

Emissions Trading as a Market-based Option in Air Transport – Contractual Issues –

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Introduction

In 1997, the Antarctic ozone hole was one of the largest, and was no different from the holes of other years of the past decade. For nearly three months, the surface of the ozone hole remained constantly larger than a square area of 10 million km². In September and October it nearly doubled and peaked around 24 million km².¹ Also, there was ozone depletion in the lower stratosphere, which added to the overall dimensions of the ozone hole, which extended in 1998 to the southernmost tip of South America.²

The contribution of aircraft engine emissions to the depletion of the ozone layer was initially identified as being through the oxides of nitrogen which are emitted by supersonic aircraft in flight. However, later on, it was discovered that sulphur in the fuel of any aircraft resulted in the emission of sulphur compounds into the air, which could affect the ozone layer adversely. The sulphuric process of aircraft engine emissions can be equated to the chemical process taking place in polar stratospheric clouds. The sulphur trioxide in the exhaust gases rapidly converts itself into sulphate particles, which in turn attach themselves to chlorinated substances in the atmosphere to form a powerful chemical combination which is capable of attacking the ozone layer.³ The good news is that, usually, at a non-supersonic height of around 10 kilometres, these chemical compounds do not pose a significant threat to the ozone layer. Meteorological scientists even claim, that, on the other hand, at a height below 10 kilometres, such particles could contribute to global warming by acting as condensation nuclei for water vapour and thereby forming high altitude cirrus clouds that effectively preclude the escaping of heat into space.⁴

Although the clear offender is the supersonic aircraft, large sub-sonic aircraft which fly at high altitudes on long-haul flights traversing the stratosphere can emit significant quantities of sulphur trioxide which may well compare with the emissions of the supersonic Concorde.⁵ In 1995, a joint Swiss project called NOXAR, in which one of the participants – Swissair – which dedicated a Boeing 737 aircraft for the project, was carried out where a large part of the Northern Hemisphere was covered by the jumbo covering the most frequented North Atlantic routes such as Zurich to New York, Washington, Boston, Toronto, Chicago and Atlanta and also routes covering the Far East to Bombay, Hong

Kong, Beijing and Shanghai. The emissions of the jumbo jet were calibrated whilst in flight and the results revealed that the results of earlier studies conducted based on particular 2 and 0.3 ppb in the upper troposphere of the Northern Hemisphere were consistent with the findings of the NOXAR study. In addition, the NOXAR study revealed that there could be higher concentrations of gases over a short period of time. Both vertical interference of anthropogenic concentrations close to the ground with upper air layers and brief flights directly in the exhaust plume of aircraft flying immediately ahead, were significant in this respect.⁶

On its own initiative *Airbus Industrie* headed a European Union backed project called MOZAIC (Measurement of Ozone by Airbus In-service Aircraft) which comprised of testing long-term measurements of ozone and water. Three Airbus A-340 aircraft belonging to Lufthansa, Air France and Austrian Airlines were used as measuring platforms. The MOZAIC project was based on the fact that, at the time the study was carried out, airlines flew around 2,000 billion passenger-seat kilometres a year, and, despite sporadic lulls in traffic, this figure would double by the year 2005. The inexorable assumption was that the growth in traffic would spur increased fuel consumption, gravely aggravating the already tainted reputation of aircraft, which produced 8 times more pollution than cars and 22 times more pollution than electric trains per passenger mile.⁷

At the Symposium on Global Atmospheric Effects on Aviation, held in Virginia Beach in USA (15–19 April 1996) the three fundamental postulates affecting the interaction of aircraft with the atmosphere were succinctly set out:

1. Aircraft emissions occur predominantly in the upper troposphere and lower stratosphere. This is in contrast to surface-level pollution sources, which are subject to effective removal processes (e.g., rainout). As a result, although there are local and regional impacts close to the surface arising from emissions around airports, the primary concern here is with global impacts occurring at the higher altitudes;
2. The relevant chemical and dynamical processes at aviation cruise altitudes have proven challenging to understand. The processes involved are different from those near the surface. The chemical and meteorological time-scales can vary widely. They also can be comparable to each other, yielding a scientific problem that requires a simultaneous understanding of both. The species involved in the emissions occur in a wide range of densities, ranging from relatively dense plumes to trace global background levels;

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3. The species emitted by aircraft are involved in various ways with multiple environmental issues, including stratospheric ozone-layer depletion, radiative forcing of climate change, and changes in tropospheric chemical composition. For example, carbon dioxide is a direct component of global warming, while emitted particles can influence ozone depletion and cloud formation, both of which in turn influence the radiation balance⁸.

The Symposium recognized that effective measures which would assist in controlling aircraft emissions⁹ would lie in modern technology, new operational procedures and the wider use of economic instruments calculated to compensate or manage pollution by aircraft engine emissions.

This article will discuss aircraft engine emissions, and emissions trading as a market based option. It will also discuss legal and regulatory issues associated with this market based option in the area of aviation and environmental protection.

Emissions Trading

The essential philosophy of emissions-trading in environmental protection is based on a certain flexibility allowed to market forces to reach the lowest cost involved in an operation whilst at the same time achieving an environmental target which has been already set. The word "trading" correctly denotes an exchange, and when applied to the aviation context means a certain trade-off between airlines whose fleets pollute more than others and low polluting airlines. The trade-off could take the form of a "purchase" by the high polluting airline of the reduction level of a low polluting airline. Emissions-trading would encourage airlines to seek innovation in technology and to reduce their emission levels.

Emissions-trading of levels of pollution between airlines differs fundamentally with the existing expectation of each airline maintaining a standard level of emission by its aircraft. When airlines would trade emission levels, the rates at which their aircraft pollute the atmosphere will be taken as a whole and applicable to a whole fleet, so that an airline which is over and above its permitted pollution level could join with another airline which is below the standard level of pollution required of it, thus making the average pollution between the two more acceptable than if taken individually. This mechanism encourages a low polluting airline to achieve even lower standards, in order to trade its levels with high polluting airlines.

The Third Conference of the Parties to the United Nations Framework Convention on Climate Change (Climate Change Convention)¹⁰ was held from 1 to 11 December 1997 at Kyoto, Japan. Significantly the States parties to the Convention adopted a protocol (Kyoto Protocol)¹¹ on 11 December 1997 under which industrialized countries have agreed to reduce their collective emissions of six greenhouse gases¹² at least 5 per

cent by 2008–2012. Ambassador Raul Estrada-Oyuela, who had chaired the Committee of the Whole established by the Conference to facilitate the negotiation of a Protocol text, expressed the view that the agreement will have a real impact on the problem of greenhouse gas emissions and that 11 December 1997 should be remembered as the Day of the Atmosphere.¹³

The Kyoto Protocol, in Article 1 (a) (v) calls each State Party to achieve progressive or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all greenhouse gas emitting sectors that run counter to the objective of the Convention and application of market instruments. The subject of emissions leading to trading is addressed initially in Article 3 of the Protocol which requires States Parties to ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B. The provision also requires States parties to the Protocol to reduce their overall emissions of greenhouse gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012. Article 3 (6) goes further, in providing that States Parties shall be allowed a certain degree of flexibility in implementation of Article 3 and the reduction of their emission standards.

The subject of emissions-trading is explicitly addressed in Article 6 which states that for the purpose of meeting its commitments under Article 3, any Party included in Annex 1 may transfer to or acquire from, any other such Party emission reduction units resulting from projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in any sector of the economy provided the parties concerned approve of such trading; and, *inter alia*, such trading actually results in a reduction in emission by sources.

Article 17 sets out that the Conference of the Parties shall define the relevant principles, modalities, rules and guidelines, in particular for verification, reporting and accountability for emissions-trading. It also provides that the parties included in Annex B to the Protocol may participate in emissions-trading for the purposes of fulfilling their commitments under Article 3. Such trading shall be supplemental to domestic actions for the purpose of meeting qualified emission limitation and reduction commitments under Article 3.¹⁴

Once the Protocol has entered into force,¹⁵ Annex I parties must submit an annual inventory of emissions to the Convention Secretariat,¹⁶ enabling expert review teams to provide a full assessment of such parties' compliance with the Protocol.¹⁷ These expert assessments will be reviewed by the Conference of the Parties serving as the meeting of the parties to the Protocol,¹⁸ which will adopt decisions on implementation.¹⁹

Article 12 of the Protocol is also noteworthy in that it defines a clean development mechanism (CDM) which

introduces the concept of joint implementation by a developed country and a developing country.²⁰ The mechanism admits of the advantage afforded to the parties concerned, in developed countries gaining the benefit of the partnerships in emissions-trading with developing countries which are more cost-effective in financing such projects. The CDM achieves the dual goal of enabling developing countries to operate projects which result in emission reductions which contribute to the objectives of the UNFCCC²¹ – and also enabling countries specified in Annex I of the Kyoto Protocol which finance such projects through the CDM to use emissions reductions to reduce their own emissions *in toto*.²²

The mechanism is supervised by an executive board and the responsibility of establishing procedures to make certain that proper verification of projects is achieved in a transparent manner devolve upon the Conference of the Parties to the Protocol.²³ By virtue of Articles 12 (10) and 3 (12), Annex I countries could contribute to their own emission reduction targets under the Protocol by using emission reductions from jointly implemented projects under the CDM during the period 2000–2008.

A watershed provision of the Kyoto Protocol lies in Article 2.2 which stipulates that Parties included in Annex II shall pursue limitation or reduction of emissions of greenhouse gases not controlled by the Montreal Protocol²⁴ from aviation and marine bunker fuels, working through the International Civil Aviation Organization and the International Maritime Organization respectively. This lays the regulatory responsibility for emissions-trading with regard to aircraft engine emissions squarely on ICAO.

A. ICAO's Role in Emissions Trading

At the 32nd Session of the ICAO Assembly, Resolution A32-8, containing a consolidated statement of continuing ICAO policies and practices related to environmental protection, was adopted. This resolution urges States to refrain from unilateral environmental measures that would be harmful to the development of international civil aviation.

On the subject of aircraft engine emissions, the Resolution, in its Appendix F, makes mention of the fact that the Kyoto Protocol calls for developed countries to pursue limitation or reduction of greenhouse gases from aviation bunker fuels, working through ICAO, and invokes Appendix A which calls upon the ICAO Council to maintain the initiative in developing policy guidance on all aviation matters related to the environment and not leave such initiatives to other organizations.

Appendix H of A32-8 refers to ICAO's policies on charges and taxes²⁵ and the policy statement issued by the ICAO Council on 9 December 1996 in the form of a Council Resolution of an interim nature, and urges States to follow the current guidance of the Council on emission-related levies. The Council is similarly exhorted by the Assembly, through A32-8, to continue to pursue the question of emission-related levies with a

view to reaching a conclusion prior to the next ordinary Session of the Assembly in 2001.

The policy statement of the Council dated 9 December 1996 takes into consideration the fact that a number of States consider it desirable to use a levy to reflect environmental costs associated with air transport, while other States do not consider it appropriate to impose such a levy under the present circumstances. The Council goes on to state that it considers the development of an internationally-agreed environmental charge or tax on air transport that all States would be expected to impose would appear not to be practicable at the time, given the differing views of States and the significant organization and practical implementation problems that would be likely to arise.

According to the Council Statement, ICAO is seeking to identify a rational common basis on which States wishing to introduce environmental levies on air transport could do so. The Council strongly recommends in its Statement that any environmental reviews on air transport which States may introduce should be in the form of charges rather than taxes and that the funds collected should be applied in the first instance to mitigating the environmental impact of aircraft engine emissions, for example by:

- a) addressing the specific damage caused by these emissions, if that can be identified;
- b) funding scientific research into their environmental impact; or
- c) funding research aimed at reducing their environmental impact, through developments in technology and new approaches to aircraft operations;

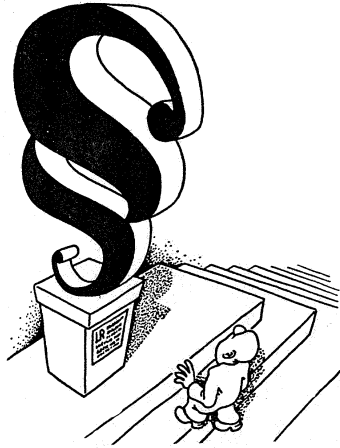
Finally, the Council urges States that are considering the introduction of emission-related charges to take into account the non-discrimination principle in Article 15 of the *Convention on International Civil Aviation* and the work in progress within ICAO and, in the meantime, to be guided by the general principles in the *Statements by the Council to contracting States on Charges for Airports and Air Navigation Services* (Doc 9082/4) and the following principles adapted from those agreed by the 31st Session of the ICAO assembly: that there should be no fiscal aims behind the charges; the charges should be related to costs; and the charges should not discriminate against air transport compared with other modes of transport.

As part of its efforts to monitor the issue of emissions and economic instruments in that regard, and also to reach a conclusion prior to the next Assembly Session of ICAO in the year 2001, the Council of ICAO is actively pursuing the issue also through its Committee on Aviation Environmental Protection (CAEP).

CAEP, at its 4th meeting (CAEP/4) held in April 1998, identified as an integral part of its work programme the need to address emissions inventories for future scientific assessments; long-term emissions burden estimates used for quantifying benefits of regulatory charges; and the effectiveness of operational measures to reduce aircraft emissions or their effect on the atmo-

sphere.²⁶ The meeting also noted that further work on market-based options for reducing emissions was necessary.

The CAEP/4 Report, which was considered by the 32nd Session of the ICAO Assembly, presented a report on emissions-related levies which was quite extensive. CAEP/4 basically envisioned four options for levies: a



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fuel levy; ticket levy; route levy; and an airport levy. With regard to the application of a levy the Report considered a revenue neutral application, a general taxation application, a levy application based on a preventive-cost approach and an application involving paying damages or compensation for third party injury. The Report also considered the efficacy of each levy option and application as well as implementation aspects of environmental levies both in the context of their relation to levy collection as well as to the application of levies. As a pivotal point to the whole exercise, CAEP/4 examined the role of ICAO with regard to such levies.

Another critical area of work in regard to emissions trading is the IPCC study, which, at the time of writing, was being prepared as the IPCC's Special Report on Aviation and the Global Atmosphere. This Report was due to be released in late 1999.

B. Legal Issues concerning Emissions Trading

There will most likely be three types of emissions-trading:

- a) Country to country trading between national governments;
- b) Company to company trading within domestic trading schemes;
- c) Company to company trading internationally.

1. Country to country trading

Trading between countries would essentially involve bilateral or multilateral treaties to be signed by the States concerned. These will be governed by the principles of public international law. Liability for breach of agreement will be based on principles of State responsibility

and would be deemed enforceable through the International Court of Justice.

International responsibility of States relates both to breaches of treaty provisions and other breaches of legal duty. In the *Spanish Zone of Morocco Claims* case, Justice Huber observed:

[R]esponsibility is the necessary corollary of a right. All rights of an international character involve international responsibility. If the obligation in question is not met, responsibility entails the duty to make reparation.²⁷

The ICJ in the *Barcelona Traction Case* held:

[A]n essential distinction should be drawn between the obligations of a State towards the international community as a whole, and those arising vis a vis another State in the field of diplomatic protection. By their very nature, the former are the concerns of all States. In view of the importance of the rights involved, all States can be held to have a legal interest in their protection; they are obligations *erga omnes*.²⁸

The International Law Commission has observed of the ICJ decision:

[I]n the Courts view, there are in fact a number, albeit limited, of international obligations which, by reason of their importance to the international community as a whole, are- unlike others – obligations in respect of which all States have legal interest.²⁹

The views of the ICJ and the International Law Commission, which has supported the approach taken by the ICJ, give rise to two possible conclusions relating to *jus cogens* and its resultant obligations *erga omnes*:

- a) obligations *erga omnes* affect all States and thus cannot be made inapplicable to a State or group of States by an exclusive clause in a treaty or other document reflecting legal obligations without the consent of the international community as a whole;
- b) obligations *erga omnes* preempt other obligations which may be incompatible with them.

Some examples of obligations *erga omnes* cited by the ICJ are prohibition of acts of aggression, genocide, slavery and discrimination.³⁰ It is indeed worthy of note that all these obligations are derivatives of norms which are *jus cogens* at international law.

In its Report to the General Assembly, the International Law Commission recommended a draft provision which required:

Every State has the duty to conduct its relations with other States in accordance with international law and with the principle that the sovereignty of each State is subject to the supremacy of international law.³¹

This principle, which forms a cornerstone of international conduct by States, provides the basis for strengthening international comity and regulating the conduct of

States both internally – within their territories – and externally, towards other States. States are effectively precluded by this principle of pursuing their own interests untrammelled and with disregard to principles established by international law.

In public international law *de lege ferenda*, a State should not be entitled to cite provisions of its own laws or inadequacies in its laws as its response to a breach of its obligations imposed by international law. Called the monistic theory, jurisprudence supporting this premise is monotonously consistent, as is reflected in the *Free Zones Case*³² where the Provisional Court of International Justice (PCIJ) ruled that France was precluded from using its own legislation to desist from performing its international obligations. In the earlier case of *Polish Nations in Danzig*³³ the PCIJ held:

It should ... be observed that ... a State cannot adduce as against another State its own Constitution with a view to evading obligations incumbent upon it under international law or treaties in force. Applying these principles to the present case, it results that the question of the treatment of Polish nationals or other Persons of Polish origin or speech must be settled exclusively on the basis of the rules of international law and the treaty provisions in force between Poland and Danzig.³⁴

The above judicial theory and holds that there is a general duty incumbent upon all States to bring their internal laws in conformity with obligations and responsibilities imposed by international law.³⁵ This is an implied obligation which a State has *erga omnes*.

2. Company to company trading

Company to company trading under a domestic setting will be dealt with by the laws of the jurisdiction concerned. In common law countries, liability for breach of contract would be essentially dependent upon the *cursus curiae*. At fundamental level, the principle of contract law, enunciated by Lord Diplock that:

The law is concerned with legal obligations only, and the law of contract only with legal obligations created by mutual agreement between contractors – not with expectations, however reasonable, of one contractor that the other will do something that he has assumed no legal obligation to do,³⁶

still functions as the basis of understanding between the parties. In the seminal case of *Hadley v Baxendale*³⁷, decided in 1854, Alderson B. set the above principle in a framework of damages for breach of contract when he said:

Where two parties have made a contract which one of them has broken, the damages which the other party ought to receive in respect of such breach of contract should be such as may fairly and reasonably be considered either arising naturally, i.e. according to the usual course of things, from such breach of contract itself, or such as may reasonably be supposed to have been in the contemplation of both parties, at the time

they made the contract, as the probable result of the breach of it.³⁸

The aggrieved party is only entitled to recover such part of the loss actually resulting as at the time of the contract was reasonably foreseeable as liable to result from the breach.³⁹ What was at the time reasonably foreseeable depends upon the knowledge then possessed by the parties, or, at all events, the party who commits the breach.

There is also the remedy of specific performance at equity under the common law, where a decree of specific performance is issued by the court which constrains a contracting party to do that which he has promised to do. The concept of specific performance has its genesis at early law, where courts had to address many instances where the remedy available at common law was not adequate. Although the normal remedy at common law for breach of contract is damages, and in most cases the award of damages affords adequate compensation, there are instances, for example, when performance promised to an aggrieved party would not be available anywhere else, where specific performance is enforced.⁴⁰

A mandatory injunction is another equitable remedy at common law which directs the defendant to take measures positively to undo what he has already done to breach a contract. The case of *Lord Manners v. Johnson*⁴¹ reflects the ability of a court vested with powers of adjudication under a common law jurisdiction to compel a defendant to demolish a house which he has constructed contrary to an existing contract. Analogically, a person who refuses, or fails to perform an emissions trading contract could be compelled to perform the contract by injunction.

3. Company to company trading internationally

The analogy to companies trading with each other internationally on emissions-trading in the modern day context is the typical transboundary contract, such as a cyber contract performed on the internet where two or more jurisdictions are at play. In a cyber contract, the contract is established by offer and acceptance in two different places through the internet and liabilities and rights of parties are determined on a choice of jurisdiction and according to the principles of the chosen jurisdiction.

Usually, such a contract is concluded when, in response to an offer made by an offerer, the offeree indicates acceptance to the offerer. In cases of simultaneous communication of the offer and acceptance, made face to face by the offerer and offeree, the essentials of a contract are clear. However, when parties are not in close proximity to each other and communicate their dealings over the telecommunications medium, the process may become slightly more complicated, in that it may not always be clear as to what constitutes an offer or an acceptance. In such instances, it largely becomes a matter of interpretation as to whether both the offerer and the offeree had the intent to conclude the contract.

The element of intention to contract and to conclude the process on the part of both the offerer and offeree is ini-

tial to the formation of the contract. Courts have insisted that proof of an offer to enter into legal relations upon definite terms must be followed by the production of evidence from which the courts may infer an intention by the offeree to accept that offer. Thus, the statements made by the parties in the process of negotiations are of extreme importance in the determination of a concluded contract. The 1840 case of *Hyde v. Wrench*⁴² offers the seminal principle that a series of communications from either party may impinge an original offer. In the *Hyde* case, the defendant, on June 6, offered to sell an estate to the plaintiff for £1,000. On June 8th, in reply, the plaintiff made an offer of £950, which was refused by the defendant on June 27th. However, on June 29th, the plaintiff wrote to the defendant that he was now willing to pay £1,000.

The importance of the *Hyde* decision lies in the fact that the court held no contract existed. The plaintiff had, by rejecting the offer made on June 6, precluded himself from reviving the offer later. In other words, once an offer is rejected by the offeree, he cannot go on the basis that the offer would still stand in its original form. When this principle is applied to an auction situation where the airline is offering to consider offers over the Internet from the public, any offer made by a member of the public for a seat on a flight cannot be rejected by the airline and later revived.

Of course, a counter-offer situation is different, where an airline nominates an alternate sum as acceptable. For example, if A offers over the Internet \$100 as a price he would pay for a seat from Montreal to Toronto, the airline concerned can counter-offer the seat at \$125, thus making itself the offerer. Unlike in the *Hyde* case, here there is no outright rejection of the offer.

In the instance of an auction carried out over the Internet, the primary issue at stake in the determination of a contract is whether the parties intended the contract to be concluded. For instance, if a person offers a certain price to the airline over the Internet and the airline gives him a reference number, the allocation of that number may not necessarily indicate acceptance of the offer by the airline. The 1989 United States case of *Corinthian Pharmaceutical Systems Inc. v. Lederle Laboratories*⁴³ is a good analogy. In the *Corinthian* case, a person dealing in medicinal drugs on a wholesale basis ordered a consignment of drugs through a computerized telephone ordering system. The order was placed strategically a day before a price increase was to take effect. The wholesaler ordered through the manufacturers' automated telephone order system, and after the order message was placed by him, he was allocated by the computer a "tracking number" by the manufacturer's computer system. There was absolutely no human interaction in the transaction. Subsequently, when the manufacturer refused to sell the consignment of drugs as ordered by the wholesaler at the pre-increase price as ordered, the court held with manufacturer's position that the tracking number issued by the manufacturer's computer was not an acceptance of the offer, but merely an acknowledgment of the receipt of the order – or offer in

contractual law terms. The court concluded that no contract had been concluded, and the wholesaler was denied purchase of the goods at the lower price.

There is no doubt as to when and where the contract comes into being, when parties sign a contract simultaneously in a face-to-face setting. It is often not a trivial legal task to determine when and where, when either an offer, or an acceptance, or both, are sent by telegraph, telex, fax, EDI, e-mail, or via the Internet, or are communicated by telephone. The uncertainty began even before the advent of the telegraph, with the mail delivery system. The general contract law principle is that an offer is not considered accepted until the acceptance of the offer is received by the offerer. In England in the 19th century, an exception to this rule was developed by judges for offers and acceptances sent by the mail. The so-called post box rule or expedition theory prescribes that where an offer is made in the mail, the contract takes effect immediately at the time acceptance is posted in the mail (rather than when the acceptance is actually received by the offerer) where use of the mail is reasonable in the circumstances or expressly contemplated by the parties. This rule effectively precludes the need to hold the offeree responsible for delays in communications and places the burden of uncertainty of the waiting period on the offerer; that is, the offerer does not know that it has earlier concluded a binding contract until it receives the offeree's acceptance in the mail, whereas the offeree knew the contract came into existence the moment it posted its reply letter. Shifting this risk to the offerer, and giving the concomitant assurance to the offeree, was reasonable because of the increased reliability of the Royal Mail in the 1800s, to the point where multiple deliveries a day in larger urban centres were the norm. The expedition theory is a good example of a legal doctrine being firmly grounded in the communication environment and commercial processes of its day.

As the telegraph, telephone, and other new communications technology evolved into widespread use, cases established principles as to when and where contracts were concluded. In *Carow Towing*, an early Canadian case, courts held that a contract entered into by telephone should be treated like a letter and should follow the expedition theory, with acceptance occurring at the place the acceptance is spoken and not where the offerer hears the acceptance.⁴⁴ By contrast, in the *Entores*⁴⁵ case, a later British decision. Lord Denning concluded that for simultaneous communications like the telephone, the place where the contract is concluded is where the offerer hears the acceptance, and thus, if the line goes dead during the telephone conversation, the onus is upon the offeree to call back the offerer to ensure the words of acceptance had been communicated to the offerer. Subsequent cases in Canada have followed the decision in *Entores* rather than the approach in *Carow Towing*,⁴⁶ with the exception of Quebec where, up until recently, the preponderance of case law has followed the principle that telephone contracts arise when and where the offeree speaks its acceptance;⁴⁷ since the enactment

of the current *Civil Code* of Quebec in January 1994, Article 1387 explicitly provides that in respect of telephone contracts acceptance occurs when and where the acceptance is received. It is interesting to note that the *Entores* decision was also followed in two fax cases, one in Nova Scotia⁴⁸ and one in New Zealand,⁴⁹ where each held that a contract made by fax arises when the offerer receives by fax the acceptance of the offered.

Courts in the *Entores* case also held that telex technology results in instantaneous communications with the result that acceptance occurs when the message is received by the offerer. This approach was confirmed in a decision by the House of Lords in the *Brinkibon* case.⁵⁰ In this case the Court held that although telex communications should be categorized as simultaneous, in each case the specific constituent elements and factors in the communications system concerned need to be carefully considered:

The senders and recipients may not be the principals to the contemplated contract. They may be servants or agents with limited authority. The message may not reach, or be intended to reach, the designated recipient immediately; messages may be sent out of office hours, or at night, with the intention, or on the assumption, that they will be read at a later time. There may be some error or default at the recipient's end which prevents receipt at the time contemplated and believed in by the sender. The message may have been sent and/or received through machines operated by third persons. And many other variations may occur. No universal rule can cover all such cases; they must be resolved by reference to the intentions of the parties, by sound business practice and in some cases by a judgment where the risks should lie.⁵¹

The recognition of the above facts in the *Brinkibon* case raises a number of emerging issues in respect of EDI, e-mail, and Internet communications. Certain EDI transmissions, for example, will fall into the simultaneous communications category. Much of EDI is effected not between the trading principals, however, but by use of intermediaries, so-called value-added networks (VAN) or service providers. An EDI message could likely go through the message sender's VAN, then through the recipient's VAN, and finally to the recipient. Similarly, e-mail messages over the Internet may be routed to electronic mailboxes from which the recipient has to then download. In such instances, it may be more difficult to conclude that the simultaneous communication rules should apply. Also, it may be difficult to determine when exactly an electronic message arrives at the recipient's location for purposes of being recognized as legally effective. For instance, an early British case held that a letter sent in a sealed envelope is not considered received until it is opened by the addressee personally.⁵² Whether such a rule should apply in the case of e-mail, or whether an e-mail message should be deemed received when it is available to be viewed by the intended recipient, regardless of the time at which the

recipient actually reads the message is a moot point. Another question is when should a telex or fax be deemed to have arrived at a workplace? In one case,⁵³ the answer pointed to when the message was received by the recipient's machine (on a Friday after business hours and not three days later on a Monday morning when a person actually reads the telex).

Given these ambiguities, prudent users of electronic commerce should try to avoid having to refer these issues to a judge by providing, in their EDI Trading Partner Agreement or other similar document, precisely what electronic message must be received by which computer (*i.e.*, the recipient's or the recipient's VAN) in order for a contract to arise, thereby bringing clarity to the questions as to when and where the electronic contract arose. As to the "where" question, the parties to the TPA would be well advised to select a governing law in advance, and to make sure the VAN agreements contain the same jurisdiction, so that there is no question which law would apply if it were ever considered necessary to resort to adjudication. This is particularly true for EDI and Internet transactions where each trading part's VAN, or Internet service provider, may be in a jurisdiction different from the customer, and therefore possibly the laws of four different jurisdictions may apply if the parties remain silent on the governing law question. In such circumstances, as Lord Denning observed in the *Entores* case concerning two parties in different jurisdictions, the problems arise since the laws of the respective jurisdictions are different. Therefore, predicting a Court's probable response is difficult, given that the Court will invariably try to seek the most just remedy under the circumstances, but in some cases this is truly a difficult task. As an example, the Court's commentary in the *Export Packers* case where the judge recommended that the various rules developed by the law over the years, such as the simultaneous communication rule in the *Entores* case, should not be applied in a rigid fashion:

When the common law rules relating to offer and acceptance were under development the telephone did not exist. At that time agreements were made by two or more persons getting together and reaching a common understanding. As the postal system came into being elaborate rules were made by the courts covering the mechanics of reaching a bargain by mail. Today a person ordinarily resident in British Columbia may telephone from Japan where he is on a business trip to a person ordinarily resident in Ontario but who is also then visiting Italy. They may agree to the same kind of contract which is the subject-matter of this writ. It does not necessarily follow the place where the contract was made was Japan and that Japanese law governs its interpretation. Alternatively, it would be hard to argue the place where the contract was made was Italy and the law of that country ought to apply to its interpretation.⁵⁴

This dictum clearly confirms the benefit accrued to users of electronic commerce in Grafting their own

rules for dealing with issues of formation of contract. Making commercial relationships more secure and predictable through contract, however, can be a costly and time-consuming exercise. Therefore, this may be an area for law reform. In the United States, the National Conference of Commissioners of Uniform State Law are already working toward establishing new rules under the *Uniform Commercial Code* that would take the view that Internet communications are instantaneous in nature and that therefore a contract comes into existence when the sender of the offer receives an electronic message signifying acceptance. This does not, however, answer the question as to when the acceptance is effective if the offerer was not present before the computer; in other words, does receipt require a human intervention and acknowledgement. In determining this question, the following should be observed: the purpose and function of the rule; who would be prejudiced by a particular holding; what are the reasonable expectations of the parties; and on whom is it reasonable to place a burden for helping to "fix" the system if indeed it needs it.

Perhaps the single most important issue in transboundary contracts is that which pertains to jurisdiction. Given the worldwide web and its global application, the most compelling question in this regard would pertain to the transboundary applicability of an Internet contract. In this regard, the most convenient analogy comes from the two jurisdictions of Canada and the United States. Would an offerer in Canada, who offers \$500 over the Internet for a round trip between Toronto and Miami, be able to enforce an auction agreement against a United States airline at its home base in Florida? In a case decided in 1952⁵⁵ in Canada, where the plaintiff brought a case to the Ontario High Court against an American radio broadcasting station which was broadcasting from across the border, allegedly libellous statements which could be heard over the air waves in Canada, the defendant radio station brought up a motion of dismissal, alleging that the Ontario Court in Canada had no jurisdiction to hear a case against a party to the action which was an enterprise based in the United States. The Court disagreed, and held:

A person may utter all the defamatory words he wishes without incurring any civil liability unless they are heard and understood by a third person. I think it a "startling proposition" to say that one may, while standing south of the border or cruising in an aeroplane south of the border, through the medium of modem sound amplification, utter defamatory matter which is heard in a Province in Canada north of the border, and not be said to have published a slander in the Province in which it is heard and understood. I cannot see what difference it makes whether the person is made to understand by means of the written word, sound-waves or ether-waves in so far as the matter of proof of publication is concerned. The tort consists in making a third person understand actionable defamatory matter.⁵⁶

In the more recent case of *Pindling v. National Broadcasting Corporation*⁵⁷ in respect of an American television broadcast received in Canada, the Ontario High Court held that the Prime Minister of the Bahamas was entitled to bring the case to Canada, instead of the United States. The *Pindling* decision illustrates well the principle of "forum shopping" which can be culled from the television context and be held applicable to the analogous situation of a contract transacted over the Internet.

The above principle may be derogated only in an instance where the Court seized of the case could invoke the principle of "forum non conveniens" which allows the transfer of a suit from an originally filed jurisdiction to some other jurisdiction which is better placed to hear the case concerned. In the 1996 case of *National Bank of Canada v. Clifford Chance*⁵⁸ the Canadian courts which were charged with hearing a case where a Toronto based firm had contracted with a law firm in the United Kingdom, transferred the case to the United Kingdom although the contract was concluded in Toronto, on the grounds that the contract concerned a U.K. based project and the legal advice obtained had been U.K. law given by lawyers in the United Kingdom. Based on the *Clifford Chance* principle, it would not be unusual for a common law Court to determine that in an auction for an airline seat, where the offer emanates from say, Canada over the Internet for a seat out of the United Kingdom on a U.K. based carrier, the applicable jurisdiction would lie with the courts in the United Kingdom, although the contract itself may have been concluded in Canada.

There is a dichotomy in the judicial thinking with regard to cases involving contracts concluded over the Internet. On the one hand courts are refusing to bring a person into a jurisdiction purely because he contracted with a business entity which is based in that jurisdiction. This approach is illustrated by the 1994 U.S. decision in the case of *Pres-Kap, Inc. v. System One, Direct Access Inc.*⁵⁹ where the court refused to grant jurisdiction to Florida where a resident in New York had used a Florida based online network information service merely to gain access to a database. Similarly, the Court in the famous 1997 *SunAmerica* case⁶⁰ refused to find jurisdiction in a trade-mark case solely on the basis of the defendant's operation of a general access web site:

Plaintiffs ask this Court to hold that any defendant who advertises nationally or on the internet is subject to its jurisdiction. It cannot plausibly be argued that any defendant who advertises nationally could expect to be hailed into Court in any state, for a cause of action that does not relate to the advertisements. Such general advertising is not the type of "purposeful activity related to the forum that would make the exercise of jurisdiction fair, just or reasonable."⁶¹

The principle of universal application of jurisdiction has been invoked in other instances, where courts have accepted jurisdiction on the basis of sales made to cus-

tomers through the defendant's web site,⁶² or based on soliciting donations,⁶³ or based on subscribers signed up by the defendant for services delivered over the Internet,⁶⁴ or for having follow-on contacts, negotiations, and other dealings in addition to, and often as a result of the initial Internet-based communication.⁶⁵ The common thread which runs through the fabric of judicial thinking in this regard is that parties who avail themselves of technology in order to do business in a distant place should not then be able to escape that place's legal jurisdiction. These cases are all embracing, from contract breach claims to tort, including trade libel; in several cases, courts have even found jurisdiction in trade-mark infringement matters merely on the basis of a defendant's general access web site,⁶⁶ or linking to a national ATM network through a telephone line indirectly through an independent data processor in a third state.⁶⁷

An overall evaluation of the U.S. civil cases discussed above concludes that while the general trend is for courts to assert jurisdiction over non-residents based on their Internet activities, there are still a few situations where some courts may not apply jurisdiction.

Although the choice of forum may extend universally, it does not necessarily mean that enforcement from a judgment would automatically follow. In the case of *Bachchan v. India Abroad Publications Incorporated*⁶⁸ the plaintiff, who was a national of India who had won the right to have his case heard in the United Kingdom, was unable to enforce judgment in New York. The New York courts held that the United Kingdom law applicable to the case did not accord with United States law and therefore the decision could not be recognized as enforceable in the United States.

4. Conclusion

The difficulties faced when considering market-based options on emissions-trading with regard to aircraft engine emissions is multifarious. It is, for one, extremely difficult to develop scenarios for a workable mechanism in view of the imponderable trends of future air traffic and the technological breakthroughs in aeronautical science that may surprise us. The use of global Navigation Satellite Systems (GNSS) as a part of the Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) systems which will be in full force at the turn of the new millennium would indeed make it difficult for totally accurate forecasts of traffic projections to be made. The possible subsidies that may emerge with regard to fuel consumption in the face of the growing liberalization regime in global regulatory policy is another factor which would preclude accurate and sensitive data analysis with regard to emissions-trading.

All these factors pose a daunting challenge to one of the most intriguing corollaries to modern day aviation. It is hoped that, as in other difficult circumstances, the world aviation community is able to overcome the many obstacles in this regard. □

Notes:

1 See Ozone Science News, *The Newsletter of the UNEP Ozone Action Programme*, Number 26, April, 1998 at p. 7.

2 *Ibid.*

3 See A New Threat, *Acid News* 2, June 1997 at p. 15. In 1997 four European airlines launched a programme to measure ozone levels during flights to assess the impact of pollution on the environment. Air letter, Wednesday, 13 August 1997, No. 13, 805, p. 2.

4 *Ibid.*

5 Scientist David Fahey believes that aerosols of aircraft plumes could form the complex chemistry required for cirrus clouds. See Fred Pearce, *Aircraft Wreck Havoc on Ozone Layer*, *New Scientist*, 15 February 1997, at p. 18.

6 Another significant project carried out in Europe was the AERONOX project of the European Union which was in three stages:

1. The first stage calculated an exact worldwide inventory of aircraft emissions;

2. The second stage examined how the pollutants in the exhaust plume change from immediately after their emission from the engine until they reach a "stable" condition;

3. The third stage calculated the probable effects by means of models on the diffusion in the atmosphere and on chemical and physical changes. The key focus is on the nitrogen oxide emissions and their effects on the concentrations of ozone at high altitudes. This project has already been concluded.

7 Martin Hindley, *Emission Control*, *Flight International*, 31 January–6 February 1996 at p. 69.

8 See *Global Atmospheric Effects of Aviation*, Report of the Proceedings of the Symposium, Virginia Beach, Virginia, USA, 15–19 April 1996, NASA: USA, at p. 1.

9 *Ibid.*, p. 4.

10 (1992) 31 I.L.M.849. On the negotiations and text of the Climate Change Convention see D. Bodansky, "The United Nations Framework Convention on Climate Change: A Commentary" (1993) 18 *Yale J. Int. L.* 451–558. See also J. Barrett, "The Negotiation and Drafting of the Climate Change Convention", in R. Churchill and D. Freestone (Eds), *International Law and Global Climate Change* (1991), pp. 183–200.

11 Kyoto Protocol to the United Nations Framework Convention on Climate Change, UN Doc. FCCC/CP/1997/L.7/Add. 1.

12 Carbon dioxide, methane, nitrous oxide, hydro fluorocarbons, per fluorocarbons and sulphur hexafluoride.

13 UN Environment Programme (UNEP) Press Release, 11 Dec 1997.

14 The subject of emissions-trading falls within the purview of the Intergovernmental Panel on Climate Change (IPCC), which was established in 1988 by the World Meteorological Organization and the United Nations' Environment Programme (UNEP) to assess the scientific basis and impact of climate change. The IPCC's first scientific report was published in 1990 and recommended the negotiation of a framework convention to combat global warming. The United Nations Framework Convention on Climate Change (UNFCCC) was adopted on 9 May 1992 and the treaty entered into force on 21 March 1994. This article, being a legal one, will not address details of these bodies. For an extensive treatment of the IPCC's work and the UNFCCC, see Global Warming and the Kyoto Protocol, Colin Warbrick and Dominic McGoldrick ed., 47 *ICLQ*, April 1998 at pp. 446–462.

15 The Protocol will enter into force 90 days after "not less than 55 Parties to the [Climate Change] Convention, incorporating Parties included in Annex 1 which accounted in total for at least 55 % of the total carbon dioxide emissions for 1990 of the Parties included in Annex 1" have ratified (Art. 24 of the Protocol).

16 *Id.*, Art. 7 (1). The Secretariat is located in Bonn, Germany. Its postal address is P.O. Box 260 124, D-53153, Bonn, Germany.

17 *Id.*, Art. 8 (1).

18 *Id.*, Art. 8 (5). When the Conference of the Parties meets as the meeting of Parties to the Protocol, those States that are party to the Convention but not to the Protocol may participate but only as non-voting observers (*idem*, Art. 13 (1) and (2)). Parties to the Protocol will meet annually (Art. 13 (6)) to review the implementation of the Protocol (Art. 13 (4)).

19 *Id.*, Art. 8 (6).

20 See J.K. Parikh, *Joint Implementation and North South Cooperation for Climate Change*, 1995, 7 (1) *International Environmental Affairs*, at pp 22–41.

21 *Supra*, see note 25.

22 See Article 12 (3) of the Kyoto Protocol.

23 Article 8 of the Protocol.

24 Montreal Protocol on Substances that Deplete the Ozone Layer (1987) 26 *I.L.M.* 1550. The Montreal Protocol controls gases such as chlorofluorocarbons, which not only have ozone depleting characteristics but also contribute to the greenhouse effect. The Kyoto Protocol, by explicitly excluding the Montreal Protocol's role in ICAO's mandate, has included carbon dioxide, nitrogen oxides and compounds of sulphur emissions within ICAO's purview.

25 As contained in Doc 9082 (*Statements by the Council to Contracting States on Charges for Airports and Air Navigation Services*) and Doc 8632 (*ICAO Policies on Taxation in the Field of International Air Transport*).

26 CAEP/4, Committee on Aviation Environmental Protection, Fourth Meeting, Montreal, 6–8 April 1998, ICAO: Montreal, at p. i-8.

- 27 1925 RIAA ii 615 at 641.
- 28 *Barcelona Traction, Light and Power Company Limited, I.C.J. Reports, 1974*, 253 at 269–270.
- 29 *Yearbook of International Law Commission 1976*, Vol II Part One at 29.
- 30 *I.C.J. Reports, 1970* at 32.
- 31 *Report of the International Law Commission to the General Assembly on the Work of the 1st Session, A/CN.4/13*, June 9 1949, at 21.
- 32 (1932) PCIJ, Ser. A/B No. 46. 46 at p. 167.
- 33 (1931) PCIJ, Ser. A/B No. 44 at p. 20.
- 34 *Id.*, at p. 24.
- 35 See Fitzmaurice, 92 Hague Recueil (1957, II) at 89.
- 36 *Lavarack v Woods of Colchester, Ltd.* [1967] 2 Q.B. 278; [1966] 3 All. E.R. 683.
- 37 (1854) 9 Exch. 341 at p. 354.
- 38 *Id.* at 355.
- 39 *Victoria Laundry (Windsor) Ltd. v. Newman Industries Ltd.* [1949] 2 K.B. 528.
- 40 See *Cuddee v Rutter* (1720) 1 P. Wms. 570 where specific performance of an agreement to transfer £1000 company stock was refused.
- 41 (1875) 1 Ch.D. 673.
- 42 (1840), 3 Beav. 334.
- 43 724 F.Supp.605 (S.D. Ind. 1989).
- 44 *Carow Towing Co. v. The "Ed. McWilliams"* (1919), 46 D.L.R. 506 (Ex. Ct.).
- 45 *Entores, Ltd. v. Miles Far East Corporation*, [1955] 2 All E.R. 493 (C.A.).
- 46 See, for example, *McDonald & Sons Ltd. v. Export Packers Co. Ltd.* (1979), 95 D.L.R. (3d) 174 (B.C.S.C.). See also *Re Viscount Supply Co. Ltd.* (1963), 40 D.L.R. (2d) 501 (Ont. S. C.); and *National Bank of Canada v. Clifford Chance* (1996), 30 O.R. (3d) 746 (Gen. Div.).
- 47 *Rosenthal & Rosenthal Inc. v. Bonavista Fabrics Ltd.*, [1984] C.A. 52 (Que. C.A.).
- 48 *Balcom (Joan) Sales Inc. v. Poirier* (1991), 288 A.P.R. 377 (N.S. Co. Ct.).
- 49 *Gunac Hawkes Bay (1986) Ltd. v. Palmer*, [1991] 3 N.Z.L.R. 297 (H. Ct.).
- 50 *Brinkibon Ltd. v. Stahag Stahl and Stahlwarenhandels-gesellschaft mbH*, [1982] 1 All E.R. 293 (H.L.).
- 51 *Ibid.* at 296.
- 52 *Arrowsmith v. Ingle* (1810), 3 Taunt. 234.
- 53 The "Pendrecht" [1980] 2 Lloyd's Rep. 56 (Q.B.).
- 54 *McDonald and Sons Ltd. v. Export Packers Co. Ltd.* (1979), 95 D.L.R. (3d) 174 (B.C.S.C.) AT 180.
- 55 *Jenner v. Sun Oil Co. Ltd.* (1952) 16 C.P.R. 87 (Ont. H.C.J.). 56 *Ibid* at 98–99.
- 57 (1984) 49 O.R. (Ed) 58 (H.C.J.).
- 58 (1996) 30 O.R. (3d) 746 (Gen. Div.)
- 59 636 So. 2d. 1351 (Fla. App. 1994).
- 60 *IDS Life Insurance Co. v. SunAmerica, Inc.*, 958 F. Supp. 1258 (N.D. Ill. 1997), aff'd in part, vacated in part, 1998 WL 51350 (7th Cir.) (Westlaw).
- 61 *Ibid.* at 268.
- 62 *Digital Equipment Corporation v. AltaVista Technology, Inc.* 960 F. Supp. 456 (D. Mass. 1997). See also *Cody v. Ward*, 954 F. Supp. 43 (D. Conn. 1997), where a court took jurisdiction based on telephone and e-mail communications that consummated a business relationship begun over Prodigy's "Money talk" discussion forum for financial matters. In partially justifying this decision, the court noted that the use of fax technology, and even live telephone conferences, can greatly reduce the burden of litigating out-of-state.
- 63 *Heroes, Inc. v. Heroes Foundation*, 958 F. Supp. 1 (D.D.C. 1996).
- 64 *Zippo Manufacturing Company v. Zippo Dot Com, Inc.*, 952 F. Supp. 1119 (W.D. Pa. 1997).
- 65 *Resuscitation Technologies, Inc. v. Continental Health Care Corp.*, 1997 WL 148567 (S.D. Ind.) Weslaw). The Court in this case was not concerned that the defendants had never visited the forum state in person and concluded at para. 5: "Neither is the matter disposed of by the fact that no defendant ever set foot in Indiana. The 'footfalls' were not physical, they were electronic. They were, nonetheless, footfalls. The level of Internet activity in this case was significant." See also *EDIAS Software International, L.L.C. v. BASIS International Ltd.*, 947 F. Supp. 413 (D. Ariz. 1996). In this case the court summed up the essence of many of the Internet jurisdiction cases by stating at 420: "BASIS [the defendant] should not be permitted to take advantage of modem technology through an Internet Web page and forum and simultaneously escape traditional notions of jurisdiction." See also *Gary Scott International, Inc. v. Baroudi*, 981 F. Supp. 714 (D. Mass. 1997).
- 66 *Panavision International, L.P. v. Toebben*, 938 F. Supp. 616 (CD-Cal. 1996); above note 215; *Maritz, Inc. v. CyberGold, Inc.*, 947 F. Supp. 1328 (E.D. Mo. 1996); *Inset Systems, Inc. v. Instruction Set, Inc.*, 937 F. Supp. 161 (D. Conn. 1996). In the latter case the court observed at 165:
- In the present case. Instruction has directed its advertising activities via the Internet and its toll-free number toward not only the state of Connecticut, but to all States. The Internet as well as toll-free numbers are designed to communicate with people and their businesses in every state. Advertisement on the Internet can reach as many as 10,000 Internet users within Connecticut alone. Further, once posted on the Internet, unlike television and radio advertising, the advertisement is available continuously to any Internet user. ISI has therefore, purposefully availed itself of the privilege of doing business within Connecticut.
- 67 *Plus System, Inc. v. New England Network, Inc.*, 804 F. Supp. III (D. Colo. 1992).
- 68 585 N.Y.S. 2d. 661 (Supp. 1992).