Wednesday, 15th September 2004

(10.30 am)

THE CHAIRMAN: I declare the meeting open. We now move on to the final part, public health claims. As usual, I give the floor to Iraq.

Presentation by REPUBLIC OF IRAQ

MR SCHNEIDER: Mr Chairman, distinguished members of the Panel, the first issue which we propose to address in this session concerns the basic legal issues, like yesterday; the entitlement, the question of entitlement: are public health claims, as they were made here by the claimants, compensable? What is the legal basis for a government to claim compensation in this respect?

Health issues have been addressed in the UNCC process at several levels. First of all, and most importantly, at the level of individuals.

The rules established for the UNCC provide for compensation of claims by individuals for personal injury, for mental pain and anguish. Individuals were given the opportunity to claim for these injuries under the individual categories B, C and D. Indeed, they have done so, claiming for personal injury and death, mental pain and anguish resulting from hostage-taking, illegal detention and other similar traumatic events. These individuals, where they had a justified claim, were

compensated.

Individuals also could claim for adverse health impacts resulting from the collapse of Kuwait's public health system during the conflict and could claim for the pollution caused by the oil well fires.

This shows to what extent the UNCC went to provide compensation for public health damage suffered by the individuals exposed to the consequences of the conflict.

At the level of the governments, the rules are more laconic. There is no mention of public health claims in the Resolution 687, and in Decision No. 7. There is only one passage, and that is in paragraph 35(d), where mention is made of:

"The following damage is included as a basis for compensation: reasonable monitoring of public health and performing medical screening for the purpose of investigation and combatting increased health risks as a result of the environmental damage."

What does this mean? The only public health claims for which compensation is provided are for reasonable monitoring and more medical screening. These medical screening costs are further limited twofold. They must be made for the purposes of investigating and combatting increased risk, and these risks -- that is the second limitation -- must be the result of environmental

damage.

The claims under paragraph 35(d) are indeed a category of environmental claims and only for screening. This is in fact the understanding which this Panel had in the report under the first instalment, where the Panel relied on the provision of paragraph 35(d) in paragraph 11 of the report for its award on monitoring and assessment.

In the long list of government claims in Decision 7, there is no other reference to public health damage. In particular, there is no mention of costs providing medical services. In other words, the decision provides compensation for screening, not for treatment or any other public health damage, as the claimants are alleging it occurred and as they are making as the basis for their claim.

In the Decision (sic) 35 there is an indication that this list is not exhaustive. Indeed, it is said in paragraph 31:

"The following criteria are not intended to resolve every issue that may arise with respect to these claims. Rather, they are intended to provide sufficient guidance to enable the governments and international organisation to prepare consolidated claims."

They are intended as guidance, which means not every

detail must be regulated in the rules, and not every detail was intended to be regulated.

This Panel, in the second instalment, made some interpretation, and in paragraph 23 of its report said:

"For example, expenses of measures undertaken to prevent or abate harmful impact of airborne contaminants and property or human health could be included."

What is noteworthy here is that the drafters did consider public health. When the damages, the losses for which the claimants can seek compensation, were addressed, the drafters looked at public health, and they provided compensation for certain public health matters. But they have done so in a very limited manner. Therefore, in this case here, the absence of specific other cases of damage in the area of public health cannot be a simple oversight or lacuna. This absence of other public health damage is something that must be intentional. The silence, the non-mention of these other fields of damage, are what is called in French doctrine a silence caracterise, a characterised silence, it is not accidental -- a concept which is applied in interpretation of legal texts in general.

I think in English law it would be the ejusdem generis rule. If you have specified as an example, you mean similar cases of the same kind but not something

very different. So we conclude from the fact that public health was mentioned, but only in a very limited manner, that public health claims are limited to the category of screening, monitoring and the like, as the Panel applied it in the first instalment.

Indeed, this is a sensible solution in a context where the individuals have been given an opportunity to claim and have been compensated. The effects on health which we are considering here are effects which meet individuals, and they are affected in their health and they could claim for including mental pain and anguish, something that would correspond to the post traumatic stress disorder for which the governments are claiming here.

The governments are only concerned indirectly. They are providing the medical services, but they do this anyway. This is a basic service which a government does provide in general and which it does whether there is one patient more or one patient less, and there is no basis for compensation.

One other basis that may be considered is paragraph 36 of Decision No. 7, and there the case is considered where a government provides indemnification to an individual that can claim elsewhere under the UNCC rules, and this type of claim has been described as the

subrogation claim. The government makes a payment to a national for loss of property or other losses, for which this national can seek compensation before the UNCC.

This provision is of interest on two grounds for us. On the one hand, it addresses the controversy that was occurring yesterday about the role of diplomatic protection in this procedure. In fact, in the UNCC the normal case is the claim by an individual, and this is an exception to international law where the individual does not have access to the adjudicating authority.

This has as a counterpart that there is no provision like in diplomatic protection of the government espousing the claim. The only provision that is made, which is sort of a corollary to diplomatic protection -- that is precisely this paragraph 36 -- that the government can indemnify the individual and then claim for the amount of this indemnification. This, of course, is different from diplomatic protection and it is in the UNCC this mechanism which replaces diplomatic protection.

There is another important aspect in paragraph 36. That is, it relates to the strict standard of directness. The claims by a government, once it has indemnified an injured person, would be indirect. The

government itself has not suffered the damage, it is the individual that has suffered the damage. The very fact that the drafters, the Governing Council, saw the need for regulating this particular situation, the need of providing for this case of indirect damage, shows how strict is the question of directness, the principle of directness, which is back in Resolution 687. Throughout, it is always direct damage.

This case of indirect damage, where a government has expenses because an individual, a patient, has been affected, are indirect cases, and it is only these cases in paragraph 36 of Decision 7 where a government has the possibility of claiming for indirect damages. So we are saying that only in cases which fall under paragraph 36 is a government entitled to make public health claims. In other words, the loss must be of a citizen or another third person which is compensable before the UNCC, and only up to the amount for which the UNCC provides compensation. And the government must have made such a compensation.

In all other cases, the claims by the government for a loss of its citizens are indirect losses and cannot be claimed.

The conclusion on this point: a government cannot make a claim on account of life or health of its

nationals. It can make it only if it is for monitoring and screening under paragraph 35(d) or for subrogation under paragraph 36. That is it.

This is the ambit of public health claims in the system of the UNCC.

There is no basis for general public health claims, as they are made by the claimants here. There might be a possibility under paragraph 34, should the government show that the health damage for which they claim is caused by one of the identified events, and they must then in each case demonstrate the identified events, such as military action, action by public officials, breakdown of civil disorder, et cetera, and the damage must be direct. These are the limits for any additional treatment costs for which a government may seek compensation.

Since the health services are supported by the government in any event, it is only the additional cost, the marginal costs, which are compensable. We will address this point in a minute.

These considerations lead also to the conclusion that all these claims for loss of productivity, for loss of wellbeing of individuals, are inadmissible. They are claims for indirect loss. If there is any loss at all -- and we come to the question of what loss is there

in a minute -- these claims also fail because of the use of modelling and other risk assessment methodologies for establishing the alleged damage.

First of all, we will come to the point, we will have comments to the health impact in the first place, and we will have here Dr Philippe Autier, who is the head of the epidemiology department of the Jules Bordet Institute and the oncology centre in Brussels, and who is an international consultant on public health issues, who will address this point.

Presentation by DR AUTIER

DR AUTIER: The public health claim on oil well fires and mortality came to the conclusion that there were 35 additional deaths of Kuwaiti nationals because of the oil well fires. These 35 deaths represent 2.6 per cent of deaths in that populations.

The calculation of these 35 extra deaths was done from complex modelling work, and the complex modelling work involves a certain number of steps, and each step may involve uncertainties. These steps, very summarised, are about the air concentration of pollutants in Kuwait; the background non-accidental mortality; the numbers of people who were actually exposed to the pollutants; and, of course, what is the link that exists between the exposure to the pollution

and dying from that pollution?

The pollutant that attracts most attention is called the particulate matter, which was used for complex modelling. We will address some of the key uncertainties on the estimation of oil well fires and mortality in Kuwait.

First of all, different dispersion models have been used by the claimants for the estimation of the air concentration of pollutants. This means that, according to the model you use, you may come up with different estimations of the air concentration of the pollutants.

Here in this model on the slides we show, the first thing to be seen is these orange lines. That represents the air concentration in particulate matter in Kuwait. This is the ambient particulate matter in Kuwait during usual daily life. These very high levels are due essentially to sandstorms, that are very common in that area of the world.

The blue lines on the slide come from the model and represent the pollution of particulate matters coming from the oil fires. These peaks of pollution are interrupted by periods of normal situation. The blue line is in fact the average of all the oil fire emissions. The blue line has been used for modelling mortality.

So here we come up with the first question: is the average concentration of particulate matter a good approximation of a phenomenon that expresses as peaks during a very precise moment?

The second problem we see is that this average particulate matter has been used for estimating the excess mortality, and for that the data were used from epidemiological studies done in the United States. The green line shows the ambient average particulate matter level in the United States cities. It is a little bit above the zero level in this graph.

The orange line represents the average ambient particulate matter in Kuwait. This underlies the difference in atmospheric conditions between United States cities and Kuwait.

This poses the question: can we use the research from epidemiological studies done in the United States for establishing and estimating mortalities due to particulate matter in Kuwait?

This picture shows another aspect of the estimations. For the estimation of the excess mortality, the claimant used the absolute increase in particulate matter. But the increased particulate matter in Kuwait, if it was applied in the United States cities, it would represent an increase of 70 per cent of

the air concentration of particulate matter. However, when we apply this to the Kuwait situation, this represents only 6 per cent relative increase in particulate matter. So the increase due to oil fires in Kuwait represents a very small increase as compared to the background particulate matter.

We can also come to another consideration here: that if the absolute increase in particulate matter was the important matter, you would expect that in Kuwait, given that very high background particulate matter, the concentration in Kuwait would be very high. But that is not the case; people enjoy low mortality and a high life expectancy.

What was the exposure of people in Kuwait to the pollutants in 1991? We must be reminded that the smoke was blown high into the air most of the time and reached the ground only on occasional touchdowns. When there were touchdowns, most people generally stayed in the buildings, so probably that exposure was minimised.

That there were few touchdowns is very significant. We found no information in the report from Kuwait showing that there were remediation plans for reducing the exposure of people to plumes, limiting the exposure, so the threat was not that enormous.

We can say that in fact the epidemiological results

for making estimates of an excess risk were derived from US cities, and we can question whether this is applicable at all to Kuwait. The authors themselves acknowledge that there is a considerable uncertainty that may lead to estimates of excess death, ranging from zero to perhaps several hundreds. This shows, also, that the authors were not very certain of the results.

One could say that in fact the particulate matters from oil plumes are of a different quality than those from sandstorms, meaning by that that these particulate matters could have consequences to public health that would not have the particulate matters from sandstorms.

In fact, when we review all the evidence we have so far coming from studies published (inaudible) from Kuwait itself, from the firefighters and from the United States soldiers, we found no evidence that the particulate matters from oil fires had a detrimental impact on health.

Looking at the robustness of the models that were used and the results of them, the claimant asked a panel of six European experts to review the results. In fact, the results from the six European experts showed considerable variation in the number of deaths that could be expected from exposure to the oil fires, ranging from zero to several thousand. So this shows,

quite interestingly, that differences in assumptions, modelling and uncertainties may contribute to a very different conclusion, including no excess deaths at all.

Thank you.

MR SCHNEIDER: We now move on to another component of the damages for which several of the claimants seek compensation -- psychological damage. Several of the claimants seek compensation for what they describe as PTSD, post traumatic stress disorder. As Professor Guyader will explain to us, this is a new disease, and amongst scientists it is debated whether it is a disease at all.

From a legal point of view, the link of these PTSD phenomena on which some of the claimants rely must be made to what is in our legal terminology, in our legal concepts, the mental pain and anguish. We see that the PTSD and mental pain and anguish relate to the same phenomenon. This has the consequences that the claims which are now being made for PTSD, in reality are claims that must have been treated under mental pain and anguish claims by individuals, and it must be assessed on this basis.

The claimant must prove that the damage is direct and has not been compensated by any other award of any other panel for which the claimants can seek

compensation.

The claims for PTSD or MPA give rise to a number of very serious objections, not the least being the lack of directness. Dr Guyader will provide some explanations which will assist us in the understanding of these points.

Dr Guyader is a psychiatrist in charge of mental training and mental health of Palestinians, a general practitioner, and adviser to the Ministry of Foreign Affairs on issues of mental health in Palestine.

Presentation by DR GUYADER

DR GUYADER: Herodotus wrote about the psychological effects of battles. So did Shakespeare, so did Walt Whitman, so did Philippe Pinel, so did Henri Juneau (?). In 1980, American psychiatrists have invented the PTSD. So we have to face the definition of PTSD, as to where it is given by the DSM IV, revised.

A person is considered suffering from PTSD if he has been exposed to a traumatic event in which both of the following were present -- he has experienced, been exposed to, witnessed or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others; the person's response involved intense fear, helplessness or horror.

The traumatic event has to be persistently re-experienced in a specific way. The individual should show persistent avoidance of stimuli associated with the trauma, and numbing of general responsiveness that are not present before the trauma. People have to show persistence of neurovegetative symptoms of increased arousal, not present before the trauma. The duration of the symptoms should be more than one month. The disturbance causes clinically significant distress or impairment in social, occupational or other important areas of functioning.

Where this situation of intense suffering lasts for less than three months, then the PTSD is acute; over, it is considered chronic; and it also can have a delayed onset.

As we saw before, psychological damage from war has been quoted in history by many authors for a long time. It was invented. It is not a scientific discovery, it is an invention of American psychiatrists in 1980, in order to resume the symptoms presented by war veterans of Vietnam.

It is very widely criticised. I will quote Dr Summerfield, who says that it is an invention, and who showed on what cultural and socio-economical shifts was based the introduction of this new mental disorder.

Since this invention, a strong and painful reaction to a harmful event has been shifted from normal to abnormal. He also says that now victimhood, based on the pervasive sound of experiencing emotional or psychological damage, has become the norm.

I would say that PTSD is not a disease; as it says it is a disorder. It is a way to characterise a collection of symptoms as a mental illness, and it is not generally admitted, and the differences raised around the world are important.

For example, in the Lacanian School of Psychoanalysis, which is widely spread around the world, they say in their bulletin that a statistical accountancy cannot validate a complaint as a psychological suffering or as a mental disease.

Guy Briole, who is the chief psychiatrist of the Val de Grace Military Hospital in Paris, says that with PTSD an individual has to remain in a passive position, waiting for a medical answer to his singular experience, and is left to the only possible position left, to become a victim.

Laurence Tessier, for the Berkeley University, showed how much this invention culturally has to do with cultural particularities, and it is difficult to figure the way it can be taken into account outside the United

States or western countries.

Another point I will make, to see the differences between PTSD and mental pain and anguish: both are conventions. The definition of the causal effects are very similar. The only main difference, to me, is that in MPA the symptoms are not mentioned.

So we see that the theoretical aspects of psychological trauma in war-time shows that the unbearable experience will undo the psychological links between real, symbolic and imaginary. This link is the warrant of psychological integrity.

As Jacques Lacan said, if the event cannot be symbolised, it will come back as if it was real. And this is what happens with psychological trauma; people have to face the event coming back as if it was real. A social bond can rebuild the divided self by reintroducing symbolism where it lacks, restoring the disordered psyche. So this is the interest of mourning, of recognition of the exposure to a traumatic event, of symbolically or really compensation, of the work of memory, of repentance by the aggressor, of psychiatric and social care.

When we see the claims, it appears that there are three difference exposures that could lead to PTSD: direct exposure, indirect exposure and secondary

exposure.

With the direct exposure, particularly in Kuwait, psychological trauma is determined by the traumatic event experienced or witnessed. There is no question about that.

In the indirect exposure, someone was told or saw the event on the screen; that is the way it has been presented in Saudi Arabia or elsewhere. And then, what happens is that the individual has to build up his own representation of the event, then the imaginary takes over, the event is coloured by the individual's psychological structure, and mostly by his fantastic dramatic life. The trauma is caused by the way the representation of one event triggers his own imaginary feeling of horror. The event then to which this individual was indirectly exposed is not the direct cause of the PTSD.

In the secondary exposure, someone who has been exposed to primary trauma sees it retriggered by a new event. In this case, one has to know that the psyche can protect oneself against the consequences of a trauma by burying it in the depths of the unconsciousness. It works if the individual says to himself: I want to know absolutely nothing about what happened to me. It is then possible that the psychological silence in which

the trauma is locked could be opened and the former psychological suffering released and reapplied. Anybody can open the jail door, anything can trigger the buried trauma.

In the secondary trauma, the traumatic experience is undoubtedly the main cause, it was mainly caused by the first traumatic events and not by the second traumatic event.

We can see indirect consequences of what I have just said in looking at WHO country profile on mental health. The 2001 study shows that there is mention of what happened in Kuwait and the direct exposure could require appropriate psychological, social and psychiatric care. So then in this country profile there is the mention of the creation of a PTSD treatment facility in Al-Reggie. One has to know that the information given by states to the WHO are generally not confirmed, but just quoted.

On the contrary, in Iran and Saudi Arabia, in the 2001 country profile, WHO does not mention anything of this kind. It does not even quote the word "PTSD".

There would be general criticism on the claim for mental health to be talked about.

First, there was absolutely no clinical evidence given to the UNCC, not even samples of individual files. Some major elements which could contribute to make the

evidence of additional costs are not mentioned in most of the claims, like building care facilities; training specialised staff -- nurses, social workers; recruiting more psychiatrists or psychologists, like we have to do in Palestine; training of PTSD interviewers, which we have to do too; also, changing of the use of psychiatric drugs not mentioned, like serotonin, reuptake inhibitors or new generation neuroleptics, or Benzodiazepine or hypnotics.

Thank you very much.

MR SCHNEIDER: Thank you, Dr Guyader. We will now move on to the identification and measures of PTSD in the context of these claims, and Dr Autier will address us.

Further presentation by DR AUTIER

DR AUTIER: As we know, post traumatic stress disorder was assessed in Kuwait. There has been one last cross-sectional study done in 1993 by first of all Mr Al-Hammadi -- we did not receive the original of that work. Then there was a second cross-sectional study done in 1998 on 70 persons of adult subjects that were surveyed in 1993 -- the first author is Dr Behbehani -- and the results from the second survey were not taken into account because of the differences to assess the PTSD.

In 1993, the survey performed was a random selection

of 600 Kuwaiti nationals. The participation rate was very high. There was training of interviewers and there were home-based interviews, but using eight different psychometric instruments. So in fact, the interviews were quite long at this moment.

Here we come to issues that are extremely important when trying to measure the prevalence of a unique psychological problem in a population. The prevalence measured may vary because of the choice of instrument used for assessing PTSD, such as the questionnaire and the structure of the interview. The translation of the instrument into the local language must follow very well known rules in international (inaudible) for validation and translation.

Also, the survey made must control for a very important bias, called the social desirability bias. That is, that the responder provides the answer that is most expected by its social or cultural environment. There are techniques that exist for minimising this bias.

Another extremely important issue is which criteria are used for deciding if a subject in the survey has or does not have PTSD. We just saw with Dr Guyader how complex the definition of PTSD is; there are many criteria. Indeed, we would like to see whether the

instrument used has some correlation with the clinical PTSD on clinical examination. We would also like to see if the PTSD assessed by the instrument has some correlation with actual experience of trauma. We would also like to see that these criteria could make a difference between a subclinical form of PTSD that may be much more frequent than clinical PTSD. And also we would like to have some idea of the different levels of the severity of the PTSD.

We looked at the reports we had. In fact, the instruments used for assessing PTSD in the reports are, first of all, quite confusing, the instruments that were used. But in 1993 the first instrument that was used was the impact of event scale. Then after 1993 another instrument was used, the CAPS II form. So the results in 1993 have been analysed with the data from an instrument that was different from the original one. But using a different instrument is not without consequences.

So if we look at the results in one report, when we look at the others where we have newly diagnosed PTSD according to the instrument, when the impact of event scale is used you have 7 per cent with newly diagnosed PTSD, compared to 23 per cent when the CAPS II form was used. So that shows how the use of an instrument may

dramatically change the prevalence of PTSD within a population.

So if we make a summary of did we get information in methodology about the surveys done in 1983 about the use, the reason for using the CAPS and not another type of instrument, we have no information on that. And we do not have any information on the translation validation, the control of social desirability, the criteria for establishing PTSD, and we do not know how PTSD in the interview relates to clinical PTSD.

The analysis of the data: this table summarises the results of 1993. The Kuwaiti nationals were divided into three groups: the Kuwaiti nationals who stayed always in Kuwait during the conflict, those who were present at the conflict at the beginning but left the country after some weeks, and those who were always out of Kuwait during the entire conflict.

We see that those who were always out had 14 per cent of PTSD prevalence, according to the CAPS form; and those who were always in had 25 per cent prevalence; in and out were somewhere in between.

In children, the picture is a little bit different, because those children who were always out had higher PTSD prevalence than those who stayed in Kuwait. So, the analysis was made simply by taking out the Kuwaiti

nationals who were always out and replacing the 14 per cent and 23 per cent by a background overall of 2 per cent, and with some calculation coming to 90,000 cases of PTSD due to the conflict.

So this was why we dropped the Kuwaitis who were always out. The first reason given was forced immigration, that was dropped after the Hammitt report, that these people were always out, so it could not be forced immigration.

The second reason given is that those who were always out were traumatised by the vision on TV. When we look at the evidence that people who were always out were in contact with violence, from the data in the report, those who were always out had a very low level of contact with violence, and particularly nothing with other forms of traumatic events.

This slide points to an inconsistency in the general approach. This is a different survey, this is the public health survey that started in October 2003, and in that survey done in Kuwait, another sample of people, we can see that the people who were always out of Kuwait during the conflict were used as the reference group to which extra mortality and extra disease incidence will be compared and calculated. So it is of use that, according to the disease in the study, apparently the

method of analysis has changed.

To give some background of PTSD prevalence, 2 per cent is something that is measured in our western societies, essentially. So when we recalculate numbers taking into account the comparison group of those who were also out, we come to the very different figures of about half of what was announced by the claimant.

Finally, only a very few persons with PTSD went and tried to have medical attention. Why such a low figure? One important reason that we raised, that the CAPS II form, which is the questionnaire that was used, probably identified the level of many people as having PTSD when in fact they actually did not suffer from that disorder.

MR SCHNEIDER: One of the particularities of many of the public health claims which we are considering here, particularly those of Kuwait, and to some extent Saudi Arabia, is that they do not rely on actual damage and individual cases that have suffered a certain disease.

Indeed, Kuwait made a major effort in establishing actual damage, actual cases and costs, through intensive studies over years, and then when they delivered that to their new consultants, they concluded this did not prove anything and they decided to abandon the attempt to prove actual damage.

Private International Law at the University in Geneva.

Presentation by PROFESSOR KADNER

PROFESSOR KADNER: In my presentation I will focus from a comparative private law perspective on two issues: first, the use of models in statistical evidence and damage claims; and, secondly, the issue of causation in claims for psychological harm or PTSD or nervous shock.

Let us start with the use of models and statistical evidence in private law claims. In all domestic or international tort law systems, in order to succeed with a claim for damages, it has to be proven with certainty that damage or harm to a legally protected interest, for example to health, life or property, has actually occurred. Statistical evidence that damage might have occurred is not sufficient in any private law system.

Without certainty of actual damage, no claim will succeed.

The second point is that in private law, for a damage claim to succeed it is not sufficient to show that a person was exposed to a risk of becoming infected with a severe disease. Private law takes exposure to risk into consideration only if the risk actually results in damage or harm.

This is true for the laws of US, Australia, South Africa and all European tort law systems, for

example the laws of England, France and Germany. Let us take an example. An employee may have worked 15 years for an employer, during which time he was exposed to asbestos. It is not sufficient for him to show that due to this exposure there is a probability that he might already have caught a disease or that there is a high risk that he may suffer from a disease in the future. He will only succeed with a damages claim if he manages to prove with certainty that he actually suffers from injury to his health.

Once damage to a legally protected interest is established with certainty, consequential losses, such as loss of income or treatment costs, also need to be established with certainty. Statistical evidence and probabilities may be used only in order to determine future consequential losses, for example loss of future income or future treatment costs.

What conclusion might we draw from those principles of private law for the case we are dealing with? The plaintiff only presumes that some of its citizens died or will die as a result of the burning oil wells. Unless it can be proven that the death rate in Kuwait increased following the oil well fires, in applying private law principles the claim must fail.

From the private law perspective, we would ask: why

should the requirements of proving actual damage be lower for states than they are for individuals?

Let us now shift to the use of statistical evidence to establish causation. Once damage, for example a higher death rate, is established, models and statistical evidence may in some legal systems help the plaintiff to establish not the damage but the chain of causation between the damage and the alleged cause of this damage.

The most famous cases in private law concerning uncertainty of causation are the asbestos cases. Employees had worked for different employers who had exposed them to asbestos. It was certain that they suffered serious health damage. It was, however, uncertain with which employer they had caught the disease. In these cases, the courts lowered the causation requirement and held liable all of the employers who had exposed the employees to the same danger.

In our case, the situation is very different. First, damage cannot be proven. Secondly, the potential sources of any presumed damage differ very much. The death of some people in Kuwait may be caused by burning oil wells, but it may also have been caused by natural factors, we just heard it, or by causes attributable to

the victim himself. The situation we face in our case is characterised by uncertainty as to the cause of deaths and by the multitude of different potential sources for each individual's death.

This situation differs considerably from the asbestos cases, where it was certain that asbestos had caused the damage and where the potential sources of injury were similar -- employment with different employers.

What is the role of statistical evidence in a situation of uncertainty, such as the present one? In some legal systems, for example the French, Belgian, German or Austrian systems, in a situation of different potential sources of harm the plaintiff needs to prove with a probability close to certainty that a given source -- in our case burning oil wells -- caused him harm.

In others, mostly common law systems, notably the laws of the US and England, in order to presume causation the plaintiff needs to show that it is more probable than not -- that means that there is a 51 per cent probability at least -- that a certain cause, for example toxic emissions, caused his disease. A probability of causation below this threshold is not sufficient to establish a presumption of causation.

Since in our case it cannot be established that it is more likely than not that a certain number of people in Kuwait died as a consequence of the burning oil wells, the claim must fail.

Kuwait's claim is based on a value of human life of US$5.3 million. The method applied to determine the value of life is the contingent valuation or willingness to pay approach. In many regions of the world, for example in Europe, this approach is not used at all. Putting a monetary value on a human being's life is, from a comparative private law perspective, very exceptional. If you use this method, why should close relatives of the victims not be entitled to claim such amount in the case of a loss of, for example, a child? This is not possible even in the US, where the contingent valuation method was invented.

Let us come briefly to the issue of claims for psychological damage or PTSD. In all legal systems, if one party harms another, a third party that suffers a nervous shock as a result may, under certain circumstances, have a right for damages for pure emotional harm, nervous shock or PTSD. The first condition for liability in all private law systems is that the individual suffers not merely from a psychological disturbance but from an illness that

needs medical treatment.

Secondly, in order to establish an assumption of causation, the plaintiff needs to show on the basis of medical files of actual individuals -- here, again -- that it is more probable than not that his psychological trauma was caused by the horrific event.

In the case we are dealing with, there is an absolute lack of individual PTSD files. Neither damage nor causation are established.

From a private law standpoint, there is a third large hurdle to be overcome by such claims. All private law systems -- for example in the US, England, France, Germany, Switzerland and many, many others -- are concerned to apply certain limits of liability and to avoid opening the floodgates. That is why we draw a sharp line between cases where a victim was seriously physically injured, like the case in Kuwait, and brings a claim for mental pain and anguish, and mental pain and anguish in cases of pure emotional trauma.

In all legal systems, liability for pure emotional trauma has important limits. In order to succeed with a damage claim for pure emotional trauma, the victim must either have feared for his own life in the traumatic event or must have been involved in the horrific event as a rescuer or must have lost a close

relative in the traumatic event -- a person to whom he had a close tie of love and affection.

Victims in Saudi Arabia, Iran or other neighbouring countries suffering PTSD do not meet any of these tests. Under no private law system would liability for nervous shock or PTSD exist towards persons who did not fear for their own lives, who are strangers to the victims in Kuwait and who were far from the scene and not at all involved in the events.

Under French law, the chain of causation would be interrupted -- in common law systems there would be no duty of care owed to these third parties.

Applying these principles, any claim for PTSD suffered by persons in countries not involved in the conflict would fail. The same would be true for the pure economic loss claims brought by the neighbouring states, for example claims for general loss of quality of life, general loss of productivity, costs incurred as a consequence of the influx of refugees.

Here again, applying private law principles, we would argue either that the chain of causality is interrupted or that the damage amounts to indirect losses or that the damages are too remote and there was no duty of care owed to such third parties or states.

Thank you very much.

MR SCHNEIDER: Professor Sands, whom I have presented yesterday, will now look at the same aspect from the perspective of international law.

Presentation by PROFESSOR SANDS

PROFESSOR SANDS: Thank you, Mr Chairman, and members of the Panel. In my first intervention yesterday I touched on issues of applicable law. In particular, I referred to the burden on the claimant to make the case that, in the absence of clear rules adopted by the Security Council or the Governing Council, their arguments had to be justified in accordance with relevant rules of international law. Exactly the same points apply to the claimant's approach in respect to the methodologies they invoke to quantify the losses they claim to have suffered. As I mentioned yesterday, in international law it is accepted that compensation can only be paid for financially assessable damage. The assessability of damage, the existence of damage, must also be in accordance with established principles of international law.

The Security Council has directed the Panel to apply international law, not US law or practice, or the law or practice of any other country or region. That practice is certainly of great interest and I listened attentively to yesterday's presentation, and numerous

references to "practice" which in my view is not relevant to the issues before you today.

In any event, it is not nearly as straightforward as Kuwait and others have seemed to make it. In relation to methodologies, for example, the distinguished American academic, Professor Richard Stewart, has described evaluation methodologies, even in the United States, as "a fledgling activity shot through with uncertainty and controversy".

International law and practice do not recognise the methodologies relied upon by the claimants in these claims either. They are novel and they are untried. They are what are referred to elsewhere as abstract or theoretical methodologies of the kind which international bodies, for example the Oil Pollution Compensation Fund, have plainly not accepted.

In fact, it is striking that the claimants have not referred again to any international treaty or other international practice which could support the use of these abstract and theoretical models in the computation of such claims, also in respect of public health claims.

Reliance was made yesterday to an EC directive which will come into effect 16 years after the events in the Gulf of 1991, which does not cover environmental damage in times of war and which does not cover damage caused

by oil pollution, subject to relevant international conventions. It certainly does not apply to public health claims. It is pure environmental damage alone, so it is of no relevant at all in this context. It does not assist the claimants, as I think they now seem to appreciate, given their silence on it in their closing submissions yesterday.

I am not aware of any other act of EC law which endorses the theoretical methodologies relied upon by the claimants in respect of key parts of their claims in relation to public health.

I listened attentively to Professor Kadner on the practice of national level, which would include also the European Community level, and he explained the general principle that it was not sufficient to use statistical models to show that a claimant may have suffered harm or could suffer harm in the future. It has to be shown with certainty that actual harm has occurred.

If there is no general national practice to support the use of such methodologies, it simply cannot be argued that their use is reflected as a general principle of law recognised by civilised nations. So that head has to be put to one side.

Moreover, even if such harm to the health of individuals could be demonstrated, then it was for the

individual claimant to bring his or her claim to the UNCC, as Mr Schneider indicated. Under the scheme established by the Governing Council, it is not for a state to bring such a claim by way of diplomatic protection. A state may only bring a claim in respect of a loss it has suffered, provided such loss is direct, reasonable and capable of financial assessment. The claimants, therefore, have the burden of demonstrating that the abstract and theoretical methodologies they rely on are established in international law or that the Security Council or the UNCC's Governing Council intended that such methodologies be applied.

I have read the claimant's lengthy written pleadings with great care. I see there is no evidence of loss actually suffered by the states themselves -- a point which has already been made this morning. In some cases, the valuation methodology has not been explained at all. What my professor, the late Sir Robert Jennings, used to call "finger in the air" stuff.

Even where the valuation methodology has been explained, it is novel and no effort has been made to establish its status in international law.

In several instances, the valuation methodology leads to claims which really are very large indeed. Yet there is simply no way of testing them by reference to

established principles in international law. To the best of my knowledge, there is no example of a single international claim for environmental damage or depletion to natural resources or harm to public health which has succeeded where it is based on an abstract or theoretical model, particularly in the absence of hard evidence of harm having been suffered.

I know of no environmental treaty or practice under such a treaty which adopts such an approach, although several expressly exclude it. The Oil Pollution Compensation Fund and its Resolution No. 3 of 1980, which I know you are well aware of, Mr President, is directly on point and is directly against the approach argued for by the claimants.

Resolution No. 3 was adopted to provide as follows:

"The assessment of compensation to be paid by the IOPC Fund is not to be made on the basis of an abstract quantification of damage calculated in accordance with theoretical models."

In my view, that is a wise and eminently sensible approach and it would plainly exclude from that forum the vast majority of claims which you are now facing, including in relation to public health claims.

Is there any evidence before this Panel that the Security Council wanted to depart from that wise

approach in the present case? I have not been able to find any, and I look forward to hearing from the claimants an explanation as to why a different approach is now justified in the proper case.

Nor is there any case of which I know which would support the claimants' expansive approach to a state's liability for the public health consequences of alleged environmental damage.

Yesterday the claimants made a great deal of the principle in the Chorzow Factory case. Frankly, as I said to my friend from Iran, if I were on that side of the table, I would make exactly the same argument; I would stick to generalities, and I would avoid descending into detail. But I am afraid in any event the Chorzow principle does not help them. The Chorzow principle is not a magic position, it merely establishes a principle of reparation, it does not determine whether compensation or satisfaction is due and it certainly does not dictate whether a particular methodology is to be used.

Even if this Panel were to find the damage existed, the Panel must decide whether or not the valuation methodology proposed is recognised in international law. There are not any examples to support that approach. Chorzow does not assist.

Professor Scovazzi's paper, set out at annex A to Iraq's response, sets out very fully the rules of international law as they are now and as they were in 1991. There is no indication in his paper that theoretical methodologies of the kind relied upon are recognised in international law.

If the Panel adopts the approach proposed by the claimants it will be taking international law into a new domain, and that raises a very real question as to the reasonableness of the approach taken by the claimants.

My view, it is not the function of this Panel, notwithstanding the views of my distinguished colleagues opposite, to legislate or to progressively develop the rules of international law. As the International Court of Justice put it in the Fisheries Jurisdiction case in 1974:

"The court cannot anticipate the law before the legislator has laid it down."

The claimants have put before this Panel no material which indicates that it was the intention of the Security Council in Resolution 687 to progressively develop the rules of international law in this way or to have the Panel assume this function. There is nothing in the drafting of Resolution 687 or Decision 7 which indicates any intent that the Panel should adopt an

approach which was not already established in the rules and practices of public international law.

To be clear, I am not aware of any instrument in the laws of war that establish the quantum of any liability may be assessed on the basis of abstract or theoretical methodologies, and certainly not where they exist in just one or two countries.

Mr President, members of the Panel, the claims which are presented go significantly beyond what the evidence justified. The rules of international law, as they were in 1991 and as they are today, permit the award of compensation for loss actually suffered and for which costs are actually incurred. On any other basis this Panel risks opening up a Pandora's box, justifying all sorts of remote, unreasonable and unquantifiable claims which might be made in other contexts and in other fora.

I must say, speaking personally, I could not help but imagine whether or not the legal advisers on the other side, for Kuwait, for Saudi Arabia, for example, have thought through the implications of their arguments in relation to other matters. Statements made by states have a probative value of customary international law. They are state practice. When a state stands up and says that so and so methodology is reflected in international law and can be applied, it sets

a precedent. Have the advisers recognised what the implications of merely making the argument will be for future claims, say in relation to climate change? If they are right, the door is opened to all sorts of claims, now and in the future, in relation to losses of public health and of the environment, which in present international law are controversial, to say the least.

Is that what the Security Council intended? Is that really what the claimants are seeking to achieve?

Mr Chairman and members of the Panel, that concludes my presentation and I thank you for your attention.

MR SCHNEIDER: Thank you, Professor Sands. This indeed does away with these claims on a basis of principle. I would like just to clarify the reference which we made to the comparative law. Municipal law is merely as a support in the context of Article 38 of the statutes of the court as a source of international law; comparative law, general principles of law, being the source for international law. We rest our case on international law, and not, as some of the claimants did, on a particular legal system.

The absence in any municipal system of the methods which the claimants use here is, however, of great interest in showing that the absence of such principles in international law is not a coincidence, but is

inherent in general principles of law.

It is perhaps inappropriate to move on to quantification of a claim which is so ill-founded. Nevertheless, because of the way in which this procedure is structured, by not having a separate decision on principle, I must do so.

The quantification issues in the claims before the Panel arise in a context here which is where the deficiencies which we have heard in other claims are even more blatant. We have addressed the deficiencies on earlier occasions in the context of public health claims. The quantification arises in a manner which is different to many other circumstances, because we must take account of the funding and budgeting of the public health activity of the state.

A public health system is not operated and funded as a commercial enterprise. Public health services of a government are not a business, and they are not run like a business. The state provides the public health as part of the state's service, without direct relation to the forces of supply and demand.

This is very important to bear in mind, in particular when we consider these claims. The health systems are laid out to meet a certain capacity range of patients and possible diseases and possible treatment

necessities, and increases in the demand in the patients that have to be treated have little financial effect because the system is laid out to deal with everything that can be expected to come.

It is these particularities of the public health system and the financial aspects of the public health system which we want to address now, and we do it with the help of Professor Jean de Kervasdoue, who is a professor of public health in the Conservatoire Nationale des Arts et Metiers in Paris and a visiting professor at Yale University. For five years he has been in charge of the public health system in the Ministry of Health in France.

Presentation by PROFESSOR DE KERVASDOUE

PROFESSOR DE KERVASDOUE: I will make two introductory remarks and then will go through the different country claims.

My first remark has to do with this data from WHO. If you look at the different claimants, you will see that you have three types of categories. You have two countries, Saudi Arabia and Kuwait, who spend around $600 per capita per year; two countries, Jordan and Iran, who spend around $400; and one country, Syria, which spends around $266 per year. I have put the French, UK and American figures for the same years, and

you see the level is quite different. We will come back to that.

You also see that the supplies of qualified manpower in these countries is quite high, and this is important for the claims, since health care is an industry related to qualified manpower. You will also see -- this is anecdotal -- that the Kuwait men have a life expectancy which is higher than American men, although the expenditure is eight times less.

The other introductory remark has to do with the concept of value of statistical life. Two claimants, Kuwait and the Kingdom of Saudi Arabia, have used that concept. It is important to know where that concept comes from. It comes from what a country is ready to pay for implicit risks (?) within itself. For example, in America in 1995 the number of deaths per 100,000 workers in the mining industry was 24 and the number of deaths in the commerce and trade industry, was 2.8. Then if you compare the cost of manpower in mining and the cost of manpower in trade, you see the miners are better paid, and you divide by the number of deaths, then you have the value of statistical life. That is where this concept comes from.

This concept is never used in economics, I never saw it used. And you see that the figures which have been

used by the claimants are surprising.

In 1991, the average US value of statistical life was $3 million. You have international studies that I reviewed of the value of statistical life and there is no study quoted for Kuwait and Saudi Arabia. There is a study for Korea, Taiwan, Canada and so on. You see that the value goes down as the average income of the country goes down, to $0.5 million. I was surprised to find that Saudi Arabia had a figure which was higher than the US, and Kuwait even higher.

It is interesting to note that such a value has been chosen, when annual health expenditure in these countries is so low. If this country values life so much, why do they spend so little on their health care?

The only figure I could find on compensation is a treaty, the Montreal Convention for Aeroplane Accidents, which replaced the Warsaw Convention, which gives an allowance of $142,000 per death. That is this year's figure, so we are very far from the value of statistical life.

Let us go quickly through the different claims and their economical consequences. For Kuwait, the figure you have to look at is that most of the health expenditure in Kuwait is public, 87 per cent. As was said previously, there is no direct epidemiological data

or indirect evidence of the health consequences of the smoke plumes, even amongst the most exposed population, which were firefighters and soldiers. And, as you know, the revised claim for general morbidity is zero.

So we are back to the PTSD claim. As you know, and as was presented by Dr Guyader, only a small proportion of the PTSD population got treatment. The figure we had was less than 3,000 patients at the Al Reggie Centre. We also know from the Hammitt Report that these patients got 4.66 visits per year per patient. I was again surprised, because the cost per visit was above $20; in France the same visit is $54, and in another part of the Hammitt Report we have another figure of $279.

When you try to compute what would be the cost of the care of these 3,000 patients, according to the figures in the reference, you find very different figures. If you take the French figure, you will find something slightly above $2 million, when you take the Arifat figure it is $10 million, and when you take the claim it is $25 million.

When you look at Iran, you see that less than 50 per cent of health expenditure is public, so most of it is private. The claims were for excess morbidity across a wide range of diseases, cost of mental health,

refugee care and so on.

In the report, we never had any direct or indirect evidence of the consequences of this alleged disease: no more visits or admissions into hospitals, no recruitment of health professionals and so on. So it was also surprising that when you look at different parts of the reports, you find that in some cases two provinces are concerned, in others five, in others 10.

In fact, only Khuzestan was significantly affected by the smoke plumes. The malaria increase was not related to the conflict, the refugees are not part of the claim, and a further claim could not be prepared due to the lack of evidence.

I was unable to validate them, but even if you consider that the costs figures given by Iran are acceptable, and if you consider that 40 per cent of 85 cases was related to the smoke plume, for which we have no evidence, I did a computation that the claims would be in the order of $6 million. Fifty per cent is also public expenditure for health care in Iran.

For Jordan, as you know, the claim is of a different nature. Public expenditure in Jordan is 51 per cent. The claim has to do with low birth weight infants and also PTSD, but that was already addressed.

Of course, and unfortunately in Jordan, like in many

other countries, there are low birth weight infants and malnourished children. However, there is no evidence that their relative or absolute number increased, so that at the end of 1991 and in 1997, by the Jordan Population and Family Health Ministry, and they do not mention the question of refugees. There is no link between low birth weights and malnutrition and, as was said before, mental stress is not a disease, and there is no document supporting the assertions of Jordan's experience of mental stress.

If you look at the World Bank Human Development Network and Development Data Group, the malnutrition rate for children in Jordan under the age of five years is stable before and after the conflict; it is around 6 per cent.

So the number of children who died from the conflict or could have died is hypothetical. There are no serious economical ways to compute for the financial consequences of an infant death. If there were some evidence for such deaths related to the conflict, the court could decide on a pretium doloris.

The cost of treating low birth weight children is high because these children are treated in neonatal care. In France it varies from $60,000 to $90,000 per month, which is for the average length of stay for this

type of treatment.

Let us together make assumptions. The number of births in Jordan did not rise during the conflict. You see 132,000 during and 138,000 after the conflict, and these figures are lower than births from 1993 to 1996.

Let us assume that 10,000 births were given by mothers of refugees or returnees in Jordan. We know that 1.2 per cent of these births leads to extra low birth weight children, and assuming that costs in Jordan will be one third of French costs, then we have a maximum figure of $2 million. That would be a very generous compensation, for there is absolutely no evidence whatsoever that there were more births and more births related to the conflict.

Saudi Arabia, mostly public expenditure. The claims are similar to Iran's claims; the value of statistical life is very high. We have no direct evidence or indirect evidence of health expenditure and so on and so forth.

We even have contrary evidence from the military affairs, since the Government of Saudi Arabia says:

"In spite of constrained resources shaped by the fifth development plan, health and social services were maintained at their fourth plan levels."

So they did not increase during or after the

conflict, and there was no evidence of subsequent deficit.

Again, when you look at medical costs, when you look at the computation, it was first based on Kuwait, then it was based on one hospital in Saudi Arabia from figures not in 1991 but for 1998, and so on and so forth. So this basis for this computation is very weak. And it is the cost of what? It has used costs from American DRGs or American HMOs for annual disease and it has used an average cost for respiratory disease and an average cost for cardiac disease and so on and so forth, but we do not know the average of what. Since care of respiratory disease or heart disease varies a lot; whether you have a heart transplant or minor cardiac.

I would end by saying that if Saudi Arabia thought that there were some financial consequences of the conflict to the health of the population, it should have shown us the evidence of extra cases. It should have shown an audited increase of expenditure in the concerned health institutions, as well as the national budget of the Kingdom -- since I remind you it is public expenditure in Saudi Arabia, and this information was not provided.

So not only do we not have any evidence of extra cases but we do not have evidence of extra costs.

Instead of that, we have a global amount which represents 1.4 times the amount of annual health expenditures in the Kingdom as compensation.

Thank you, Mr Chairman.

MR SCHNEIDER: Thank you, Professor de Kervasdoue.

We have a last look at certain components of the costing of these claims, as we have done in other instances. The analysis is being conducted by David Cross, a chartered quantity surveyor from Northcroft company, who has over 30 years of practice in examining cost factors in a variety of projects.

Mr Cross.

Presentation by MR CROSS

MR CROSS: Thank you. I would like to look at some general principles regarding the claims. The claims as submitted contain two elements of costs: historic costs and future costs. Considering historic costs, we would expect that these would consist entirely of firm and accurate records. But in fact, what do we get? We get the estimates, purely theoretical for the most part. In terms of future costs. Again, we would expect that these would be reasonable and relevant and based to a large extent on previous records. But in fact, what we get are unreasonable, projected estimates based in turn on those previously assessed estimates.

Looking at this in a little more detail, with historic costs we would expect that these would provide evidence to demonstrate an additional burden on the state health services, that they would provide a causal link to the conflict and there would be firm evidence of quantities and costs.

With respect to the future costs, these would contain estimates derived from realistic trend projects, there would be reasonable assumptions for inflation and a net present value discount to bring costs back to a present value.

However, in terms of real data, there is very little for us to assess.

The following slides indicate some of the key concerns related to costs and estimated data that have been submitted by each claimant country. I will merely highlight some of the matters here.

Theoretical assessment of quantities and theoretical treatment costs, which were in themselves derived from US equivalent costs.

In the case of Saudi Arabia, again theoretical assessment of average charges, and we heard that discussed just a few moments ago; no demonstration of any additional burden on the state health service.

In the case of Iran, there are virtually no records

provided to us of health treatment costs. Interestingly, the claim commences in 1990, before any possible link to the smoke plume.

In the case of Jordan, this is based entirely on theoretical calculation, as we have heard, and contains a large number of unreasonable assumptions.

Finally, in the case of Syria, it is only based, as far as we have been provided with, on summary costs. These summary costs themselves would appear to be budget costs rather than actual costs. I say this purely because they are rounded off to the nearest unit of thousands.

Thank you very much for your time.

MR SCHNEIDER: Mr Chairman, members of the Panel, this brings us to the end of the part of this morning's presentation dealing with public health claims.

At this stage, I must bring to the Panel a point of concern, and indeed a problem. We have, of course, presented our case with respect to principle of liability or principle of entitlement, and believe that we are very strong in this respect. But if you should move on to the question of quantification and look into any of these claims, and in particular into the claims of Kuwait, we have a serious concern.

As you have seen, Kuwait has changed fundamentally

its approach to these claims, and it has done so by bringing in a very distinguished university group, the Harvard School of Public Health. As you have heard, we have received from Kuwait ongoing material -- these studies are still ongoing and are not complete -- and in our own evaluation of what Kuwait has transmitted to us, we have not completed this examination. From what we have seen now and from what you have heard from the analysis of our expert, we have very serious concerns about the method and the methodology and the soundness with which these studies are conducted.

In fact, we believe that there are a number of very serious effects in these studies.

It is, of course, very difficult to argue against a group of scientists of such distinction. What we would suggest, in fact indeed request the Panel to do if you reach this stage, that the substance of the claim will be taken further -- and it is not just the claim of Kuwait, because you have seen the impact which the Harvard studies have had on the other claimants, in particular on Saudi Arabia.

If you reach this stage, we recommend that the Panel order a peer review, that these studies by Harvard be submitted to peer scientists of the same calibre, who examine the studies and make a report on these studies.

It is with this request that I complete the presentation on public health.

Moving on now to another point which is of great importance to us, which we have put on the agenda, to which we drew the Panel's attention, that concerns the context in which the claims, in particular of Saudi Arabia and Iran, have to be assessed.

In the proceedings before this Panel there has been very much emphasis on the damage suffered by the claimants. This is indeed the principal function of the Panel and of the UNCC's work in general.

But assessing the claimants' damage in these proceedings requires that all financial consequences be considered -- the negative ones as well as the positive ones. This requires us and the Panel to look also at the gains which the claimants or some of the claimants have made from the events which have caused the liability of Iraq and which are the basis on which the claimants seek compensation.

As I said, we are concerned here in particular with Saudi Arabia and Iran.

The context in which this issue of benefits, the positive aspects for the claimants, arises is that on 2nd August 1990, immediately after the beginning of the conflict, the export of oil both from Kuwait and from

Iraq ceased practically immediately. This cessation of the exports of oil from these two countries is the direct consequence of the invasion and occupation of Kuwait and therefore must be part of the consideration, part of the elements of fact on which the Panel bases its assessments.

Therefore, it must be also taken into account when determining the damage for which Iraq is liable.

Kuwait resumed gradually its production of oil as from 1991, and Iraq only returned on the oil market in a particularly constrained mechanism, the oil for food mechanism, in 1998.

Both Kuwait and Iraq suffered serious loss from this nonexporting, nonproduction, this shortage of production. In fact, Kuwait suffered this loss and brought it to the Commission, and indeed was compensated for the shortfall in its production which, in the case of Kuwait, for a relatively short period, amounted to some $14 billion plus the oil, but the actual loss of the production of oil in the order of $14 billion, and $14 billion were awarded to Kuwait in the fourth instalment.

The reduction of production in oil and the corresponding loss on the side of Kuwait corresponded to a benefit on the side of those countries that moved in

to fill this gap. The benefit is of two types. There is an immediate benefit in the form of price increase, and I will read to the Panel an extract from a decision from the report of another Panel, the E1 Panel, in the first instalment, which reached a conclusion:

"That because oil prices after 2 August 1999, which had a direct effect on the GSPs, increased drastically as a result of Iraq's invasion of Kuwait, and the fears of shortages that ensured."

This is one part, the sharp increase in price.

The other part is the additional quantities resulting from the removal from the market of these two suppliers. These two elements have, in effect, the price increase affected all the suppliers; it was a benefit primarily to those suppliers who were capable of stepping in quickly. The details of the manner in which, in particular, the Kingdom of Saudi Arabia stepped into this situation will be explained by Mr Clements, and I will come to Mr Clements' technical explanation in a moment.

But I want to explain first how other panels have dealt with the question of the profits which have been achieved by extraordinary revenue which has been achieved in connection with the damage by claimants and which have to be taken into consideration here when the

Panel assesses the natural resources damage of Saudi Arabia and Iran. The profits which they made from their own natural resources have to be taken into consideration.

Indeed, other panels have adjusted claims by reducing the award made for compensation, in order to take account of additional profits.

The E1 Panel made adjustments in claims and said:

"Therefore, the Panel finds that the claim should be adjusted to reflect the joint venture's real loss in compensating for or setting off the additional profits."

In fact, the E4 Panel, in another case, referred to "windfall profit". In the first instalment, they referred to "extraordinary gain", and I read from the first instalment:

"In measuring the loss actually suffered by such claimants, the Panel is of the view that it is not appropriate to compensate a claimant for losses suffered as a direct result of Iraq's invasion and occupation of Kuwait without considering extraordinary gains earned as a direct result of the same invasion and occupation."

So this is the principle that must be taken into account.

The manner in which this should be done, for this purpose we have addressed ourselves to IHS Energy,

a renowned petroleum economics consultancy, which we requested to calculate this windall profit by Saudi Arabia and Iran, and these calculations show that Saudi Arabia made a windall profit on these two counts in the period between August 1991 to December 1998 in approximately an amount of $116 billion. Iran's windfall profit under the different circumstances which applied there amounted to $24 billion. The report is in the papers we have submitted.

The calculation will now be presented by one of IHS's directors, Mr Charles Clements, the author of the report. He is an expert in oil and gas production and petroleum economics, with over 24 years of in-depth oil business experience.

Presentation by MR CLEMENTS

MR CLEMENTS: Thank you. My name is Charles Lucas Clements, I am speaking on behalf of the Government of Iraq. I am presenting an analysis on the extent to which Saudi Arabia and Iran, through their separate efforts to meet the world's oil supply needs, benefited from the curtailment of oil production, both in Kuwait and Iraq, during the period from 1990 to 1998.

First, let me explain my and my company's eligibility to comment on the issue. IHS Energy is made up of a set of world-class companies which have gathered

oil and gas historical data and analysed it over the last 70 years. We are a private and independent company and hold the largest commercial oil and gas databases of this sort by a factor of at least three.

Let me explain the methodology of the analysis we have performed. We have calculated two base revenue benefits: one, volume; one, price. Against this, we have calculated two differential costs or losses. For Saudi Arabia, this includes a lost value on gas; the second costs are the differential costs of producing the additional volume. Before proceeding, we verified the IHS Energy data against other credible sources. These included information provided by the Saudi Arabian Ministry of Petroleum and Minerals website, the US Government CIA data, and commercial data from both BP and ENI. What this shows is that the differences in all of these data points was less than 6 per cent. IHS Energy's typically was the lowest.

If we look at the key events over this period, this graph shows that Kuwait production was down from 1990 and did not fully recover until 1993. Iraq's production was down from 1990 and did not fully recover until 1998, when phase 2 of the UN food for oil programme allowed the raising of Iraq's production to levels equivalent to prewar level.

Saudi Arabia, in contrast, raised production from 5 million barrels a day to 8.5 million barrels a day, immediately.

If we look in detail at what happened as Saudi Arabia reacted to its role as the swing producer, Saudi Arabia in 1995 recommissioned 14 existing fields that had been shut down in 1938, due to concerns at the time of over-production and flaring. Once reinstated, these fields, as can be seen, maintained production and still produce today.

In calculating the revenue gain, we have followed an identical process to that used and agreed to during the fourth instalment, this being the non-invasion price would have remained stable during the period of 1990 to 1993 and then was at market price thereafter.

We have split prices into two grades of crude, light crude and heavy crude, and into two nominal destinations, the US Gulf coast and Rotterdam. Asian deliveries were equated to Rotterdam, which was a conservative assumption, because Asia typically pays a premium, even above the shipping cost.

We have taken the prices as reported netback prices at Saudi ports, as published by the magazine MEES at the time.

To derive the differential volume, we have

calculated a non-invasion volume profile to use as the base. This base was based upon the following things.

One, we have assumed that all OPEC contributors other than Saudi Arabia produced on their prewar trend level.

Secondly, we have assumed that Kuwait would have produced at a constant level during the period 1990 to 1993.

Thirdly, we have assumed that Iraq would have produced at a constant flat level during the period of 1990 to 1998.

The Saudi production was then defined as the swing volume, to top up to the overall OPEC production level, rising only as demand rises. This is shown in blue. The differential volume is then the difference between the non-invasion curve and the actual curve, which is shown in red.

In summary, we calculated the resulting revenue benefit to Saudi Arabia during the period from 1990 to 1998 to be $106 billion, due to the additional volume at non-invasion prices -- a contribution of $11 billion from the differential price on the base volume, and finally a quantity of $6 billion to be the coincidental differential price and additional volume. This equates to a total of $122.9 billion of benefit.

In contrast, the potential loss of revenue from the differential gas that was probably flared -- and again we have assumed total loss over the whole period -- is calculated to be $3.7 billion at a market price of $1 per 1,000 standard cubic feet. In addition, we have subtracted the marginal cost production for the additional volume, and that is estimated to be a maximum of $3 billion, of which our calculations indicate that 50 per cent of this is attributable to insurance, which companies such as Saudi Aramco normally are self-insured, so this normally would never have been spent. The resulting net cash benefit to Saudi Arabia during this period is calculated as $116.2 billion.

The same process was used to calculate the net benefit to Iran. Again, the verification exercise indicates that the IHS numbers are the most conservative. The non-invasion volume was calculated to be the pro-rated percentage volume of OPEC production, starting at 12.9 per cent in 1990 and finishing at 12.1 per cent in 1998. The actual production shows Iran commissioned new production gradually through the void period.

The resulting net gain is then derived, showing an additional revenue stream of $12.7 billion of revenue. We have a differential cost associated with production

costs for the additional volume, it would equate to $619 million, giving an overall net benefit to Iraq of $12.06 billion. As this analysis shows unequivocally, both Iran and Saudi Arabia benefited substantially from the period when Iraq and Kuwait could not produce.

MR SCHNEIDER: In conclusion on this point, I would like to take the Panel again to the passage I mentioned before, where another panel considering a similar situation decided against the losses suffered, the extraordinary gains earned as a direct result of the same invasion and occupation must be taken into consideration, and indeed offset.

Completing the examination of the public health claims that have been made in these proceedings, one is faced with a striking observation. When we examine what happened with the Kuwaiti claim, where the new M&A activity led to an abandonment of what was previously the bulk, and where the experts which Kuwait brought in, in sometimes quite touching terms, complimented the extraordinary efforts that the scientists in Kuwait had made to assemble all the data, but then concluded all of this is neither here nor there, they cannot establish damage, nor did they say they can establish absence of damage.

If Kuwait directly amended the claim for public

health damage after a failed attempt to provide direct damage, replaced by speculative models and exercises in risk assessment, one would think that in the other countries the claims would drop even further and would be totally abandoned. But what we see is exactly the opposite. We see that the Kingdom of Saudi Arabia, which says it is inspired by the work of Kuwait's consultants, increases its claim from $4 billion to $13.5 billion, and now we have reached $19.8 billion and we are looking forward to the increases we may hear at their response later in the day.

Iran has a similar dramatic increase. It started out with $144 million and now they are at $7.3 billion. How is it possible that in a situation where Kuwait faces such difficulties in establishing concretely a public health damage, these countries that have been remote from the battlefield, how they have reached such enormous increases?

But I need not belabour this point any further, and all the difficulties that are inherent in the manner in which the claimants have quantified their claims, because, as we have pointed out before, these claims must fail as a matter of principle, both in the method they have chosen to establish damage, but even more so on the basis of the lack of jurisdiction. The type of

damage which the claimants seek here is not provided for compensation in the context of the UNCC.

Thank you very much, Mr Chairman, members of the Panel.

(12.25 pm)

(Short break)

THE CHAIRMAN: Thank you very much indeed. That brings us very closely to 12.30. We have agreed that Mr Lonsberg will make a presentation on behalf of the claimants in respect to the legal issues for 15 minutes, after which we will adjourn, and then when we come back, Kuwait's main comments will then be made. At this point, I will invite Mr Lonsberg to make the presentation in respect of the legal issues on behalf of the claimants.

Presentation by STATE OF KUWAIT

MR LONSBERG: Thank you, Mr Chairman. At the outset, we will summarise the various components or units of the claim of the State of Kuwait for damage to public health. We will then discuss specific factual legal issues which arise in respect of those components and, as always, we will use our experts to address the Panel. After summarising the claims, to put this in context, as you have requested, we will discuss the legal issues raised by the Panel in Procedural Order No. 4 with respect to all other health claims; that is:

specifically in what circumstances can a Government claim compensation for reduction of life, reduction of life expectancy or reduced quality of life of its nationals?

Before turning to the legal issues, I will summarise the claim specifically and put the discussion in context. First, we have a claim for damage for reduced morbidity and mortality. Second, we have a claim relating to PTSD. Third, we have a claim for costs of treating traumatic injuries caused by mines and ordnance, which is a very small claim in value but a very sympathetic claim in nature. We will not spend much time on that when we turn back to the claims.

Procedural Order No. 4 requests the public health claimants to address the specific topic: under what circumstances can a government claim compensation for the loss of life, reduction in life expectancy or reduced quality of life of its nationals? As we did yesterday, we addressed this issue on behalf of the claimants that have public health claims in this instalment. We have consulted with the other claimants on these remarks but, as yesterday, we anticipate that some of the claimants may have additional remarks on this issue in the light of the specifics of their claims.

Just one brief comment before turning to these common legal issues. I believe it is critical in these discussions and in your deliberations that we remember carefully the context in which we are operating. The Commission is not addressing issues of claimants in the context of merely negligent or faultless action, to which a large part of the prior presentation this morning was discussed. Instead, we are engaged in a process of determining the liability of Iraq under Security Council Resolution 687 for the recognised internationally wrongful act that it committed.

With respect to loss of life, reduction of life expectancy and reduced health, wellbeing and quality of life on the part of the claimant's nationals, we will develop two principles which we believe are raised by this inquiry.

First, under the established principles of the Commission on International Law, governments are proper claimants for all of these losses and are entitled to assert all of these claims as claims of the state.

Second, claims for loss of life and reduced wellbeing and reduced quality of life are clearly and properly compensable by the Commission.

First, we will address what we have referred to as the issue of standing. We respectfully submit that

under settled principles of international law the loss of life and reduced quality of life of claimant state nationals represent what are deemed to be injuries on the state or in any event are deemed to be claims that can be asserted as claims of the state, not of the individuals.

The subject matter of these claims may be the nationals of the claimants, their conditions of health, but when asserted by the state the claim is that of the state.

Contrary to what has been asserted this morning, we respectful submit that these claims cannot be viewed to represent indirect loss, since by the nature of these claims they are and can only be, as we will discuss after lunch, claims of the state by their nature. They are not, by their nature, claims of the individuals which are brought by the states on behalf of the individuals; they are, nevertheless, direct losses incurred with reference to individual nationals, which by their nature must be brought as claims of their states.

Further, in terms of the principle of diplomatic protection, the injury to nationals of the states are also deem to be direct injuries to the state that espouses those claims.

For more than 80 years, international law has consistently taken the view that injury to a national of one state caused by another government gives rise to a claim that belongs to the state of the national and not to the individual. This conclusion is sometimes expressed under the concept of diplomatic protection, which here refers to the right of the state to take judicial and diplomatic action to ensure that other nations' obligations towards the state are respected in the other nation's treatment of the state's nationals. The law relating to this concept was well summarised in the 1912 opinion concerning the distribution of an international award by the Solicitor of the US State Department:

"By espousing a claim of its national for injuries inflicted by a foreign government, the espousing government makes the claim its own ... In presenting a claim diplomatically, our Government acts in its sovereign capacity and therefore is acting neither as an agent for the claimant nor as trustee for the claimant."

The most widely cited description of the character of international claims arising from injuries to individuals was provided by the Permanent Court of International Justice in the Mavrommatis Palestine Concessions case. In that case, Greece brought claims

for an indemnity on the ground that one of its subjects was treated by the British authorities in a manner incompatible with international obligations when those authorities refused to recognise the Greek's rights under agreements with a previous ruler of Palestine. Great Britain objected to jurisdiction, asserting that the case was not a dispute between two states. The court rejected the objection and formulated a statement often cited thereafter:

"It is true that the dispute was at first between a private person and a state -- that is, between Mr Mavrommatis and Great Britain. Subsequently, the Greek Government took up the case. The dispute then entered upon a new phase; it entered the domain of international law and became a dispute between two states."

Similarly, in 1929 the Permanent Court of International Justice held that it had jurisdiction over a claim of France brought against Serbia concerning loans extended to Serbia by French creditors.

The court relied on its conclusion in the Mavrommatis Palestine Concessions case and stated that France "by taking up a case on behalf of one of its nationals before an international tribunal is asserting its own right -- that is to say, its right to ensure in

the person of its subject respect for the rules of international law."

The 1930s Trail Smelter arbitration illustrates the application of this principle in the context of environmental claims. In that case, the United States asserted a claim against Canada for damage suffered by United States nationals due to chemical fumes drifting south from a Canadian smelter. In rendering a decision and award for damages to the United States, the tribunal established by convention between the two countries observed that:

"In this controversy, the Tribunal is not sitting to pass upon claims presented by individuals or on behalf of one or more individuals by their government, although the damage suffered by individuals may in part afford a convenient scale for the calculation of the reparation due to the state."

The famous case of the Factory at Chorzow also supports the right of the state to pursue claims in international law for damage to its nationals. In awarding compensation, the Permanent Court of International Justice characterised the claim against Poland as one for reparation due for a wrong suffered by Germany, not for a wrong suffered by the German companies whose property was expropriated.

In a more recent case, the ICJ held that Nicaragua had valid claims for reparation against the United States, including a claim for the death of a Nicaraguan national arising out of the United States engagement in and support for military, paramilitary and economic activities against Nicaragua. In its application to the court, Nicaragua characterised its claim as being made in Nicaragua's "own right and as parens patriae for the citizens of Nicaragua.

The long and unbroken line of international legal authority confirming that injuries to nationals represents injuries to the state or give rise to claims of the state of the injured person's nationality was discussed in some detail by noted commentators on international law.

In 1929, the jurist and scholar Dionisio Anzilotti noted that:

"The compensation requested by a state in a case of this kind is not compensation for the wrong suffered by the individual but compensation for the wrong suffered by the state itself."

Professor Brigitte Bollecker-Stern treated the subject at length in a 1973 treatise, including these remarks:

"The fundamental law can actually be expressed as

follows: in principle, it is always the state that is the active or passive subject of international obligations ... likewise, it is always the state that will be invested with the right to damages, no matter who the initial victim of the harm was."

Professor Bernhard Graefrath wrote to the same effect in 1977:

"The claim for reparations, which encompasses all damage caused by the aggression, belongs to the injured state against the aggressor state. The claim also encompasses damage caused to citizens and legal persons of the attacked state in connection with the aggression. It is for the attacked state to include this damage in its claim for reparations."

Professor Ian Brownlie succinctly observed that:

"The subject matter of the claim is the individual and its property; the claim is that of the state."

The American Law Institute has also endorsed this analysis. Section 713 of the Third Restatement of Foreign Relations provides that a state whose national has suffered injury has certain remedies against another state. Comments to the restatement amplify this principle. Comment (i) to section 962 states in part that:

"Any reparation is, in principle, for the violation

of the obligation to the state and any payment is made to the state."

Comment (a) to section 602, concerning remedies for environmental damage, similarly provide that remedies under international law are to the injured state.

International law is so clear that Article 42 section (a) of the ILC's Draft Articles on Responsibility of States for International Wrongful Acts simply provides, without comment:

"The responsibility of the state for such acts may be invoked by an 'injured state'."

This analysis is consistent with the Commission's procedures that are provided for certain individual claims. All of these claims in fact have been submitted by governments on behalf of individual claimants, not directly by individuals, and submission of the claims by governments has been required by the Governing Council in Decisions 1 and 7.

Nothing in the Commission's charter or practice contradicts the fundamental aspect of international law that claims such as those asserted in the fifth instalment can be pursued as claims of the government.

No claim that has been processed by the Commission as an individual claim has included compensation for the damage from loss of life or reduced quality of life now

sought by these claims in this instalment of the F4 claims.

Recovery on individual claims arising from death in claim categories C and D was limited to medical, burial and other expenses; loss of financial support that would have gone to a spouse, child or parent; and mental pain or suffering on the part of the survivors, not the victim.

Furthermore, risk assessment could not have been used for individual claims for these losses. There is no medical basis to identify that a particular individual death was due to the smoke from the oil well fires. It is only on the basis of the population taken as a whole that the proven mortality effect of the fires can be demonstrated.

The pain and suffering recovered on some individual claims for nonfatal injuries is distinct from the reduced health, wellbeing or quality of life in F4 claims. Individual pain and suffering recoveries were limited to the specific circumstances set forth in Decision 3 of the Governing Council and to the narrowly limited amounts set forth in Decision 8. These decisions did not take into account the broad impairments of reduced wellbeing or quality of life.

Finally, in the case of Kuwait, most of the victims

of PTSD are unidentified because, as is common to many sufferers of PTSD, they have not sought treatment. These persons therefore have no individual diagnosis or proof that their psychological impairment is contributable to Iraq and no basis for making an individual claim for their PTSD.

The current government claims for loss of life and reduced quality of life therefore pose no risk of duplication or of overlap with individual claims. No compensation has been received by any individual for any of these losses.

Indeed, the statistical aspect of these claims is a final confirmation of the propriety of their being brought as government claims. As Kuwait's experts will show after lunch, these claims can be viewed as claims for risks experienced by the entire exposed national population, rather than as claims for specific deaths or specific victims of trauma or illness. As claims for compensation for the increased risks that Iraq imposed on the entire population of an F4 claimant, the claims neither belong to nor seek recovery for injuries to any specific individuals. As a matter of logic and practical necessity, such claims must be brought by the claimant states as claims of the state.

We will turn to our second principle, that is that

loss of life and reduced quality of life are appropriate subjects for compensation awards.

As noted, paragraph 16 of Security Council Resolution 687 provides for compensation for any direct loss. Article 36, section 2 of the ILC's draft articles on responsibility of states for international wrongful acts similarly provides that "the compensation shall cover any financially assessable damage".

Compensable damage under Resolution 687 is not limited to losses specifically itemised in the subparts of paragraph 35. Decision 7 itself stressed in paragraph 31 that "the following criteria are not intended to resolve every issue that may arise with respect to" claims submitted pursuant to Resolution 687. The concept that loss of life is an injury that can and should be the subject of a compensation award is obviously well settled.

The importance of wellbeing is also well settled in international law. According to Principle 1 of the declaration of the United Nations Conference on the Human Environment, "man has a fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and wellbeing". General Assembly Resolution 45/94 similarly noted that "all individuals are entitled to

live in an environment adequate for their health and wellbeing".

Compensation for reduced quality of life has been expressly recognised on the international level. The International Law Commission has noted that awards of compensation by the European and Inter-American Court of Human Rights include "loss of enjoyment of life" as a component of damage.

We observe that the UNEP Working Group of Experts did not directly discuss recovery for diminished quality of life. We submit, however, that several remarks by this Group support compensation for this diminished quality of life.

First, the experts concluded the term "environment" "should tend to be broadly construed, and that a narrow and exclusionary construction should only be taken if a broad approach would lead to absurd or unreasonable results".

Second, these experts urged at paragraph 47 of their report that compensable "environmental damage" included "being exposed to high levels of suspended particulate or soot for an extended period in a manner which may be unpleasant, and where it can be established that such loss is significant". We respectfully submit the compensation provided when soot makes life "unpleasant"

is plainly compensation addressed to the reduced quality of life.

Such recovery has also been recognised increasingly at the national level.

As one commentator noted in 1999 in analysing possible relief for victims of torture and other mistreatment, "many jurisdictions now recognise the lost enjoyment of life, either as a separate element of damages or as a component of pain and suffering. Several studies support this approach to assessing damages."

Another example of such recovery is in the civil law concept of prejudice moral, which includes damage to the enjoyment of life.

Reduced quality of life injuries are distinct from earnings capacity, from loss of earnings capacity, because "the activities and functions with which loss of enjoyment of life is concerned are generally of a nonremunerative nature". Unlike pain or suffering, reduced health wellbeing is primarily the loss over a period of time of function or ability to engage in life activities, such as loss of interest in playing sports or loss of ability to maintain a garden or participate in other leisure or recreational activities.

In conclusion, in response to Procedural Order 4, we

respectfully submit that the fifth instalment claims for loss of life, reduction in life expectancy and a reduced quality of life in the populations of the claimants countries are properly brought as government claims under the clear jurisprudence of the Commission and settled international law.

We further submit that loss of life and reduced quality of life are compensable categories of loss or damage.

Thank you, gentlemen.

THE CHAIRMAN: Thank you very much. It is now exactly 12.45. We will adjourn now and resume at 3.00 with the normal statement by Kuwait. The meeting is adjourned.

(12.45 pm)

(Lunch break)

(3.00 pm)

CHAIRMAN MENSAH: I declare the meeting open and I give the floor to Kuwait.

Presentation by STATE OF KUWAIT (continued)

MR LONSBERG: Thank you, Mr Chairman.

Having touched before lunch on the common legal issues, I will turn now to the specifics of the Kuwait claim.

Again, just to set this in context, let me summarise the three claims which are included in this instalment. The first is the claims for damages related to increased morbidity and mortality. As determined on the basis of the monitoring and assessment activities, the final amounts claimed consist of, first, $192 million as compensation for mortality that is attributable to exposure to smoke from the oil well fires that were ignited by Iraq; and, second, $100 million for long-term epidemiological and continued medical monitoring and screening of the Kuwaiti national population.

The second element is for damage related to post traumatic stress disorder, or PTSD. As quantified by the M&A programme, Kuwait claims approximately $52 million for the costs incurred by the public health system of Kuwait to treat invasion-related PTSD. As we will discuss, those seeking treatment represent a small

percentage of those suffering from PTSD. And Kuwait also claims approximately $1.1 billion that represents the decline in health-related wellbeing for the thousands of Kuwaiti nationals who suffer from invasion-induced PTSD.

The third element is the cost of treating dramatic injuries caused by mines and ordnance left in Kuwait following the invasion and occupation. The M&A programme has determined that approximately $2 million in costs have been or will be incurred by Kuwait to treat 143 specific victims of these horrific devices, the treatments including, in some cases, amputations and use of prostheses.

These submissions will focus on the factual, scientific and legal aspects of the first two of these claim units. The claim for treatment costs of ordnance-caused injuries is highly sympathetic and our failure to discuss it in detail was simply a matter of lack of sufficient time to do so.

Let us turn first to the issue of the nature and extent of the damage to public health in Kuwait as a result of Iraq's invasion and occupation.

The State of Kuwait respectfully submits that the M&A studies, led by a distinguished team of scientists and physicians from Harvard University, as was noted

this morning by Iraq, have provided the Panel with compelling evidence that there is increased morbidity, that is disease, and increased mortality, that is death, in the population of Kuwait.

Kuwait has submitted evidence on mortality and morbidity risks developed through modelling and risk assessment and through a recent public health survey. To review the risk assessment work and the public health survey, we turn to Dr Douglas Dockery. As more fully set out in his curriculum vitae, Dr Dockery holds a Doctorate of Science in Environmental Health Sciences from Harvard University and is a Professor of Environmental Epidemiology in the School of Public Health at that University. He is an internationally recognised researcher and an author on the health effects of air pollution and air quality.

Presentation by DR DOCKERY

DR DOCKERY: Thank you. I am Douglas Dockery from the respected Harvard School of Public Health, representing the Government of Kuwait. There is no question that Iraq's invasion and occupation of Kuwait had a negative impact on the health of the Kuwaiti national population. However, accurate measurements of public health effects caused by Iraq's occupation requires consideration of changes in other factors affecting public health.

Sectoral changes in health care, smoking, other personal and societal risk factors may be changing independent of the invasion and occupation. Therefore, our approach has been to examine the effects of Iraq's occupation from a number of perspectives.

We have critically examined alternative explanations for the observed effects. In addition, we have gathered new data through the monitoring and assessment programme. The standard design for testing causality in epidemiology is the randomised trial. Subjects are randomly assigned to an exposure, and subsequent development of disease compared to those exposed and not exposed. We would never design a study in which people were randomly assigned to experience the trauma of war. Nevertheless, that is exactly what happened to the Kuwait population in 1990.

Ministry of Finance records indicate that a large fraction of the Kuwait population was out of the country at the time of Iraq's invasion. Therefore, Iraq's invasion presented an experiment in which Kuwaitis were randomly exposed to the trauma of invasion and occupation.

We asked if there had been any difference in the death rates in the 13 years since liberation between those who had been randomly in versus those randomly out

of Kuwait. Exhibit 1 shows the percentage mortality of the population for those in versus out of Kuwait during the occupation. You can see the clear indication that mortality has been higher in those who were in Kuwait.

After adjusting for gender and age, we still found a 17 per cent higher death rate among Kuwaitis who experienced the occupation. This increased relative mortality rate raised several questions.

First: could we explain the excess death by better definition of a location during the occupation?

Second: could we explain these excess deaths by differences in personal characteristics between those in versus out of Kuwait?

We conducted a public health survey of a random sample of the Kuwait national population, we collected data on individuals' locations between the invasion and the last oil fire, and data on measures of individual characteristics that present distinct mortality.

The first year of data collection focused on Kuwaiti nationals expected to be the most likely to develop chronic medical conditions, that is older adults who were between 50 and 69 years of age on the eve of Iraq's invasion.

Exhibit 2 shows the percentage survival of this

sample of adults versus date after liberation. We divided the sample into those always in Kuwait, those in and out of Kuwait and those always out of Kuwait during Iraq's occupation.

We found that those always in Kuwait had lower survival, that is higher mortality, compared to those who reported that they were always out of Kuwait. Those who reported being in and out of Kuwait had intermediate rates.

After adjustment for age, gender, smoking, education and personal income, we found 34 per cent higher mortality among those always in Kuwait and 29 per cent higher mortality among those in and out of Kuwait.

Increased mortality was observed immediately following liberation and extended over the entire 13 years of follow-up.

All Kuwaitis in this sample had the same access to the health care system, therefore differences in mortality attributable to being in and out of Kuwait during the occupation cannot be explained by differences in the health care system, or indeed any changes in societal factors over time.

We next asked if the excess deaths were consistent with the known effects of environmental contamination caused by Iraq.

We evaluated the likely contributions of each environmental contaminant using risk assessment. Our conclusion was that none of the environmental exposures was large enough to account for any appreciable impact on public health, except for the smoke from the oil fires.

We estimated the number of deaths attributable to the oil fires smoke, based on the published day-to-day concentrations taken from the published US Department of Defence modelling. To define the location of the population within Kuwait during the oil fires we conducted an enumeration study of a random sample of the Kuwaiti national population. We determined the location of each participant by day between the invasion and the last oil fire. We estimated each participant's exposure to the oil fire smoke from their day-to-day locations, linked to the Department of Defence smoke concentrations.

We calculated an estimated population mean smoke exposure as an average of those individual estimates for the surveyed participants. We estimated the number of deaths attributable to the oil fire smoke by applying the exposure response from the American Cancer Society epidemiological study of approximately 500,000 adults in the US to the population mean smoke exposure.

As Iraq's expert noted this morning, the oil well smoke has been shown to have the same toxicity as urban particles in the United States. These calculations gave an estimate of 35 deaths attributable to the oil fire smoke and a mortality rate of only 2 in every 10,000 Kuwaitis.

We then asked: how sensitive is this estimate to the specific smoke pollution modelling? We recalculated daily smoke concentrations from the oil fires using a finer grid of locations across Kuwait, a finer resolution of meteorology, a scientifically rigorous model of the height of the plumes from the oil well and the oil pool fires, and a more refined transport and dispersion model. The revised estimate of mean air pollution from the oil fires was two to three times higher than that from the Department of Defense model.

We also asked whether the entire risk assessment estimate was consistent with current scientific knowledge. We conducted a formal elicitation of six European experts in epidemiology and toxicology of smoke air pollution.

After a review of the enumerations survey and the Department of Defense smoke model calculations, each expert independently estimated the number of deaths attributable to the oil fires. One third of the experts

estimated a number below our estimate of 35, but two-thirds estimated deaths greater than 35; in fact substantially greater than 35. No expert gave even 5 per cent probability that there were no deaths attributable to the oil fires.

These results clearly demonstrate that these experts believe it is more likely than not that there were at least 35 deaths attributable to the oil fires.

One might ask why we simply did not conduct an epidemiologic study to measure the effect of the oil fires smoke. First, oil pollution smoke pollution produces a general rise, increase, in mortality but does identify air pollution deaths. Therefore, we cannot identify specific individuals killed by smoke from the oil fires.

Second, the necessary smoke pollution measurements and even the death and medical records were not collected reliably or accurately in the period of the occupation and the months immediately following liberation when the oil fires were burning. Thus we must turn to risk assessment to estimate the number of deaths attributable to the oil fires smoke.

The risk assessment approach is sometimes criticised for extrapolation of animal data to humans or extrapolation of high doses to community levels.

Neither of these criticisms apply in this case.

The exposure response function was based on human epidemiologic studies, not animal toxicology. The oil fires smoke concentrations were high, but comparable, as we saw this morning, to concentrations seen in US cities. Indeed, we would argue that the risk assessment provides a better estimate of the effects of the oil fires smoke than a descriptive epidemiologic study in Kuwait.

Risk assessment constructs an explicit causal pathway between the oil fires smoke exposure and early mortality. We used the large body of scientific evidence to provide the best estimate of each element within the pathway. We are confident that our estimates of the effects of the environmental contamination are realistic.

Indeed, based on our recalculation of the oil fires smoke concentration and the expert peer elicitation, these estimates likely underestimate the net effects.

On the other hand, the net number of deaths attributable to the oil well fires and the environmental contamination cannot explain all of the excess deaths that we measured in the Kuwait national population who experienced the occupation. Therefore, we examined Kuwaiti nationals who were in Kuwait during the

occupation to identify factors associated with this excess mortality.

Based on Dr Behbehani's 1993 work showing that PTSD increased with levels of aggression-related trauma, we asked participants in the public health survey to describe their own exposures to violence. As shown in exhibit 8, we found a higher risk of mortality in the 13 years after liberation associated with the highest levels of exposure to violence. Those who were attacked or arrested had the highest relative mortality rate, followed by those who witnessed violence to family members, followed by those who were in hiding for three or more days -- all compared to those in Kuwait with no explicit reported exposure to violence.

We also found that increased exposure to violence was associated with increased incidence of doctor-diagnosed psychological disorders, including incidents of symptoms characteristic of PTSD, an increased incidence of doctor-diagnosed chronic gastrointestinal, respiratory and cardiovascular diseases.

In summary, we measured higher mortality in the Kuwaiti national population among those who experienced Iraq's occupation. The estimates of 35 deaths attributable to the oil fires is scientifically sound,

robust and, based on our expert peer review, likely very conservative. There is strong evidence that exposure to violence during Iraq's occupation has had significant health effects that continue to be observed in the Kuwaiti national population.

Thank you.

MR LONSBERG: Thank you, Mr Dockery.

Iraq observed this morning that when an individual seeks compensation for harm to health under tort law, the relevant standard may well be whether it is more likely than not that the damage was caused by the actions of the defendant. Iraq has continued to assert that this standard is not met in Kuwait's claim for mortality from the oil fires smoke. But Kuwait is not making individual claims. Kuwait is making a claim for the risk faced by its population and is asserting that it is more likely than not that 35 deaths occurred or may occur as a direct result of the fires.

Dr Dockery made reference to the elicitations study, and one thing I would like to point out to you is that the range of likely deaths that was given by the experts actually went as high as 2,874, and the number that has been used by Kuwait is only higher than two of the numbers that were given and is lower than all the rest by substantial numbers.

It is incontrovertible that Iraq deliberately and wilfully set hundreds of Kuwait's oil wells on fire and that Iraq is also liable for the consequences of even those limited oil well fires that may be attributable to the military actions of the coalition. We refer you to paragraphs 27 and 28 of this Panel's second instalment report in this regard.

The fact that the State of Kuwait has relied on modelling to quantify the exposure to smoke from the oil well fires should not obscure the undeniable and vivid direct evidence of that smoke. Mr Ahtisaari's 1991 report described in horror:

"The thick cloud of oily dark smoke that brings still uncharted perils to health."

This smoke, of course, being from the hundreds of oil well fires.

Kuwait's use of risk assessment to establish the existence of a compensable injury is not a novel approach. Risk assessment in fact is inherent in all liability under international and national law for negligence. The reasonableness of the negligent action or inaction is assessed by reference to, among other things, the likelihood or risk of harm and the anticipated severity of that harm. The common law tort system also assesses liability for increased risk of

future injury or disease.

We must note on this point, directly contrary to Iraq's statement this morning, that in the United States claimants who can show an existing illness or disease that is understood by sound medical science to be a precursor of a future disease generally can recover damages for the increased risk of that future disease, and in some circumstances claimants without accompanying symptoms can recover damages.

Scientific or statistical risk assessment techniques similar to those used by Kuwait have also been used in a number of other countries to provide compensation.

The USSR made annual compensation payments, beginning in August 1986, to nationals exposed to the Chernobyl nuclear accident, which payments were later continued by the governments of Russia, Belarus and the Ukraine. This compensation was based on calculations of effective radiation contamination doses to which people in different geographical areas were exposed as a result of Chernobyl.

The Workers' Compensation Board in Quebec, Canada, asked scientists to estimate the risk and probability of causation for bladder cancer victims who had been employed at aluminium production plants. The board adopted a system under which compensation is provided to

those workers who are bladder cancer victims and who show time on the job and an average exposure concentration such that their predicted relative risk is above a stated level.

A similar explicit use of statistical risk assessment for compensation is found in the United Kingdom's compensation scheme for radiation-linked diseases. That has been adopted by agreement between employers and trade unions in the nuclear industry. This alternative dispute resolution system uses risk assessment to determine the probability that a particular cancer was caused by occupational exposure to radiation.

Let us turn now specifically to PTSD. First, we will ask Dr Jaafar Behbehani to address the impact of PTSD and the compelling evidence of the dramatic increase in the incidence of PTSD among Kuwaiti nationals in post-liberation Kuwait.

As set forth in his CV, Dr Behbehani holds a doctorate degree in Clinical Psychology from the University of York. He is a practising clinical psychologist and a member of the faculties of both medicine and allied health at Kuwait University. Dr Behbehani has been involved personally in the treatment of PTSD since 1991 in the Kuwaiti population.

Presentation by DR BEHBEHANI

DR BEHBEHANI: I appreciate this opportunity to present data on psychological disorders, based on the studies conducted in Kuwait.

In 1993 we assessed almost 3,000 Kuwaiti nationals, and approximately 1,500 of these adults and children were reassessed in 1998. Today, I will discuss the three most significant findings of these studies.

First, the post-aggression rates of PTSD, depression and anxiety in Kuwait are at a high level.

Second, the effect of proximity to trauma is readily apparent in the data.

Third, these aggression-related psychological effects persist.

Taken together, these results depict a compelling picture of the psychological consequences of Iraq's 1991 aggression.

In 1993, Kuwaitis exhibited a high rate of PTSD. The prevalence of PTSD was 22 per cent for adults and 15 per cent for children. International studies on war-traumatised individuals and crime-ridden communities show comparable rates. In addition, as shown in exhibit 10, there was a highly significant trend among adults for conditions that I would characterise as the "proximity to trauma" effect.

The highest rate of PTSD was seen among those who were in Kuwait during the entire occupation and the lowest rates were found among those who were always out. This is consistent with the idea that those who stayed in Kuwait were expected to have maximum exposure to traumatic events of the occupation.

When, as shown in exhibit 11, the same population was reassessed five years later, both adults and children continued to experience high rates of PTSD. For example, among adults, almost half of those diagnosed with PTSD in 1993 continued to have the disorder in 1998. Furthermore, the proximity to trauma effect seen in adults in 1993 was again seen in 1998.

Finally, among adults who did not have PTSD in 1993, nearly one quarter had the condition in 1998.

Consistent with world experience, only a small fraction of those affected will seek treatment, leaving the vast majority of cases untreated. While our data shows a threefold increase in the number of people who sought psychological treatment following the occupation, this still represented a small fraction of those affected.

There are many reasons for this, including the social and cultural stigma and the fear of reliving these traumatic events while in treatment.

There is good reason to believe that psychological effects will persist well into the future. A number of studies have now shown the enduring nature of these effects. The veterans of the Vietnam War and those of World War II continue to exhibit an elevated rate of PTSD 30 to 50 years following their combat experience. The persistence of PTSD is not unique to military personnel but also has been seen in civilian populations, exhibited to natural disasters and war-related traumas.

The lasting effects of the original trauma are perpetuated through flashbacks, dreams and memories and dreams brought on by experiences of the symbolic event.

By extrapolation of these findings to the entire Kuwaiti national population, we estimate that over 70,000 adults and more than 20,000 children suffered PTSD due to Iraq's invasion and occupation. These findings were alarming and disconcerting.

Prior to the events of 1990/91, Kuwait was an extremely safe and peaceful society. In addition to PTSD, anxiety and depression were elevated in 1993 and continued to be elevated in 1998, and among adults, rates were highest to those with the greatest exposure to aggression-related trauma.

We believe Kuwait's claim is conservative in its

focus on PTSD for two reasons. First, Kuwait does not claim any future PTSD cases. Second, it does not make a claim for depressional anxiety disorders.

Consistent with prior clinical and scientific evidence, our results in both 1993 and 1998 show a high prevalence of comorbid psychological disorders, including anxiety and depression in up to half of those studied. These results are valid and generalisable.

These studies were conducted using a large random sample that is representative of the Kuwaiti national population. We used standardised validated instruments to characterise the psychological disorders. Also, because we were interested in PTSD attributable to the occupation, the groups were surveyed with respect to the effect of the most traumatic event that they could recall related to occupation.

It is important that we understand the experience of persons suffering with PTSD. The involuntary and unwanted memories of trauma initiate a series of symptoms that have a debilitating effect on these individuals. They struggle with re-experiencing the trauma through thoughts and nightmares. They develop sleep disorders. Over time, they isolate themselves, unable to trust anyone. They are unable to moderate anger and irritability, targeting family members with

their anger and frustration. Commonly, they develop physical ailments. Children have the additional burden of retardation and abnormal development of milestones.

In my clinical work after the liberation of Kuwait, I initially struggled to understand what my patients with PTSD were experiencing. I knew that Kuwaiti nationals had endured almost seven months of predictable and random stressful events.

They were subject to witnessing violence against their family members. They were forced to hide. A large number were arrested and imprisoned, sometimes for months. Many of those arrested were subjected to torture. Often the torture methods led to physical injuries. There was a prevailing sense of fear that was induced by the possibility of something terrible happening at the hands of the occupiers.

As I treated more and more patients I came to see a clear picture. A few days after liberation, I travelled around Kuwait visiting different neighbourhoods and acquaintances. Many of the homes that I saw looked unscathed from outside. But when I entered the homes that had been occupied by Iraq's forces, I came upon scenes of unimaginable destruction, where even electrical outlets were removed. There was real evidence of emptiness and decimation inside these

homes that looked fine on the outside. I have come to realise that those who suffer from PTSD are more like these homes. They look okay on the outside but internally they are destroyed.

Thank you.

MR LONSBERG: Thank you, Dr Behbehani.

It should be observed that the work of Dr Behbehani and his colleagues has been noted already with approval by the C Panel of the Commission, which quoted at page 102 in the first instalment of its report:

"The Al-Riggae Report documents the serious effect that the invasion and occupation had on the mental health of the population. A significant percentage of those who experienced the invasion and/or occupation, both Kuwaitis and non-Kuwaitis, were afflicted by the mental injury known as post traumatic stress disorder, PTSD. Not surprisingly, the prevalence of this disorder was even higher among persons who suffered specific traumas ..."

Iraq's commission of intentional acts traumatising the Kuwaiti population and leading to PTSD in that population was also documented by various international observers, including Mr Ahtisaari and the Special Rapporteur of the United Nations Commission on Human Rights, both of whom described ample evidence of

widespread "inhuman and degrading treatment."

We submit that the measures of compensation proposed by the State of Kuwait are appropriate.

We further submit that Kuwait's proposal that future medical study, monitoring and screening is an appropriate remedy for increased general morbidity. As indicated by Dr Dockery's presentation, Kuwait's eminent consultants have concluded that there is both increased morbidity and increased mortality in Kuwait's population as a result of the occupation. The proposed long-term epidemiological study and long-term medical monitoring and screening programme offer great hope of addressing these increased risks in an appropriate and cost efficient manner.

The initial claim for treatment costs was withdrawn only because Kuwait did not feel that it could provide definitive evidence at this time to document the extent to which rates of hospitalisation have increased due to the occupation.

Dr Rosalind Wright of Harvard will address the rationale for, and the specific material benefits to be derived from, the proposed long-term epidemiological study and screening and monitoring programme. Dr Wright holds an MD, is board certified in internal medicine and received a Masters in Public Health from the Harvard

School of Public Health. She is an Assistant Professor at Harvard Medical School and an instructor at the School of Public Health. Dr Wright heads a research programme which focuses on longitudinal studies linking chronic stress, trauma and chronic disease.

Presentation by DR WRIGHT

DR WRIGHT: Thank you.

Mr Chairman and members of the Panel, it is undeniable that the impact of Iraq's invasion and war-related traumas experienced by the Kuwaiti population merit continued research and intervention. As evidenced in the public health survey, there is significant increased morbidity and mortality associated with being in Kuwait during the invasion, and indeed a stronger relationship if while in Kuwait these individuals experienced war-related trauma resulting in PTSD.

Please note exhibit 14 as an example, which shows increased incidence of myocardial infarction in Kuwaiti men with PTSD. Awarding damages for long-term medical monitoring will reduce these effects on both the Kuwaitis who endured the ingression, as well as future generations of Kuwait.

Psychological stress rooted in the war-related trauma experienced by the Kuwaitis must be thought of as

a social pollutant that gets into the body to disrupt biological processes that lead to increased disease, just as an air pollutant is breathed in from the physical environment to have such effects.

Chronic stress arising from war-related trauma can cause long-lasting emotional, physical and behavioural impairments which in turn influence disease risk, both in the short term and for decades to come.

Known relationships between trauma, physical and mental health and medical utilisation have important implications for the health care system in Kuwait. These individuals report more physical symptoms, use more medical services, pose treatment challenges, have more diagnosed physical illness and show higher mortality rates than non-traumatised individuals.

It is because traumatised persons show high medical utilisation that good screening, thorough assessment, appropriate referral and empirically-based treatment of such patients are essential.

Medical monitoring and screening can improve long-term public health in a number of ways. It will reduce effects on children exposed to war traumas who may not manifest chronic disease for decades. Moreover, past experiences, including the holocaust, suggest intergenerational transmission of the effects of war.

PTSD has been linked to family dysfunction and physical responses in the children of parents who suffer from PTSD, even when the children themselves have not been directly exposed.

While the mechanisms of intergenerational transmission are not completely understood, we do know that by identifying and intervening around psychological morbidity in the parent, the child's health can be improved.

Screening and providing counselling can also reduce known health risk behaviours. Psychological correlates related to war experiences may lead to increased adverse habits among Kuwaitis, such as substance abuse, which in turn contribute to chronic disease.

PTSD itself constitutes an ongoing stressful condition. Identification and treatment of PTSD may alleviate adverse effects of ongoing distress symptoms and reduce long-term disease risk.

As an example, allocating money for medical screening for cardiovascular disease in Kuwait makes sense because increased rates of heart disease have been seen in those exposed to aggression-related trauma. It has been well established that screening for cardiovascular disease is cost effective. Monitoring for high blood pressure and high cholesterol are simple

means of reducing means of reducing cardiovascular morbidity, and many treatment options are available for heart disease.

Finally, the first phase of the pilot medical monitoring and screening programme has demonstrated that screening for cardiovascular disease is feasible in this population. Establishing the feasibility of screening for other diseases will be one of the programme's goals.

Epidemiology and medical screening can and should be tightly linked. Information about the relationships among trauma exposure, pollution and disease risk developed in an epidemiological study can be used to design the medical screening programme to target subgroups of the population and specific diseases which warrant screening.

The Kuwait public health monitoring assessment claim as already filed specifically noted that a clinical monitoring programme expected to continue for 40 years was needed. Only through a co-ordinated programme of clinical monitoring and public health surveys will the health impacts of Iraq's invasion and its aftermath be properly identified and appropriate medical treatment provided. Supporting health planning needs through medical screening and monitoring can ultimately minimise unnecessary loss of life and reduced wellbeing.

Thank you very much.

MR LONSBERG: To explain the damage calculations that Kuwait has employed in its claim in more detail and to address the rationale for these measures from an economic perspective, Dr James Hammitt will address the Panel.

Dr Hammitt has a Ph.D. in Public Policy from Harvard University. He is a Professor in Economics and Decision Sciences and he is the Director of the Harvard Centre for Risk Analysis, both within the Harvard School of Public Health. Among other responsibilities, he serves on the Science Advisory Board of the United States EPA.

Presentation by DR HAMMITT

DR HAMMITT: The two largest elements of the claim for health damages are for dust from the oil fires and for PTSD. You may have some questions about the basis for these values and why we believe they are appropriate. I would like to address these issues.

Conceptually, damages from adverse health can be divided into three types: treatment costs, lost productivity and lost wellbeing.

The first two components, treatment costs and lost productivity, are relatively easy to measure in monetary terms. The third component, lost wellbeing or lost quality of life, is more difficult to measure because it is the part that incorporates all the things that make

life and health important to us that are not reflected in markets.

What is the monetary value of the loss of wellbeing associated with an increased risk of fatality or of PTSD? In principle, the answer is clear: it is the compensating variation, a standard economic concept.

The compensating variation is the amount of money that compensates the individual for the increased health risk, in the sense that she views herself as equally well off whether she faces the increased risk and receives the extra money or does not face the increased risk and receives no compensation.

Methods to measure the compensating variation for health risk have been developed over the last four decades. For mortality risk there are hundreds of studies conducted in many parts of the world which have estimated compensating variation.

To estimate the monetary value of mortality risk in Kuwait, we reviewed this worldwide literature and took the range reported in the most recent summary, a value per statistical life of $4 million to $9 million for the United States.

To value risk from air pollution, the US Environmental Protection Agency uses a value near the centre of this range, $7 million, based on its own

summary of the literature. We adjusted for the small difference in income between Kuwait and the US and then took the mid point, $5.5 million, as our estimate for the claim.

Because of monetary value of mortality risk may vary across countries in response to cultural and other differences, we also conducted a contingent valuation survey in Kuwait to obtain a direct estimate of the monetary value of mortality risk to Kuwaitis. The value we obtained, about $9 million, with a 90 per cent confidence interval between $4 million and $20 million, is consistent with our estimate from the worldwide literature. This gives us confidence that the way Kuwaitis think about trade-offs between mortality risk and money is generally similar to the way that Americans, Europeans, Asians and others think about this trade-off.

For PTSD, there is no body of empirical estimates as there is for mortality risk. Hence we turned to the extensive literature on valuing nonfatal health effects using health adjusted life years.

The concept of health adjusted life years has been developed over the last three decades and has been applied both to evaluate different ways a nation can spend its resources to promote health and to measure the

burden of disease in a society.

Health adjusted life years start from the common sense notion that the loss in wellbeing from an adverse health condition depends on how long the condition persists and how severely it affects the individual's health.

To quantify the health adjusted life years associated with PTSD we used the estimates developed by the World Health Organisation for its global burden of disease study. That study estimated the typical individual with PTSD experiences symptoms for two and a half years. This period is shorter than the time an individual has PTSD because symptoms are experienced only intermittently.

The severity of a health effect is conventionally measured on a scale from 1, corresponding to perfect or excellent health, to zero, corresponding to a health state that is as bad as being dead. On this scale, the World Health Organisation estimated that PTSD symptoms reduce an individual's wellbeing by one tenth. Studies of depression, a condition that is similar to PTSD, have estimated that the severity is between 3 and 7 times larger than the value we used for PTSD.

Multiplying the time spent with symptoms by the loss of wellbeing, while symptomatic, results in the

conclusion that a typical individual with PTSD loses one quarter of a health adjusted life year. There are two approaches that can be used to estimate the monetary value of a health-adjusted life year.

There are two approaches that can be used to estimate the monetary value of a health adjusted life year.

The first is to recognise that the value of reducing mortality risk depends on the number of health adjusted life years that are protected. Using the estimates of the value of reducing mortality risk I have described, yields the value of a health adjusted life year between about $100,000 and $400,000.

The other approach draws on the use of cost effectiveness analysis for determining which health interventions are worth investing in and which are too expensive. Threshold values of $50,000 and $100,000 per health adjusted life year are often suggested in the United States. In the United Kingdom, the value of 30,000 is generally cited. When a government uses a threshold such as $50,000, it reveals that it is willing to pay at that rate for each health adjusted life year produced in the population. An action that reduces health, causes damage valued at $50,000 per health adjusted life year lost, since that is the amount

the government would have been willing to pay to prevent that loss.

To be conservative, we used the smallest estimate from these two approaches of $50,000. Multiplying by the loss of one core health adjusted life year yields a monetary value of $12,500 per case. We also obtained a direct estimate of the value of reducing the risk of PTSD in Kuwait using our contingent valuation survey. Our direct estimate is nearly the same, $15,000, with a 90 per cent confidence interval between about $7,000 and $30,000.

None of the available methods for estimating the monetary value of the lost wellbeing associated with these health risks is perfect. Indeed, I have written several papers pointing to weaknesses in these methods. But to conclude that no compensation should be awarded for lost wellbeing, either because the methods for estimating the required compensation are imperfect or because most of the estimates come from countries other than Kuwait, is tantamount to concluding that the value of lost wellbeing in this case is zero. That defies common sense. It is equivalent to treating the Kuwaiti people as if they are machines, valued only for their economic output, net of the repair costs necessary to restore their productivity when they are broken.

CHAIRMAN MENSAH: Mr Lonsberg, you are near the time.

MR LONSBERG: I have about a minute.

Several scholars in the fields of law and economics have strongly advocated the use of the methods chosen by Kuwait to assess compensation.

Such use is supported by Professor Dinah Shelton in her book "Remedies in International Human Rights Law".

Judge Richard Posner has discussed the inadequacies of limiting recovery in death cases to pecuniary losses and pain and suffering, and has advocated the use of willingness to pay methods to set damages when the individual risk of death is small, as it is from smoke and oil well fires in Kuwait.

A paper released last month by Professors Cass Sunstein and Eric Posner of the University of Chicago Law School advocates use of the value of statistical life as calculated by economists as either the legal standard or, at a minimum, as the evidentiary starting point for assessing compensation for wrongful deaths.

Although most of this authority represents national law, we respectfully note that the UNEP Working Group of Experts took the view that Article 31 of Governing Council Decision 10 "allows for some reliance on international law". It further acknowledged that in

exceptional circumstances, "given the recent development of some of the concepts likely to be faced by the Commissioners, the possibility could also not be excluded of relying on the domestic law of a single state".

In closing, Kuwait respectfully submits that the current claims are precisely such a case and that the Panel should follow these national leading authorities in developing principles for assessing compensation for these types of injuries.

Thank you, gentlemen.

CHAIRMAN MENSAH: Thank you very much. That completes the presentation?

MR LONSBERG: Yes, sir.

(3.45 pm)

(5.55 pm)

CHAIRMAN MENSAH: I give the floor to Iraq.

Closing presentation by REPUBLIC OF IRAQ

MR SCHNEIDER: Mr Chairman, members of the Panel, as a first point I would like to address some aspects concerning the monitoring and assessment work that has been awarded and performed.

The claimant governments have benefited generously from the funds which were provided by the UNCC at the expense of Iraq for M&A studies.

The condition for providing such funding is that the claimants described a programme, the Panel verified the programme and awarded on that basis, often with adjustments. Once the Panel had reached the conclusion that there was a sufficient nexus between the proposed activity and the environmental damage or risk of damage, the Panel then, having checked the programme, made the adjustment and recommended compensation for the adjusted programme.

The awarded amounts have indeed been paid to the claimants and they have spent that money. The UNCC now must ensure that the M&A work which was actually performed with this money which came out of Iraq's funds is in conformity with the programme for which the funding was awarded. It also must see to it that the

full results of these M&A studies are produced.

This latter point applies even in those cases, and especially in those cases, where the M&A activity reveals results which are different from what the claimants who applied for it expected or hoped for, in particular if they show that there was no damage or damage less important than that for which the claimants are seeking compensation.

Indeed, the Panel expressly stated that M&A activity for which it recommended could be of benefit, even if the result generated by the activity established that no damage has been caused. That is in its first instalment report at paragraph 32.

Iraq is entitled to require that the funds be used in conformity with the rules established for this award. Iraq is also entitled to have the full results made available in the assessment for the quantification -- and assessment for liability and quantification of the claims that are put before the Commission.

The information which is actually being provided in these proceedings by the claimants indicates that in quite a number of cases the claimants performed M&A activities different from that for which the Panel authorised funding and for which they were paid, and the claimants' production of evidence in fact sometimes even

in the description of the activity they are performing, shows that they took great liberties with the programme which they were awarded.

I turn to Ms Larraine Wilde to give some examples of the liberties the claimants are taking.

Presentation by MS WILDE

MS WILDE: Thank you. Larraine Wilde, speaking on behalf of Iraq.

I would like to look at the claimants' use of M&A, not just for the public health claims but also for some of the natural resource claims. This is a topic we did not get an opportunity to discuss yesterday, so I would like to reintroduce it this afternoon.

In doing so, I would like to look at some aspects of the M&A and what was actually awarded during the first instalment and how this was intended to be used.

Just to remind ourselves in respect of the monitoring and assessment for public health -- I do not propose to address all of the claimants' M&A, just some of them.

Kuwait was awarded almost $21 million for public health assessment and the Kingdom of Saudi Arabia $27 million. In Kuwait, this was for five awards in respect of a surveillance programme for construction, staffing and equipping of a data repository for the

health information; human health risk assessments, public health survey and epidemiological survey and clinical monitoring and screening -- and this was to include pulmonary testing, x-rays, blood tests et cetera -- and this was to be incorporated with existing data in order to be able to properly examine the health impact.

It also included an award to actually assess the costs to the Kuwait public health system for dealing with these additional health impacts.

In this respect, it was noted in the description of claim 5000407 in the Panel's report recommendations for the first instalment awards that the main purpose of that study was to assess the costs of dealing with increased incidence of various diseases.

For the Kingdom of Saudi Arabia, the amount was higher, but the components were virtually identical.

Within Iran, there was a study for PTSD in three groups, and there was to be some assessment of respiratory and cardiovascular examinations for the inhabitants are Zagros. What was actually provided by Iran was some, it must be said, questionable data from the studies. Much of it based on self assessments and questionnaires. Kuwait has modelled some of the air pollution and undertaken a risk assessment.

Saudi Arabia has provided some preliminary information, and indeed today we have had some completely new information on a risk assessment. But what is very clear is that none of the claimants has provided any clinical data, any cost data or epidemiological analysis.

In respect of the natural resources M&A awards, the total of the whole M&A was $234 million, including the amounts I have just mentioned for public health. I do not propose to break it down for natural resources, but it is quite clear that there were large awards made and there are still a huge amount of studies that are incomplete; for example, Kuwait's ecotoxilogical study, which we are still waiting for information on.

In the majority of cases, M&A has focused on theoretical modelling rather than gathering data and assessing the field results. This data has not always been used -- for example, Kuwait, in its marine coastal claim, has actually been collating data on shoreline recovery within the marine and coastal areas but has instead used data available within the literature from a US situation. Other relevant data has just either been ignored or has been used selectively. Kuwait has also used SAVI data in its terrestrial claim, totally ignoring the fact that it was perfectly able to go and

collect data, rather than use some assay data.

We have stressed the importance of M&A, and I would like to quote a statement made in the joint statement by the claimants during the first instalment, which said:

"The Commissioners cannot discover the extent of harm, still less the costs of remediation, unless and until appropriate studies have been undertaken."

This is also reflected in the Panel's comments, which in paragraph 9 of their report and recommendations said:

"The results of the monitoring and assessment activities may be critical in enabling the claimants to establish the existence of damage and evaluate the quantum of compensation to be claimed."

In paragraph 31, it said:

"However, the Panel is of the view that compensation should not be awarded for monitoring and assessment activities that are purely theoretical or speculative."

Thank you.

MR SCHNEIDER: On the basis of these concerns, Iraq requests respectfully that the Panel instruct the secretariat to verify performance of M&A activities by the claimants and identify any case where the activities actually performed differ from those for which compensation has been awarded.

Second, where such differences have occurred, the amount that has been awarded and paid for the activity be deducted from the compensation awarded to the claimant party concerned.

What we have received in terms of M&A today is of course something on which we cannot immediately comment; we heard it for the first time today. If the Panel admits that this late information be part of the material that will be considered in the report by the Panel, then of course we request that we be given an opportunity to comment on it.

At this stage, I merely want to make a comment which concerns an aspect which is preoccupying in this material that we heard today, because what I heard -- and without being able to analyse it in substance -- I must say in addition to the many substantive points that would seem to arise from it, there seems to be an issue of jurisdiction with respect to the material, and in particular the reformulated claims that would seem to arise from what we have heard from Johns Hopkins.

We have heard that the health effects for which the claimants seek compensation are attributable to three plumes. That is the first time I hear of three plumes. Of course there is the smoke plume, and then there was added a dust plume, and the third one, which I had never

heard of in this context, is a diesel plume.

The claimants' Saudi Arabian experts explained that the allied troops used certain trucks which are particularly polluting, and he described very vividly how polluting these trucks were.

The choice of vehicles which the allied troops based in Saudi Arabia used is definitely something that is exclusively in the domain of the military command of these troops, and I think it would be quite absurd to hold Iraq liable, in fact to admit as compensable damage that arose from the particular type of vehicles which the allied troops in Saudi Arabia used.

There is a similar problem with PTSD. Among the variety of factors which the distinguished expert from the Johns Hopkins University listed, I noted in particular one that concerned the invasion of privacy in the Saudi rural area where the allied troops were stationed. He said this is quite disturbing, especially in a rural community.

Now, Iraq is well familiar with the problem of the invasion of privacy by foreign troops, and has sympathy with the Saudi population in this respect. But Iraq certainly cannot be responsible for the conduct of the allied troops in Saudi Arabia.

All of this is a sign that not only the claims are

discredited, but also, if one should go ahead with them, there are major issues in examining the jurisdiction of the Panel in this respect.

The monitoring and assessment material that was produced was intended to assist in finding the evidence for what actually happened. In this respect, the claimants were required to provide evidence -- I have highlighted that in my opening yesterday morning, the proposed evidence -- and paragraph 37 of Decision 7 is quite clear about this. The paragraph says:

"Since these claims will be for substantial amounts, they must be supported by documentary and other appropriate evidence sufficient to demonstrate the circumstances and the amount of the claimed loss."

The decision here speaks about substantial amounts, and we are here in the presence of enormous amounts. If one compares the evidence which has been produced and which has been discussed today, one sees how far away the evidence is from this requirement.

In fact, what we have received in these proceedings, and what we have heard today, was no evidence for medical conditions, no evidence for expenditures of the Government, no evidence for the costs. Instead of it, we received models, assumptions, reconstructions -- we heard the facts are reconstructed by the experts from

Johns Hopkins -- reliance on authority of distinguished professors, statistical calculations.

This is not just not good enough. It does not meet the requirements before this Commission.

It is quite significant the way the Kuwaiti delegation presented the claim. They said they have two claims that are based on alleged actual costs: their $2.2 million for traumatic injuries caused by mines and ordnance, these are actual damage; and $52 million for PTSD treatment costs, these are claims that should have been documented and should have been discussed.

Now, Kuwait says they are very sympathetic, but we leave them aside, and then they discuss all these risk assessment and modelling claims.

A word on models. We have had several demonstrations and arguments about the use of models. What we have heard from the distinguished delegate of Jordan a few minutes ago, I must reply that there is an obvious misunderstanding. Iraq has no intention to suggest that a restriction should be imposed on this Panel in the type of evidence that the Panel itself or its experts can use.

We did not say that models cannot be used for evidence. In fact, we used ourselves and spent quite some efforts in developing a model for the smoke plume.

So it is not at all our intention to rule out models as part of evidence.

What we did say was that modelling and risk assessment cannot be used for establishing whether damage occurred.

The claimants must show that actual damage occurred and cannot just show by models that there is a risk of damage. This is our objection. We say that compensation can be awarded only for damage that actually occurred and not for some risks of damage that may or may not occur. The person having suffered the damage must be identified, and causation and the occurrence of damage must be established.

The causation, the amount of the damage, these are matters for which then other evidence can be resorted to, and for instance modelling can be used. This is exactly what the E1 Panel, to which the representative of Jordan referred, what this Panel did. The Panel first determined that oil had been lost from the wells and that Iraq was liable for this loss, and then the Panel at this stage only resorted to modelling and determined how much oil was lost and did it well by well. So that is quite different from what the claimants are doing when they use modelling in order to determine that any damage occurred at all.

The Panel in the E1 did not award compensation on the basis of a risk of oil having been lost or a risk of the possibility of oil having been lost.

I would like to make some comments on what we heard on the substance of the claims. The first thing that strikes when we look at the Kuwaiti claim is that the same body which presented the claims some years ago for Kuwaiti citizens, the PAAC, presented claims not espoused but presented claims of Kuwaiti citizens where the value of a Kuwaiti was assessed at between $5,000 and $10,000, and they got this money where the Panel found them to be assessable, in the B panels.

Now the PAAC comes to this Panel with a claim for $5.5 million per life of a Kuwaiti. We assume that the $5,000 or $10,000 which were awarded in the B panels were actually paid to the relatives of the victims who claimed.

Concerning the $5.5 million, Kuwait tells us they do not know who are the persons -- there is nobody whom they can identify as individuals, they cannot identify the concerned individuals, so we do not know who gets the money.

Apparently, this is a claim for a windfall profit.

On the claim for morbidity and mortality, you will have seen that much of the demonstration relied on the

difference between in and out, the two cohorts. The entire claim rests on the assumption that these two populations, these cohorts, are identical in terms of their health condition. No evidence has been shown that this is actually the case, and there are serious reasons to believe that the two groups are not the same, and those who stayed behind are not of the same health conditions. We have heard that. But this is something we have heard no reply to.

With respect to the PTSD claim, we find quite surprising differences. If you look on this slide you see how treatment costs of the population in Kuwait is $52 million, where the occupation occurred, whereas in Saudi Arabia it is $900 million, and in Iran, where no occupation took place, they still have $43 million.

I also point out the enormous difference between Iran and Kuwait concerning the loss of productivity.

The claim for monitoring and screening which Kuwait makes is quite surprising. They have got a lot of money for monitoring and assessment, and now they come again. Simply I would say this is not a repetitious process -- the claim for monitoring and assessment -- and is exhausted.

A word on diplomatic protection and the UNCC. Yesterday, Dr Heiskanen explained that the two are

different. This morning, I explained that the two are different. Surprisingly, earlier this afternoon, before the break, we heard that the claimants still failed to see the proper distinction between the two approaches in the UNCC and diplomatic protection. I shall ask Professor Sands to give it a try, whether he succeeds in explaining this in a way that is understood.

To make it clear, our position is that the UNCC is not diplomatic protection. Nevertheless, both in diplomatic protection and before the UNCC there must be a claim for a specific damage. The claimants said they cannot identify specific individuals having suffered a damage and that they claim for risk. This is not a compensable claim, a claim for risk, and I turn over to Professor Sands.

Presentation by PROFESSOR SANDS

PROFESSOR SANDS: Mr Chairman, before turning to a few legal points by way of conclusion, I wonder, with your permission, whether I could make a few personal observations which are not, if you like, on strict instructions from the Government of Iraq but which I am authorised by them nevertheless to address. They are by way of reality check.

As you know, Mr Chairman, I have appeared in numerous international courts and tribunals, the

International Court of Justice, the Tribunal for the Rule of the Sea, Permanent Court of Arbitration, ICSIT and many others, and I have appeared with great privilege before you in a number of cases. I am aware that in each type of case there are always claims for damages, including damages of the kind that have been discussed this afternoon. In each case, the responsibility of the lawyers preparing the dossier is to provide hard evidence of damage.

I sat through this afternoon and I must say I had to pinch myself at times because, 13 years after the event, we were presented today with not a single piece of evidence, not a shred of evidence, to support any one of the claims in terms of hard evidence, in terms of individual statements, in terms of construction costs of post traumatic stress centres, which one would have thought, given the concern governments have for the issue, they might have constructed in the last 13 years, the costs of operating those centres, the hospital bills, the additional costs of medicines which the states would have provided.

These are all of the things that I would have asked my client state to produce and which I assume, being the good lawyers that these representatives are, they would have done. One can only assume that there are none,

that there is absolutely nothing to support these claims in terms of the traditional standards of evidence which are required.

We heard this afternoon a great deal of extremely interesting academic contribution. I do not for a moment want to belittle the good faith and the integrity of the many people in this room and around the world who have spent a great deal of professional time and effort in producing this material. But we are not at an academic conference. This a claim commission. It is incumbent upon claimants to provide hard evidence.

Once they have provided hard evidence, then they can provide models, as Mr Schneider said, to supplement and to indicate quantifications. There is no a priori exclusion of the types of assessments, the types of studies, but they provide support to hard evidence; they are not a substitute for hard evidence.

I think, by way of reality check, one has to recognise that this type of claim made in any other international forum would not get past the door of the courtroom. It may be that I, as a newcomer in this process, have somehow entirely missed the point about what the Security Council and the Governing Council intended to do. But I have always proceeded on the basis, as an academic, that this was a claims process

and the claimants have to document in great detail the claims they are going to make.

What we have heard today -- and I say this with great respect -- gets extremely close to abuse of process, because after 13 years, on matters which we all accept, speaking at a personal level, had a huge human cost for many people in many countries, those people are entitled, if you like, to have those claims presented in as strong a possible way. I find it astonishing that after 13 years not one of these countries is able to produce a single additional bill of expenditure which they have incurred in relation to the public health impact that they claim, which they can put to you.

I think, Mr Chairman, members of the Commission, that speaks very loudly indeed about what is actually happening in this process.

Turning to a few conclusory legal points --

CHAIRMAN MENSAH: Mr Schneider, you have only two and a half minutes.

PROFESSOR SANDS: Firstly, diplomatic protection. We all know what diplomatic protection is; it is the espousal by a state of a claim brought on its own behalf and on behalf of its nationals. The UNCC process is not diplomatic protection, it is the process of submission of individual claims on behalf of those individuals, not

espousal of those claims.

One concluding point, just putting up the slide to show my good friend from Kuwait that we too can put up quotations. I heard this morning what I thought was an accurate quotation of really what this claim is about. Kuwait said:

"These claims can be viewed as claims for risks experienced by the entire exposed national population rather than as claims for specific deaths or specific victims of trauma or illness."

That was a very telling statement because it indicated that there is no hard damage at issue here; it is about risk.

If I can refer you in conclusion to the ICJ judgment in the Gabcikovo-Nagymaros case, at paragraph 54 of the judgment the court made it very clear that there is a distinction to be drawn between peril and risk on the one hand and material damage on the other. There is no known international claim to cover future or past risk. This would be a first.

With those words, I conclude. Thank you.

MR SCHNEIDER: My concluding remark starts with the observation or suggestion which the distinguished delegate from Syria made this morning, when he spoke about the participatory approach which should be adopted

in the resolution here, in the resolution of claims or damage or cultural heritage on the restoration. This is indeed the approach which Iraq has recommended since quite some time for any future action for which the Panel will find that compensation is awardable.

We, of course, are aware that the Panel is deciding compensation and not future action, but the Panel has made adjustments to many of the programmes, and if it awards any future compensation for a specific programme, we respectfully request that this aspect be brought to bear.

In the light of the many observations and objections we have presented in the last few days, we conclude that there is no legal basis for compensation in these claims, and if there were any compensation specifically recommended for Saudi Arabia and Iran, the extraordinary gains of these two countries should be brought to bear and be adjusted accordingly.

We conclude that all the claims on this basis must be rejected.

I have merely a few procedural requests, if I can just read them into the record. Is that admissible or would you like to have them printed out?

CHAIRMAN MENSAH: I would like to have them printed out, because we do not have the time. Thank you very much.

I am sorry, but we are very tight and we want everybody to have the opportunity to speak at the time when the interpreters are available to interpret.

I now give the floor to Kuwait for their final comments.

Closing Presentation by STATE OF KUWAIT

MR LONSBERG: Thank you, Mr Chairman. I will first talk to specifics of some of the claims and respond essentially to matters of the record for inaccuracies and comments that have been made today by Iraq or its representatives, then I will discuss generally the fact that these are environmental claims.

First, as to the issue of air pollution modelling, UNCC panels in many different claims have accepted modelling as an accepted and appropriate analytical tool for measuring impact and damages. This was noted by Iraq. We are disappointed that Iraq did not present at this oral proceeding the results of the air pollution modelling that it presented to the fourth instalment oral proceeding. That model essentially confirms the air pollution concentrations that were demonstrated in the modelling performed for Kuwait by Harvard.

This modelling evidences that Kuwait's population was exposed to unhealthy air that is associated with mortality. While Iraq now attacks Kuwait's use of air

pollution modelling to demonstrate excess mortality from exposure to particulate matter generated by the burning oil wells, Iraq itself used air pollution transport modelling in its fourth instalment presentation to argue against the claims of Iran and Syria for damages from oil fire deposition. Iraq's technical consultants in that instalment said:

"Global regional models are an international standard. They are used all over the world to assess, to understand, to predict what is going on with air pollution."

The air pollution modelling that Iraq conducted yielded results that their modellers compared with the results of Husain et al in 1995 and concluded that the results of their modelling were consistent, but showed concentrations of soot one fifth as high as Husain. Harvard's results were also comparable to Husain in dispersion pattern, but are only about one eighth as high.

We have not had the opportunity to review the details of Iraq's modelling efforts because they have not been provided to us. It would appear, however, that Iraq's modelling showed much higher contributions from soot than the added 6 per cent that was referenced this morning.

The spikes show the increased deposition in Kuwait, which Iraq indicated ranged from 3 to 25 times higher than background during the fourth oral proceeding. Even allowing for the differences between Husain's modelling at PM10 and Harvard's modelling at PM3.5, the results of Iraq's own air modelling from the fourth instalment completely confirmed the legitimacy of modelling in the Harvard results.

We do note with interest, however, that they do suggest that the Harvard model most likely underestimates the concentrations to which the Kuwaiti population was exposed. Thus, the resulting 35 deaths, if used as a basis for compensation, likely underestimate the mortality effect according to Iraq's own air pollution modelling from the last instalment.

Let us talk now specifically about mortality from oil smoke. Iraq claims that Kuwait's claim for mortality from oil fire smoke should be dismissed because "it does not adequately deal with causality", it is based on modelling, is purely speculative and "is highly uncertain".

As our renowned experts, particularly Dr Dockery, established, these assertions are simply inaccurate and in total disregard of the results determined by what Iraq itself referred to as a very distinguished

university group and scientists of great distinction.

The foundation for Kuwait's claim for mortality is an epidemiological analysis of all deaths since the date of liberation, which finds substantial excess deaths, on the order of approximately 500, among those who were in Kuwait during the invasion and occupation.

There is nothing theoretical about counting deaths. The excess mortality is based on real numbers, not a theoretical construct. However, rather than claiming all of these deaths, consistent with the highly conservative approach employed by Kuwait with respect to all these claims, Kuwait seeks damages for only 35 deaths from the oil fires smoke and uses risk assessment to determine this number.

Had relative measurements been available during the entire period, Kuwait might have relied on those. That, unfortunately, was impossible since Iraq had dismantled Kuwait's environmental monitoring network, stolen and damaged its scientific equipment and extensively mined the country. Iraq was able to restore the air pollution monitoring network by early May 1990, but by that time the fires had been burning for over three months.

PM10 measurements taken from this time until the fires were extinguished indicate average values well above 200 micrograms per cubic metre. Rather than

claiming the impact of those measured amounts, Kuwait seeks compensation only on the basis that on the order of 10 micrograms per cubic metre of PM2.5 was due to the oil well fires. The HYSPLIT model used by Kuwait had been used previously by the US Department of Defense to estimate the exposure of US troops, and was peer reviewed.

Iraq goes on to claim that Kuwait's modelled results are inconsistent with the findings of no detectable effects on US and British troops who served in the Gulf War. This comparison has no merit.

Firefighters and soldiers are young and healthy individuals, by definition, wear state-of-the-art protective equipment and are trained to manage trauma and danger. The exposed Kuwaiti population had none of these advantages, and obviously includes the elderly and the frail.

Let us turn to PTSD and wellbeing. Iraq argues that Kuwait's claim for PTSD is unproven because of technical defects in the method of conducting the 1993 survey. The administration of the CAPS as a self-report measure was validated in this population by selecting a random sample of subjects completing the self-report version and having a psychiatrist administer a structured interview version of the CAPS over that sample.

This exercise evidenced a high agreement between the self-report and the psychiatrist-administered evaluation. Moreover, the self-report CAPS scores were significantly correlated with the impact of events scale, again confirming that the CAPS is a reliable instrument of assessment of PTSD.

Perhaps equally as significant, the United Nations appointed an independent PTSD expert to review Kuwait's work in this area. That expert found the same convergent validity between CAPS diagnosis and psychiatrist diagnosis by structured interview.

This independent expert appointed by the UN is a former president of the International Society for Traumatic Stress and is a winner of the Laufer Award for his work in this area of trauma. In his report to the UN, this expert wrote that his process of evaluation of Kuwait's investigation:

"... led to the conclusion that the study was a high quality scientific investigation."

Finally with respect to PTSD, Iraq has argued that Kuwait has overestimated the number of PTSD cases. The uncertainties in the claim have been recognised and managed in a specific way by making conservative choices to avoid overstatement of the claim.

Other approaches could be taken to address

uncertainties. For example, the value of $50,000 per health adjusted life year was used by Kuwait, but reasonable estimates, as documented by Dr Hammitt, range as much as eight times higher. The value of one tenth was used to estimate the loss of wellbeing, but values for depression, a condition noted to be similar to PTSD, range from three to seven times greater.

Iraq provided an alternative estimate of the number of cases half as large as the value we used. Valuing Iraq's estimate of the number of cases with the midpoint of these ranges would yield a claim of $4 billion, which is obviously four times larger than Kuwait has in fact claimed. Adjusting just one of these factors revealed an estimate of claim of $2 billion.

The conclusion that this clearly demonstrates is that the claim value asserted by Kuwait is reasonably conservative and scientifically defensible.

We will now turn to the principle that these damages are appropriately addressed by this Panel as environmental damages.

As we have noted, paragraph 16 of Security Council Resolution 687 stated broadly that Iraq was liable for any direct loss, expressly including environmental damage. Paragraph 35 of Governing Council Decision 7 echoed Resolution 687 and further broadly provided that

these payments were available with respect to direct environmental damage.

Further, paragraph 31 of Decision 7 stressed that the criteria spelt out in the Decision were not intended to be exclusive or to resolve all the issues that might arise with respect to claims pursuant to the resolution. Thus, as we noted yesterday and earlier today, this Panel expressly concluded in paragraph 23 of its second instalment report that:

"A loss may be compensable even if it does not arise under any of the specific subparagraphs of paragraph 35 of Governing Council Decision 7.

This morning, Iraq suggested that express reference to recovery for monitoring the public health effects in paragraph 35(d) called for the Panel to evoke ejusdem generis. No authority was offered for this suggestion. We would ignore that none was or could be offered, due to the critical fact that the language of Decision 7 and this Panel's second instalment report showed that these maxims of construction simply are not to be applied to limit paragraph 35.

Public health related damages properly belong within the type of damages contemplated by paragraph 35 of Decision 7 and are a logical extension of paragraph 35(d), which explicitly designated the

monitoring and assessment of public health as a category of environmental damage. Damage to the environment includes damage to all living things, including humans. The intimate association between health and the environment is particularly true for the claims for damages for mortality. Those result directly from Iraq's pollution of the environment, particularly the sabotage of Kuwait's oil wells.

We respectfully submit that the diminished quality of life damages due to PTSD also fall under the umbrella of environmental damage, which is covered by Resolution 687 and paragraphs 31 and 35 of Decision 7. In its first instalment report recommending compensation for the M&A claims related to public health, this Panel drew no distinction between the health effects attributable to environmental factors and health effects attributable to nonenvironmental factors.

The first instalment report specifically authorised funding for surveillance of the traumatic stress experienced by the population. Although we recognise the Panel's caution that a first instalment report does not reflect a decision on the merits of the substantive claim, we also note that the Panel expressly declined to authorise M&A funds for work that did not appear to be substantially linked to a compensable damage.

As indicated on its website, the WHO has broadened its understanding of environmental health to comprise those aspects of human health that are determined by physical, chemical, biological, social and psychosocial factors in the environment. The inclusion of social and psychosocial factors in the concept of environmental health is buttressed by growing scientific literature which conceptualises both physical and social factors as a source of environmental demands contributing to psychological stress experienced by populations living in a particular community, culture or context. Dr Wright discussed this concept this morning.

The European Council Directive on the Assessment of the Effects of Certain Public and Private Projects on the Environment, adopted by the Commission of the European Community in 1985, recognised that the environment includes the human environment and not merely the natural physical world. This directive requires an environmental impact assessment of a covered project's effects on the environment "in order to take account of the concerns to protect human health and to contribute by means of a better environment to the quality of life. The EIA process is intended to identify, describe and assess the effects of the project on, among other things, human beings."

In interpreting the 1969 Civil Liability Convention in a case involving a claim by the Italian Government for damage arising out of a maritime oil spillage from the tanker Patmos, the Court of Appeal of Messina found the integral role of health as part of the environment, stating:

"The environment must be considered as a unitary asset separate from those of which the environment is composed and it includes natural resources, health and landscape."

The right to the environment belongs to the state in its capacity as representative of the collectivities. At the time of Resolution 687, Article 24 of the International Law Commission's Draft Articles on International Liability for Injurious Consequences Arising out of Acts not Prohibited by International Law provided that harm to persons, including of course death or injury to the health or physical integrity of persons arising as a consequence of harm to the environment would be compensated as part of the recovery for harm to the environment.

We acknowledge that the UNEP Working Group also stated --

CHAIRMAN MENSAH: I do not want to interrupt you, but you have only one minute.

MR LONSBERG: We acknowledge that the UNEP Working Group also stated that since injury to persons or property is included in other heads of damage, it should not be included by the Compensation Commission under environmental damage.

We submit that the context of this statement shows that it is not directed to the current claim. The UNEP Working Group report appears to have been focused on injury to individual persons rather than on the health related losses of the state. We would assert that this statement in the Working Group report was addressed to the fact that injury to persons could be claimed under other heads of damage.

This morning, Iraq repeated the theory that there has to be a positive authorisation in Resolution 687 for these claims. We will not belabour the point that we take, and we believe the Security Council established a very different view of the resolution's determination that Iraq is liable for any damage.

The claim for public health damages by Kuwait is properly brought by Kuwait as a claim of the state. This morning the representatives of Iraq appeared to suggest that the existence of individual claims in the UNCC means that there is no provision for diplomatic protection within the UNCC.

As we discussed this morning, diplomatic protection has been a settled principle of international law and we submit it is clear that nothing in the charter or procedures of this Commission has abolished that principle.

This morning, Iraq told the Panel that it should follow the lead of international tribunals and not legislate new law. Kuwait does not ask the Panel to legislate. We would assert, however, that Iraq has tried to unduly restrain the Panel in its assessment of other rules of international law under Article 10 of Decision 301.

The Panel is, of course, not a judicial tribunal. As we discussed in detail yesterday and noted this afternoon, the UNEP Working Group supported in various ways the Panel's right and ability to take an open-minded view of sources of law, particularly national law.

In closing, the State of Kuwait is sensitive to its place as a member of the international community and has no desire to open any Pandora's box of unwarranted liability. By the same token, as Iraq continues to ignore, the compensation recommended by this Panel will take its place in a very specific set of international precedents -- those of compensation against the state

for a deliberate initially wrongful act for which liability is determined specifically by Resolution 687.

The UNEP Working Group and many other international law scholars have noted that this context can and should be taken into account in studying the form of or approach to the compensation. We urge the Panel to keep the nature of Iraq's wrongful acts in mind, not to punish Iraq, but to implement the Security Council's commitment to provide full and fair compensation with respect to these claims now before you.

Mr Chairman, as I indicated to you this morning, we have all been at this process now for many years. If we may ask the Panel if Dr Asem, who has directed this project for PAAC for 13 years, could have one minute, this will be his last chance to address the Panel and he has a few general closing comments he would like to make, if that would be appropriate.

CHAIRMAN MENSAH: It must be very short.

DR ASEM: Thank you, Mr Chairman.

Sir, as a conclusion of the statement by the State of Kuwait at this meeting, which is the last meeting for environmental claims, we would like to extend our thanks and appreciation for the great effort that you have employed in order to study all of the claims within the said timeframe.

At the same time, Kuwait would also like to extend its thanks to the secretariat and to the collaborators who have assisted the Committee in its work, and the technical support and the data that have been provided related to those environmental claims.

Despite the fact that 13 years have elapsed since those environmental damages were sustained by our region, since they were first presented earlier, Kuwait has always extended its support to the Committee, and we have received a number of field visits and a number of working groups and we have harnessed all possible resources in order to assist the Committee in discharging its duties.

Kuwait has committed all its environmental monitoring and assessment resources not in order to explain or to maximise the awards. We have adopted scientific methods in evaluating and estimating all of those damages and the means for treating also the M&A studies which have been recommended by this distinguished Panel and the Committee that have been accepted. They have been implemented according to the resources that were available in order to provide the data and in order to evaluate the methodologies that could be utilised in order to rehabilitate the environment according to the terms of 132.

Kuwait has sustained great damages, including environmental, which has affected all segments of our life. It is our duty, according to the terms of the Security Council resolutions, to advance claims for all the grave damage that we have sustained. This is something which does not conflict in legal terms with the feelings of the Kuwaiti people and our sympathy and empathy with the people of Iraq, which has laboured for a long time under the unjust regime, and we understand the great effort that has been deployed by the Iraqi side, especially during the third and fourth instalments. All of this has enriched all of the technical, scientific and legal knowledge.

Kuwait looks forward to co-operating with the Government of Iraq and other neighbouring countries in order to rehabilitate our region and in order to institute the appropriate and constructive co-operation.

Finally, sir, I would like to address you on behalf of the Government of the State of Kuwait and the people of Kuwait. We would like to extend to you our great thanks for the excellent work that has been done by the committee and by the Panel.

The State of Kuwait would also like to thank the other states which have submitted claims, and for the co-operation extended to us to support those

environmental claims.

I thank you, sir.

CHAIRMAN MENSAH: Thank you very much indeed for those kind words. I am sure that everyone here will appreciate their sentiments.

I now call on the Kingdom of Saudi Arabia for their final comments.

(End of transcript)

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