



# The Precautionary Principle and Cabin Air Quality

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## INTRODUCTION

The Author has been considering general issues of creating law or standards to protect passengers and crew from their exposure to fumes or odours within the Aircraft Cabin.

Without a unifying strategy and analysis of the issues, he fears that the whole issue is going to become mired in mass legal action for want of professional or political will.

There is a theory, no doubt applied by some, that legal action delays the inevitable change that must follow, or, fighting such a legal challenge presents an opportunity to 'create' law through Judicial decision which would be beneficial to an Industry.

From Campaigners, to Civil Servants, to Industry, to Politicians, to Agency Officials, he detects amongst some, a strong sense of absolutism, with no real meeting of minds on key issues.

Meetings become trapped between a number of vertical and horizontal opposing interests, with the same arguments being rehearsed and little agreement achieved or no progress being made.

There are many occasions when a sense of progress is claimed but this is an illusion.

Interests are entrenched in agenda and from those agenda, resistance is either expressly or overtly applied with no scientific or political will to look beyond the narrow horizons created.

Standards Committees are potentially no less immune from this white noise.

The Author's first attendance at a Standards Committee in the United States made him quickly recognise this noise existed; in the heat of debate, one participant attacked what the Author had to say and objected to the fact that they were the 'canary in the cockpit'. They realised within minutes that what he had to say was in fact supportive of their position, but it made the Author realise that people were not listening to each other and in fact little methodology was being applied to create the conditions for a scientifically balanced debate.

The Author believes that both in Standards Committees and within the Political arena, the science of methodology is missing and there is an urgent need to import established principles that will secure a reasonably balanced debate on Cabin Air Quality.

The purpose of this analysis paper is to highlight the importance of 'The Precautionary Principle' within the Cabin Air Quality debate. It will serve as an anchor point in developing a Political or Standards formation strategy.

## THE ORIGINS IN LAW OF THE PRECAUTIONARY PRINCIPLE

The Author notes that the debate thus far has been carried out on a comparative basis with the building environment; he considers that this approach is erroneous in that:

1. The aircraft environment is unique;
2. Passengers and crew operate in an environment at a pressure equivalent to 8,000 feet;
3. Buildings do not operate in a similar air-pressured environment;

4. Aircraft rely for their safe operation on a number of scientific principles – there is no true analogy to be found here with buildings;
5. Whilst modern buildings operate a hermetic sealed air-conditioned environment, critically they are less reliant on independent air systems operating in an hostile and extreme conditions and therefore buildings offer a less serious impact on its occupants;
6. Aircraft rely on a sophisticated method of air delivery with a greater opportunity for chemical escape into that environment;
7. Buildings have a less than acute opportunity for chemical escape with the exception potentially being from refrigerants, fire retardants or the transmission of disease.

It therefore follows logically, that the ‘scientific’ approach offered by using the building comparator model, is flawed and does not offer a secure methodology to create a safe aircraft environment.

The question must then follow:

**“How can the Cabin Air Quality debate, from whichever side of the Industry you operate from, confidently secure a sound scientific methodology, to ensure that everything that can or should be done, or considered, is in fact achieved through a considerable degree of consensus?”**

The answer, the Author contends, lies in the establishment of ‘The Precautionary Principle’.

To find our answers, we must recognise that The Precautionary Principle is established through International Law within the general environment debate.

In 1987, The Second International Conference of the North Sea stated:

*“...in order to protect the North Sea from possibly damaging effects of the most dangerous substances, a precautionary approach is necessary which may require action to control inputs of such substances even before a causal link has been established by absolutely clear scientific evidence”*

*“...accept that by combining, simultaneously and complementarily, approaches based on emission standards and environmental quality objectives, a more precautionary approach to dangerous substances will be established”<sup>1</sup>*

In 1990, The Third International Conference of the North Sea stated:

*“...will continue to apply the precautionary principle, that is to take action to avoid potentially damaging impacts of substances that are persistent, toxic and liable to bioaccumulate even where there is no scientific evidence to prove a causal link between emissions and effects”*

*“...To improve legal instruments and rules aimed at the minimization of intentional pollution, agree that the application of the precautionary principle requires the application of the Best Available Technology in order to minimize discharges of wastes and residues”<sup>2</sup>*

<sup>1</sup> <http://www.seas-at-risk.org/1images/1987%20London%20Declaration.pdf>

<sup>2</sup> <http://www.seas-at-risk.org/1images/1990%20Hague%20Declaration.pdf>

In 1992, The Rio Declaration stated:

***“In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”<sup>3</sup>***

In 1992, the Convention on Biological Diversity stated:

***“Noting also that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat”<sup>4</sup>***

In 1992, The Convention of Climate Change stated:

***“The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors. Efforts to address climate change may be carried out cooperatively by interested Parties”<sup>5</sup>***

In 1992, The Paris Convention for the protection of the marine environment of the north-east Atlantic stated:

***“CONSIDERING that the present Oslo and Paris Conventions do not adequately control some of the many sources of pollution, and that it is therefore justifiable to replace them with the present Convention, which addresses all sources of pollution of the marine environment and the adverse effects of human activities upon it, takes into account the precautionary principle and strengthens regional cooperation”***

***“The Contracting Parties shall apply: (a) the precautionary principle, by virtue of which preventive measures are to be taken when there are reasonable grounds for concern that substances or energy introduced, directly or indirectly, into the marine environment may bring about hazards to human health, harm living resources and marine ecosystems, damage amenities or interfere with other legitimate uses of the sea, even when there is no conclusive evidence of a causal relationship between the inputs and the effects”<sup>6</sup>***

In 1994, The WTO Agreement on the Application of Sanitary & Phytosanitary Measures (SPS) did not define the ‘precautionary principle’ but it did importantly state at 5.7 that:

***“ In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances,***

<sup>3</sup> <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163>

<sup>4</sup> <https://www.cbd.int/doc/legal/cbd-en.pdf>

<sup>5</sup> <http://unfccc.int/resource/docs/convkp/conveng.pdf>

<sup>6</sup> [http://www.ospar.org/html\\_documents/ospar/html/ospar\\_convention\\_e\\_updated\\_text\\_2007.pdf](http://www.ospar.org/html_documents/ospar/html/ospar_convention_e_updated_text_2007.pdf)

***Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time***<sup>7</sup>

In 1999, the WTO adjudicated in a dispute with Japan and the US and created a 4 stage test around the above WTO agreement, which goes in some way to develop the ‘precautionary principle’ argument at para 89, namely:

***“Article 5.7 of the SPS Agreement sets out four requirements which must be met in order to adopt and maintain a provisional SPS measure. Pursuant to the first sentence of Article 5.7, a Member may provisionally adopt an SPS measure if this measure is: (1) imposed in respect of a situation where "relevant scientific information is insufficient"; and (2) adopted "on the basis of available pertinent information". Pursuant to the second sentence of Article 5.7, such a provisional measure may not be maintained unless the Member which adopted the measure: (1) "seek[s] to obtain the additional information necessary for a more objective assessment of risk"; and (2) "review[s] the ... measure accordingly within a reasonable period of time”***<sup>8</sup>

In 1999, a group of over 30 scientists and interested parties from the Science and Environmental Health Network created ‘The Wingspread Statement on the Precautionary Principle’; that statement reads:

***“The release and use of toxic substances, the exploitation of resources, and physical alterations of the environment have had substantial unintended consequences affecting human health and the environment. Some of these concerns are high rates of learning deficiencies, asthma, cancer, birth defects and species extinctions; along with global climate change, stratospheric ozone depletion and worldwide contamination with toxic substances and nuclear materials.***

***We believe existing environmental regulations and other decisions, particularly those based on risk assessment, have failed to protect adequately human health and the environment - the larger system of which humans are but a part.***

***We believe there is compelling evidence that damage to humans and the worldwide environment is of such magnitude and seriousness that new principles for conducting human activities are necessary.***

***While we realize that human activities may involve hazards, people must proceed more carefully than has been the case in recent history. Corporations, government entities, organizations, communities, scientists and other individuals must adopt a precautionary approach to all human endeavors.***

***Therefore, it is necessary to implement the Precautionary Principle: When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.***

***In this context the proponent of an activity, rather than the public, should bear the burden of proof.***

***The process of applying the Precautionary Principle must be open, informed and democratic and must include potentially affected parties. It must also involve an examination of the full range of alternatives, including no action”*<sup>9</sup>**

Therefore, these International Treaties and Commentary have created common themes within ‘The Precautionary Principle’ debate and the creation of Legal Principles:

1. The avoidance of risk where possible;

<sup>7</sup> [https://www.wto.org/english/tratop\\_e/sps\\_e/spsagr\\_e.htm](https://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm)

<sup>8</sup> [https://www.wto.org/english/tratop\\_e/dispu\\_e/542d.pdf](https://www.wto.org/english/tratop_e/dispu_e/542d.pdf)

<sup>9</sup> <http://www.sehn.org/state.html>

2. Protection of Human Health;
3. The application of scientific analysis requiring action or no action;
4. The creation of objective assessments;
5. The adoption of the principle in Marine, Environment and Food scenarios, and
6. The requirement to include a wider cohort of expertise or interested parties.

## HOW DOES EU LAW PROTECT THE INDIVIDUAL OR THE EMPLOYEE?

The theme adopted by the instruments in the previous section are reflected within **Article 191 of the Lisbon Treaty**.

However, the Article only refers to ‘The Precautionary Principle’ on Environment matters.

It is important in the context of this discussion to set out the full text of the Article:

*“Union policy on the environment shall contribute to pursuit of the following objectives: — preserving, protecting and improving the quality of the environment, — protecting human health, — prudent and rational utilisation of natural resources, — promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change. 2. Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay. In this context, harmonisation measures answering environmental protection requirements shall include, where appropriate, a safeguard clause allowing Member States to take provisional measures, for non-economic environmental reasons, subject to a procedure of inspection by the Union. In preparing its policy on the environment, the Union shall take account of: — available scientific and technical data, — environmental conditions in the various regions of the Union, — the potential benefits and costs of action or lack of action, — the economic and social development of the Union as a whole and the balanced development of its regions.”<sup>10</sup>*

Before the Author carries out an analysis of the ‘precautionary principle’ and the EU, it is important to state the importance of the Lisbon Treaty insofar as it relates to tourism/transport.

**Article 4** recognises joint competency in:

1. Consumer Protection;
2. Transport.

**Article 6** gives competency to the EU in the:

<sup>10</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=EN>

1. Protection and improvement of Human Health;
2. Industry, and
3. Tourism (this is further strengthened by Article 195).

**Article 9** states on Employment that:

*“In defining and implementing its policies and activities, the Union shall take into account requirements linked to the promotion of a high level of employment, the guarantee of adequate social protection, the fight against social exclusion, and a high level of education, training and protection of human health”*

**Article 12** states on Consumer Protection that:

*“Consumer protection requirements shall be taken into account in defining and implementing other Union policies and activities”*

**Article 168** states on Human Health that:

*“A high level of human health protection shall be ensured in the definition and implementation of all Union policies and activities. Union action, which shall complement national policies, shall be directed towards improving public health, preventing physical and mental illness and diseases, and obviating sources of danger to physical and mental health. Such action shall cover the fight against the major health scourges, by promoting research into their causes, their transmission and their prevention, as well as health information and education, and monitoring, early warning of and combating serious cross-border threats to health”*

*“The Commission may, in close contact with the Member States, take any useful initiative to promote such coordination, in particular initiatives aiming at the establishment of guidelines and indicators, the organisation of exchange of best practice, and the preparation of the necessary elements for periodic monitoring and evaluation. The European Parliament shall be kept fully informed”*

*“The Conference declares that the measures to be adopted pursuant to Article 168(4)(c) must meet common safety concerns and aim to set high standards of quality and safety where national standards affecting the internal market would otherwise prevent a high level of human health protection being achieved”*

**Article 169** states on Consumer Protection that:

*“In order to promote the interests of consumers and to ensure a high level of consumer protection, the Union shall contribute to protecting the health, safety and economic interests of consumers, as well as to promoting their right to information, education and to organise themselves in order to safeguard their interests”*

**The Charter of Fundamental Rights of the European Union** is attached to the Lisbon Treaty and in particular it states at:<sup>11</sup>

Article 31 – *“Every worker has the right to working conditions which respect his or her health, safety and dignity”*

Article 38 – *“Union policies shall ensure a high level of consumer protection”*

Within this context we should bear in mind the possibility that the EU Commission/Parliament could either:

<sup>11</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:083:0389:0403:en:PDF>

1. Mandate a Standard to be developed with the view of supporting a new or existing piece of EU Legislation<sup>12</sup>, or
2. Create a bespoke Law.

An example of the ‘precautionary principle’ in action within EU Law can be found within the General Product Safety Directive.<sup>13</sup> At preamble 1 and 8, the ‘precautionary principle’ is enshrined into law on products that have the potential to affect the health of Consumers.

Articles 3 & 4 allow for the adoption and transposition of National Standards into the Directive as evidence that a particular product complies with that Standard.

At Annex II, it is important to note the theme of the ‘precautionary principle’ being extended into issues concerning Chemicals, Consumer Health and Risk Assessment, (Note the RAPEX<sup>14</sup> reporting model which supports the ‘precautionary principle’).

With regards to any potential benefit that could be extracted from this Directive concerning civil aircraft, reference should be made to Preamble 9 of the Directive, where it states:

*“In particular, equipment on which consumers ride or travel which is operated by a service provider is excluded from the scope of this Directive”.*

With regards to the options of mandating a Standard or creating a bespoke Law, the EU Commission appear silent on both issues, which would appear to contradict their obligations under the Lisbon Treaty toward Employees or Consumers.

In summary:

1. We can see how competency has been given to the EU Commission on Transport & Tourism;
2. We can also see how the rights of Employees and Consumers are enhanced by Treaty;
3. It is clear that Human Health features strongly not only in Treaty but also through the Charter on Fundamental Rights;
4. It is also clear that in the formation of policy there must be a strong commitment to Consumer Protection;
5. We can clearly see how the work of Standards and the ‘precautionary principle’ features in the creation of Law.

**At this stage it is important to ask 2 questions;**

- 1. Has the EU ‘obligation’ to protect Human Health and importation of a high level of Consumer Protection been passed to EASA, and**
- 2. Is EASA adopting, through its latest inquiry a limited participation ‘precautionary principle’ process?**

<sup>12</sup> <http://ec.europa.eu/growth/tools-databases/mandates/index.cfm?fuseaction=refSearch.search#>

<sup>13</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0095&from=EN>

<sup>14</sup> <http://ec.europa.eu/consumers/safety/rapex/alerts/main/index.cfm?event=main.listNotifications>



## HOW HAS THE EU INCORPORATED ‘THE PRECAUTIONARY PRINCIPLE’ INTO LAW?

Now that we can see how the EU protects the individual, this section will deal with how the EU has developed the ‘precautionary principle’ prior to the Lisbon Treaty; a summary of legal cases and decisions that reinforce that position will follow.

**Article 174<sup>15</sup>** of the **Maastricht Treaty** states that:

*“Community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventive action should be taken...”*

*“In preparing its policy on the environment, the Community shall take account of:*

- *available scientific and technical data,*
- *environmental conditions in the various regions of the Community,*
- *the potential benefits and costs of action or lack of action,*
- *the economic and social development of the Community as a whole and the balanced development of its regions”*

Under **Article 95(3)<sup>16</sup>**, the Commission was empowered to consider new evidence in order to achieve a high level of protection; it states:

*“The Commission, in its proposals envisaged in paragraph 1 concerning health, safety, environmental protection and consumer protection, will take as a base a high level of protection, taking account in particular of any new development based on scientific facts. Within their respective powers, the European Parliament and the Council will also seek to achieve this objective”.*

In an **ECJ case, C-157/96 (1998)<sup>17</sup>** (A British Beef case), the Court held that where information is not known about a risk, then action can be taken to protect Human Health; they stated:

*“Where there is uncertainty as to the existence or extent of risks to human health, the institutions may take protective measures without having to wait until the reality and seriousness of those risks become fully apparent...That approach is borne out by Article 130r(1) of the EC Treaty, according to which Community policy on the environment is to pursue the objective inter alia of protecting human health. Article 130r(2) provides that that policy is to aim at a high level of protection and is to be based in particular on the principles that preventive action should be taken and that environmental protection requirements must be integrated into the definition and implementation of other Community policies”.*

<sup>15</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:12002E174:EN:HTML>

<sup>16</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:12002E095:EN:HTML>

<sup>17</sup>

<http://curia.europa.eu/juris/document/document.jsf?jsessionid=9ea7d2dc30dd53c9ea0a446b4829bf18e636533e2d70.e34KaxiLc3qMb40Rch0SaxuPchr0?text=&docid=43817&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=412868>

In considering the issue of the ‘precautionary principle’ and risk analysis, the Commission, commenting on Consumer health and food safety stated within (COM(97) 183 final)<sup>18</sup> that:

***“The Commission will be guided in its risk analysis by the precautionary principle, in cases where the scientific basis is insufficient or some uncertainty exists”***

They also stated the importance of information in the evaluation of risk:

***“The risk analysis thus defined in respect of the protection of consumer health must enable the Commission to play an interface role between the scientific community and the political world and other elements of civil society. Here it is useful to recall that - since, there is no such thing as "zero risk" - information on the level of risk is essential for the consumer”***

They also secured the principle of obtaining a wide cooperation when dealing with such matters; they stated:

***“These activities will require the establishment of a network of a wide variety of disciplines and close collaboration between the services of the Commission”.***

On the issues of how a risk analysis is to be carried out, evidence and the precautionary principle, the Commission had this to say via (COM (97) 176 final)<sup>19</sup>:

***“The Treaty requires the Community to contribute to the maintenance of a high level of protection of public health, the environment and consumers. In order to ensure a high level of protection and coherence, protective measures should be based on risk assessment, taking into account all relevant risk factors, including technological aspects, the best available scientific evidence and the availability of inspection sampling and testing methods. Where a full risk assessment is not possible, measures should be based on the precautionary principle”***

The same communication notice had this comment on the importance on the independence and objectivity of scientific advice:

***“The importance of an independent source of advice which will command public respect is crucial. The independence and objectivity of scientific advice and scientific committees must be guaranteed at all levels. The Commission has taken steps to ensure central co-ordination of the number, scope, composition and activities of scientific committees so that a high level of competence and full consistency of its scientific advice is ensured and the necessary resources are provided. Every effort must be made to present scientific conclusions in a clear and cogent manner”***

In summary:

1. EU Treaties have consistently promoted the ‘precautionary principle’;
2. There is no such thing as a zero-risk environment;
3. All opinion should be considered;
4. Scientific opinion must be shown to be independent and balanced;
5. Uncertainty should be treated with caution;
6. A risk analysis of the problem is central to promoting safe products or services and essential to Human Health.

<sup>18</sup> [http://aei.pitt.edu/1142/1/food\\_safety\\_wp\\_follow\\_COM\\_97\\_183.pdf](http://aei.pitt.edu/1142/1/food_safety_wp_follow_COM_97_183.pdf)

<sup>19</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:1997:0176:FIN:EN:PDF>

## THE EU ADVISORY NOTE

Central to the discussion on the ‘precautionary principle’ is the – Communication from the Commission on the Precautionary Principle – COM(2000) 1 final<sup>20</sup>.

Resolution 12 states that:

***“On 13 April 1999, the Council adopted a Resolution urging the Commission, inter alia, "to be in the future even more determined to be guided by the precautionary principle in preparing proposals for legislation and in its other consumer-related activities and develop as a priority clear and effective guidelines for the application of this principle”***

In other words, whether it is engaged in the creation of Law, meeting with Stakeholders or engaged, at whatever level, in the creation of Standards, its clear ‘priority’ is to create an effective policy on how the principle should be applied!

In its summary, it makes clear as to the extent to which the ‘principle’ should be applied; it states:

***“The precautionary principle is not defined in the Treaty, which prescribes it only once - to protect the environment. But in practice, its scope is much wider, and specifically where preliminary objective scientific evaluation, indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen for the Community”.***

There are several other key points to be derived from this document:

1. The ‘precautionary principle’ is ‘relevant’ to the management of risk;
2. They state:
  - a. ***“The precautionary principle, which is essentially used by decision-makers in the management of risk, should not be confused with the element of caution that scientists apply in their assessment of scientific data”;***
3. On the politicisation of risk in society, they had this to say:
  - a. ***“Decision-makers need to be aware of the degree of uncertainty attached to the results of the evaluation of the available scientific information. Judging what is an "acceptable" level of risk for society is an eminently political responsibility. Decision-makers faced with an unacceptable risk, scientific uncertainty and public concerns have a duty to find answers. Therefore, all these factors have to be taken into consideration”;***
4. They consider that sometimes the right answer may be not to act or at least not to introduce a binding measure;
5. They consider that:
  - a. ***“A wide range of initiatives is available in the case of action, going from a legally binding measure to a research project or a recommendation”*** (is this what is happening via EASA without a wide cohort engaged in that project?);
6. On decision making and stakeholder involvement they state:
  - a. ***“The decision-making procedure should be transparent and should involve as early as possible and to the extent reasonably possible all interested parties”;***
7. Engaging the ‘principle’ caused them to state:

<sup>20</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52000DC0001&from=EN>

- a. *“Decision-makers are constantly faced with the dilemma of balancing the freedoms and rights of individuals, industry and organisations with the need to reduce or eliminate the risk of adverse effects to the environment or to health”, and*
  - b. *“Whether or not to invoke the Precautionary Principle is a decision exercised where scientific information is insufficient, inconclusive, or uncertain and where there are indications that the possible effects on the environment, or human, animal or plant health may be potentially dangerous and inconsistent with the chosen level of protection”;*
8. The Commission also sought to draw the distinction between zero-risk and the ‘precautionary principle’:
  - a. *“It is also necessary to clarify a misunderstanding as regards the distinction between reliance on the precautionary principle and the search for zero risk, which in reality is rarely to be found. The search for a high level of health and safety and environmental and consumer protection belongs in the framework of the single market, which is a cornerstone of the Community”;*
9. They define factors where the ‘precautionary principle’ should be invoked:
  - a. **Identification of potentially negative effects;**
  - b. **Scientific evaluation (they identify 4 components which will be set out in the next section);**
  - c. **Scientific uncertainty.**
10. On scientific methods and knowledge they stated:
  - a. *“The measures should be maintained as long as the scientific data are inadequate, imprecise or inconclusive and as long as the risk is considered too high to be imposed on society. The measures may have to be modified or abolished by a particular deadline, in the light of new scientific findings. However, this is not always linked to the time factor, but to the development of scientific knowledge. Besides, scientific research should be carried out with a view to obtaining a more advanced or more complete scientific assessment. In this context, the measures should be subjected to regular scientific monitoring, so that they can be reevaluated in the light of new scientific information”;*
  - b. **THIS STRONGLY SUGGESTS THAT THERE SHOULD BE REGULAR REVIEWS OF SCIENTIFIC INFORMATION (AND BY IMPLICATION ENGINEERING ISSUES) SO THAT MEASURES OR WORK CAN BE CONSTANTLY RE-EVALUATED!**
11. Finally, the Commission had this to say about their communication document and the ‘precautionary principle’:
  - a. *“This Communication should also contribute to reaffirming the Community's position at international level, where the precautionary principle is receiving increasing attention. However the Commission wishes to stress that this Communication is not meant to be the last word; rather, it should be seen as the point of departure for a broader study of the conditions in which risks should be assessed, appraised, managed and communicated”;*
  - b. **In other words, they see the adoption of the ‘principle’ in a broader range of disciplines than had been the case in 2000!**

In summary:

1. We should not confuse scientific caution on data with the ultimate decision-makers obligations;
2. Managing risk is a political decision;
3. The process should be transparent;
4. It should involve all stakeholders;
5. Scientific uncertainty should be identified and analysed;

6. There is a distinction between using the precautionary principle for analysis and seeking a zero-risk (they do not accept the latter is possible);
7. The creation of policy/law/standards does not end the monitoring of risk and new scientific developments;
8. There is a broader agenda for the use of the 'precautionary principle', and
9. Any scientific (engineering) analysis should use the 4 components for scientific evaluation/risk assessment!

## THE FOUR COMPONENTS OF RISK ASSESSMENT (EU)

This is key to developing a methodology and structure in the creation of a Standard on Cabin Air Quality.

It is contained within the 2000 EU Communication document referred to above as their Annex III; for the purposes of this paper, it is re-produced in its entirety with some explanatory notes therein:

“An attempt to complete as far as possible these four components should be performed before action is taken.

**Hazard identification** means identifying the biological, chemical or physical agents that may have adverse effects. A new substance or biological agent may reveal itself through its effects on the population (illness or death), or on the environment and it may be possible to describe the actual or potential effects on the population or environment before the cause is identified beyond doubt.

**Hazard characterisation** consists of determining, in quantitative (*in other words data*) and/or qualitative (*in other words descriptive content that is not data*) terms, the nature and severity of the adverse effects associated with the causal agents or activity. It is at this stage that a relationship between the amount of the hazardous substance and the effect has to be established. However, the relationship is sometimes difficult or impossible to prove, for instance because the causal link has not been established beyond doubt.

**Appraisal of exposure** consists of quantitatively or qualitatively evaluating the probability of exposure to the agent under study. Apart from information on the agents themselves (source, distribution, concentrations, characteristics, etc.), there is a need for data on the probability of contamination or exposure of the population or environment to the hazard.

**Risk characterisation** corresponds to the qualitative and/or quantitative estimation, taking account of inherent uncertainties, of the probability, of the frequency and severity of the known or potential adverse environmental or health effects liable to occur. It is established on the basis of the three preceding and closely depends on the uncertainties, variations, working hypotheses and conjectures made at each stage of the process. When the available data are inadequate or non-conclusive, a prudent and cautious approach to environmental protection, health or safety could be to opt for the worst-case hypothesis. When such hypotheses are accumulated, this will lead to an exaggeration of the real risk but gives a certain assurance that it will not be underestimated”.

## CONCLUSION

This paper has been produced by HolidayTravelWatch to set out its primary position in the creation of any Law or Standard on Cabin Air Quality.

The Organisation believes that patriarchal approaches to this area have failed to deliver benefits, not only for passengers but also for pilots, cabin-crew and the aviation sector.

HolidayTravelWatch has effectively been calling for a more ‘scientific’ approach to the issue of Cabin Air Quality through its call for an International Protocol on Cabin Air Quality.<sup>21</sup>

We consider that through its work on various Standards Bodies that an open mind must be established and it would expect a similar response from opposing interests.

HolidayTravelWatch is therefore calling on all parties to:

1. Recognise the validity of the ‘Precautionary Principle’ in Cabin Air Quality;
2. To embrace International Law principles on the ‘Precautionary Principle’;
3. To adopt the ‘Four Components of Risk Management’ as drafted by the EU;
4. For all to embrace a broad Stakeholder inclusion and establish:
  - a. Good Quantitative Data;
  - b. Good Qualitative Data;
  - c. Establish a good and independent expertise cohort to assist in any risk analysis;
5. To establish recognition that a Cabin Air Quality Law or Standard should create regular reviews of scientific or engineering data or information, so creating a valuable organic document, and
6. To join with HolidayTravelWatch in creating a positive Statement on the Precautionary Principle on Cabin Air Quality which will cement commitment to developing a strong and resolute process (See Appendix 1).

Frank Brehany

Consumer Director

30 April 2015

<sup>21</sup> <http://www.holidaytravelwatch.com/press/call-for-aviation-industry-and-authorities-to-answer-the-concerns-of-15-air-passengers>

## APPENDIX 1 – THE PARIS STATEMENT ON THE PRECAUTIONARY PRINCIPLE AND CABIN AIR QUALITY

HolidayTravelWatch proposes that the following Statement is considered by all Stakeholders and signed by those committed to bring about an open and strong process in the creation of a Cabin Air Quality Standard; it is suggested that this is signed in Paris on 1 July 2015:

### THE PARIS STATEMENT ON THE PRECAUTIONARY PRINCIPLE AND CABIN AIR QUALITY

1 July 2015

The Signatories to this Statement agree that:

1. They share a common goal in securing conditions that promotes a growing and confident Aviation Sector;
2. They should work in unison to achieve a high standard or risk assessment in Cabin Air Quality;
3. That they seek to establish an agreed set of scientific principles, based on the 'Four Components of Risk Assessment' which secures best analysis and solutions for the establishment of a Cabin Air Quality Standard, capable of Universal Adoption, and Acceptance by Global Legislative and Rule-making Bodies.

The debate on Cabin Air Quality primarily concerns the release of Chemical agents from the bleed-air system of Civil Aircraft, but regard should also be had to other sources of Chemical release into the aircraft environment. The Chemicals released, from whatever source, come from a base stock of Hydrocarbons which by their very nature are toxic substances.

It is accepted within the Cabin Air Quality debate that there are considerable divergent views as to the toxic nature of such Chemical releases. It is contended that such Chemical releases create either an actual unintended consequence to Human Health, or alternatively, no or minimal consequences to Human Health.

In the current debate on Cabin Air Quality, it is acknowledged by all that alleged deficits to Human Health are stated to include; Fatigue, Vision problems, Physical shaking, Loss of Balance, Memory Loss, Seizures, Headaches, Skin Irritations, Nausea, Respiratory problems; this list it is accepted, may not be exhaustive.

We consider that the current level or lack of Regulations or Standards fails to provide clear guidance, obligations or enforcement, or Protections for the Aviation Sector or for the Protection of Human Health.

Acknowledging our different positions, there is either compelling evidence to suggest that there is either, damage being caused to Human Health, or, damage to the image or viability of the Aviation Sector because of the continued concerns on Cabin Air Quality.

As a result, the Signatories believe that it is necessary to pool opinion, information and knowledge and that all parties, that is the Aviation Sector, Air-Crew, Passengers, Trade Unions, Scientists, Lawyers, Companies, Corporations and Governments shall adopt the Precautionary Principle into all aspects of the Cabin Air Quality debate, particularly where either Law or Standards are being created.

We consider that it is necessary to adopt the Precautionary Principle in our dealings.

We therefore adopt and repeat some of the Principles stated in 'The Wingspread Statement on the Precautionary Principle', namely:





Name:

Position:

Company/Organisation:

Signature: