emissions. This is the case for the OWEM whose relatively high reference case means relatively high reductions in oil demand in a Kyoto scenario and therefore relatively greater reductions in oil revenues. Another important caveat of the OWEM is that emission reduction targets of all Annex B countries are met solely through reductions in CO_2. Since the Protocol allows reductions across a basket of six greenhouse gases, such an assumption overstates the costs to oil producers. Most studies were done before the Marrakech Accords so they assumed limited emissions trading and no usage of carbon sinks. Since the adoption of the

Accords in 2001, it is known that considerable sinks credits have been granted to Annex B countries, that the use of Kyoto mechanisms has no cap and that the US is unlikely ratify to the Kyoto Protocol. Had these features been taken into account the estimated losses to OPEC would have been considerably lower. Finally, OPEC's ability to influence the price of oil through restrictions in supply is a critical factor in whether they will experience less revenue as a consequence of the Kyoto Protocol. Cartel action by OPEC may be sufficient to fully counteract possible impacts of the Protocol on oil revenue.

The extent of lost revenues to be compensated is impossible to define with certainty because to ascertain how much was lost requires knowledge of how the world oil market would have operated without implementation of the Protocol. Assessing such an impact requires, among other things, a distinction between the impact of other unrelated policies and measures from those taken pursuant to the Protocol; and disaggregating the effect of climate change policies and measures on developments in technology, macroeconomic variability, structural economic changes and other exogenous changes which would have otherwise effected oil export revenues. As modellers make clear, an accurate assessment of how much oil revenue was lost due the Kyoto Protocol requires accurate understanding of these counterfactual but inescapably hypothetical and unknowable scenarios.

Besides compensation, there are at least six other policy measures that might minimise any possible losses to OPEC countries. First, OPEC argue that the removal of subsidies on coal production, and removal of taxes on oil consumption in developed countries would lessen the impact of the Kyoto Protocol on their export revenues. This has been a long-standing concern of OPEC prior to the UNFCCC. These measures would raise the price of coal and reduce the price of oil in developed countries, affecting a significant shift in fuel consumption from coal to oil. This would result in less carbon emissions per unit of economic activity as coal is more carbon-intensive than oil. Second, tax restructuring in developed countries to reflect the carbon content of fuels would also lessen the impact of the Kyoto Protocol on oil exporters as it would raise the price of coal, affecting fuel switching from coal to oil, and from oil to gas. Gas is the least carbon-intensive conventional fossil fuel and the bulk of long-term gas reserves are located in OPEC countries. Third, measures to discourage the production of fossil fuels within developed countries would increase OPEC's share of the oil market and their cartel power. Fourth, measures to abandon nuclear power generation would also favour oil exporters as more primary energy needs would presumably be met by oil. Fifth, developed countries could assist oil exporting economies to diversify sources of income, as models results show that economies with a diverse pattern of production and exports will be least affected by the Kyoto Protocol. Finally, increased use of carbon sinks would lessen the emphasis on reductions in emissions from energy consumption as a means to implement the Kyoto Protocol. Though an accepted matter within the Marrakech Accords, this remains a contentious subject in climate science.

At the heart of OPEC's concerns about the impact of the Kyoto Protocol on their development lies questions of belief in the methods, assumptions and results of simplified models of world energy trade. Certain assumptions in these models leads to overstated estimates of the impact of the Kyoto Protocol on oil exporters, including assumptions about: future oil reserves, international and domestic policy measures to reduce greenhouse gas emissions, and the power of cartel behaviour to influence the price of oil in the future. Model results contain compounded uncertainties of such a magnitude as to question whether OPEC will experience any negative impacts from the Kyoto Protocol. A range of policy measures are available to lessen whatever impact – if any – the Kyoto Protocol may have on OPEC, and these are more palatable to developed countries than the sometimes mentioned argument of compensation for lost oil revenues.

From Barnett et al. (2004)