

The Rationale for an International Convention on Third Party Liability for Satellite Navigation Signals *

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1. Premise

The identification of the precise position of persons and objects all around the world has become a key element for the optimisation of many economic and private activities, including commercial transport, the synchronisation of communication links and agriculture, tourism and the strengthening of safety standards both for people and goods.

The Global Navigation Satellite System (G.N.S.S.) has become well known since its first exploitation by the United States of America and its Global Positioning System (G.P.S.) which made use of satellite-based information for military purposes.¹ The technical and operational development of G.N.S.S. has stepped well beyond the initial military scope of application, so much so that to-day, we can envisage a multitude of possible civil uses for this technology, particularly with reference to the transport industry. However, a question concerning the legal issues related to the present and future deployment of this infrastructure must now be faced.²

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¹ In addition to the U.S.A. G.P.S., we may also mention the Russian G.N.S.S. G.L.O.N.A.S.S., the Indian G.A.G.A.N. and several initiatives that are under development so as to improve navigation services and to complement them. European developments in respect of W.A.A.S., E.G.N.O.S. and GALILEO underline the global nature of G.N.S.S. and the need for continued co-operation and compatibility in this field.

² See P. MANZINI / A. MASUTTI, "An International Civil Liability Regime for the Galileo Services: A Proposal", *Air & Space Law* (2008), 114; G. VON DER DUNK, "Liability for Global Navigation Satellite Services: a Comparative Analysis of GPS and Galileo", *Journal of Space Law* (2004), 429; B. POULAIN, "La situation juridique internationale du future service public européen de radionavigation 'Galileo' ", *L'Europe des transports* (2005), 615; F.P. SCHUBERT, "An International Convention on GNSS Liability: When does desirable become necessary?", *Annals of Air and Space Law*, vol. XXIV (1999), 246; M. MILDE, "Institutional and Legal Problems of the Global

At present, G.N.S.S. is central across the world on both a commercial and an institutional level. This means that economic operators are investing in the development of the instruments that allow the use of these signals in many applications. In this context, Governments and international organisations (*i.e.* the International Civil Aviation Organization, but also European Community institutions) are analysing the current legal framework in order to determine whether that framework is appropriate for handling the specific issues related to this matter or if an *ad hoc* discipline is needed.

Even though the usefulness of such technology cannot be denied, there are many conceivable situations where a failure or defect in the transmission of global positioning signals may cause loss or damage; we need only think of an aircraft accident caused, in the final analysis, by inaccurate or absent navigation information at a critical point in flight operations.

At the moment, there is no specific legal framework for G.N.S.S. activities so that liability issues deriving from G.N.S.S. malfunctions are currently covered by applicable national laws. Since those who might suffer damage and those who might be held liable only rarely live in the same State, reference must be made to private international law rules of the State where the action is brought in order to determine what the applicable domestic law is. In this connection, it is necessary to recall the fundamental threefold distinction between contractual, non-contractual and product liability, notably because of the different conflict-of-law rules applying to these matters.³ Should a uniform international convention be in force among States involved in a dispute, private international law rules would not be applied in favour of the application of the uniform international law, except for those aspects that are not governed by that convention, to which national conflict-of-law rules would still apply.

Navigation Satellite System (GNSS): Solutions in Search of a Problem", in: *The Utilization of the world's Air Space and Free Outer Space in the 21st Century (Proceeding of the International Conference on Air and Space Policy, Law and Industry for the 21st Century)*, Kluwer Law International, Seoul (23-25 June 1997), 337.

³ As is well known, the difference between the three types of liability depends on the legal relationship between the claimant and the defendant. In fact, while contractual liability, as the name indicates, arises from a contract or agreement, thus involving parties' autonomy to define their duties and rights; non-contractual liability contemplates damages occurring outside a contractual relationship, such as loss or injury to a third party and must be regulated by legislative means. Finally, product liability imposes liability upon the manufacturer or seller of a product which, in the course of its normal use, has caused damage, independent of a contract between the parties.

This article will focus on non-contractual liability issues connected with the possible multiple applications of G.N.S.S. technology rather than the regimen covering contractual obligations. The basic premise of this examination of the current legal framework is that, at present, relevant tort and third party liability regimens, though not specifically focused on G.N.S.S., would nevertheless apply.

2. The present legal framework

Considering the lack of an *ad hoc* discipline in respect of G.N.S.S. exploitation, in addition to the real risk of damage caused by a system malfunction, it is necessary to outline the present legal framework which would cover liability for such damage in order to explain the need for a uniform rule for all States making use of this technology.

In this connection, it should be clarified that different liability rules will be applied depending on the unique circumstances surrounding the accident (*i.e.* marine pollution, an air crash, bank transactions, etc...) and on the transnational dimension of the relationship.

To take an important example, the first economic sector to acknowledge the potential benefits of G.N.S.S. was, and still is, the aviation sector. In 1983, the International Civil Aviation Organization (ICAO) established a Committee on Future Air Navigation Systems (F.A.N.S.) whose aim was, *inter alia*, to identify possible benefits, risks and drawbacks of the use of G.N.S.S. for aviation purposes and which, ultimately, came forward with recommendations on ways of addressing the matter properly. Later, F.A.N.S. evolved into a more comprehensive concept, encompassing Communication, Navigation and Surveillance/Air Traffic Management (C.N.S./A.T.M.), and a Legal Technical Expert Panel (L.T.E.P.) was established to make sure that all relevant legal aspects were considered.⁴

Efforts were made by those experts to establish liability for such damage on the basis of existing legal frameworks, referring to international instruments and national laws. Because of the high level of safety standards needed in the aviation sector, it quickly became clear that liability was a key issue for the acceptance of G.N.S.S. as a structural component of air traffic services.

The *Convention on International Liability for Damage Caused by Space Objects* 1972 (the *Liability Convention*) was first examined in light of its

⁴ In order to accommodate the possible use of G.N.S.S., ICAO also drafted Standards and Recommended Practices (S.A.R.P.s) to be followed by all signal providers.

particular scope of application, namely “space objects”.⁵ The Liability Convention was found to impose a strict liability regimen upon launching States for certain types of damage caused by satellites. However, the relevance of this Convention was limited because it established absolute and exclusive liability for launching States, excluding all other parties (private or public) involved in the exploitation of G.N.S.S. Moreover, the Convention referred to liability only in respect of damage caused “by” space objects, clearly referring solely to direct physical damage, excluding any damage other than damage that is both physical and caused by the falling of a space object. Finally, the envisaged system of strict liability would not appear to be the most appropriate system for granting fair compensation for catastrophic events, notably because the compensatory award would most likely not be very high, thereby creating a situation where an additional granting fund would have to be established.⁶

Liability for damage caused by the exploitation of a satellite should be defined on the basis of the Chicago Convention on International Civil Aviation 1944 (the *Chicago Convention*)⁷ according to which States, on the one hand, have complete and exclusive sovereignty over the airspace above their territory and, on the other hand, undertake to provide adequate air navigation services, including the relevant air navigation facilities.⁸ According to the most common interpretation of Article 28 of the Chicago Convention, participating States are responsible for the services intended to aid air navigation and for improving the safety thereof. However, when the Chicago Convention was first signed, the reference to air navigation facilities did not include services derived from G.N.S.S., whereby a navigation signal is beamed all around the world by transmitters located in a zone where States have no sovereignty, that is to say, outer space.

⁵ See Article II of the *Convention on International Liability for Damage Caused by Space Objects* 1972 providing that “A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight.” For a definition of the term “space object”, see Article I which includes “component parts of a space object as well as its launch vehicle and parts thereof.” See also the exemption clause in Article VII.

⁶ In this connection, the best solution would be to set up a two-tier system of liability, like that provided for by the *International Convention on Civil Liability for Oil Pollution Damage* 1969 (CLC Convention) and by the correlating *International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage* 1971 (FUND Convention).

⁷ *Convention on International Civil Aviation* 1944 (Chicago Convention).

⁸ See Articles 1 and 28 of the Chicago Convention.

In any case, in providing such services, most States have to rely on signals from space and their augmentation provided by others. In present-day terms, this essentially means the United States. The question therefore arises as to whether the implementation of G.N.S.S. should also involve additional arrangements to establish a link between the State providing the signal from space and the State having jurisdiction under Article 28 of the Chicago Convention. In this connection, it should be noted that Article 28 does not prevent Contracting States from delegating responsibility for establishing and providing air navigation services to another State;⁹ however, this is limited to strictly technical and/or organisational responsibilities.

In any event, responsibility under Article 28 of the Chicago Convention should not be considered the same as liability from the point of view of international law; this rule, in fact, only regulates the relationship between States and does not give private persons a cause of action to claim compensation for damage. Such claims should rather be handled at the level of the applicable domestic law, European normative instruments and international treaties concerning the substantive matter involved (*i.e.* aviation).¹⁰

Moving on from the example of aviation, there are also many types of tort actions that may be relevant for purposes of analysing potential liability for G.N.S.S., the basic principle of which is that the claimant must show that the defendant's wrongdoing caused the actual damage. It must, therefore, be clearly established: (i) that a legal duty of care exists; (ii) that the defending party did owe to the claimant such a duty of care; (iii) that the defending party did indeed breach such a duty of care; (iv) that the claimant did suffer damage; and (v) that the alleged damage was not caused by the action or inaction of the claimant.

A clear problem of predictability and clarity of law arises in this respect if we consider that each State has a different legal framework governing the extent of the duty of care and the recoverability of damages and that the applicable law will be determined in accordance with the conflict-of-law rules of the State where the action is brought. In Europe, this problem is in part addressed by the Regulation on the law applicable to non-contractual

⁹ See Annex 11, par. 2.1 of the Chicago Convention.

¹⁰ Still considering the aviation industry as a reference model, we recall the *Convention for the Unification of Certain Rules relating to International Carriage by Air* 1929 (Warsaw Convention) dealing with international air transport of passengers, luggage and goods; the *Convention for the Unification of Certain Rules for International Carriage by Air* 1999 (Montreal Convention), providing for unlimited liability in the event of death or injury of airline passengers; and the *Rome Convention on Damage caused by Foreign Aircraft to Third Parties on the Surface* 1952.

obligations (the Rome II Regulation),¹¹ although even this leaves the differences between European substantive tort laws untouched, establishing only common conflict rules for non-contractual obligations.

Clearly, the main deficiencies of the present framework of the liability regimen applicable to G.N.S.S. are due not only to the complete absence both of specific substantive provisions in this area and of compensation channels for all situations but also to the ambiguous interaction between the existing tools which it might be possible to use in this connection. The need for a comprehensive framework is self-evident if we consider the implications of G.N.S.S., with its multimodal dimension and multiplicity of stakeholders, particularly in light of the key issues of transparency and legal certainty.

3. The rationale for an international framework

Traditionally, the need for a comprehensive international framework is strictly linked to the specific risk that characterises a particular activity and to the international scope of the effects of such risk. G.N.S.S. is a highly technological activity with, on the one hand, a high risk factor, principally at the development and start-up stage, and, on the other hand, a multimodal dimension which means that the geographical scope of any damage caused by a system malfunction is, in principle, not confined within the national boundaries of one State only. Therefore, in the event of damage in more than one country, it is desirable that the recoverable amount to be awarded to

¹¹ Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations (Rome II), *Official Journal of the European Communities* L 199, 31/07/2007, 40-49. On this topic see the following contributions published in G. Venturini / S. Bariatti (Eds.), *Liber Fausto Pocar, Nuovi strumenti del diritto internazionale privato*, Milano (2009): R. LUZZATTO, "Riflessioni sulla c.d. comunitarizzazione del diritto internazionale privato", 613; R.A. BRAND, "Evolving competence for private International law in Europe: the external effects of internal developments", 163; M. BOGDAN, "Some reflections Regarding Environmental Damage and the Rome II Regulation", 95; B. DUTOIT, "Le droit international privé des obligations non contractuelles à l'heure européenne: le Règlement Rome II", 309; L. GAROFALO, "Diritto comunitario e conflitti di leggi. Spunti sulle nuove tendenze del diritto internazionale privato contemporaneo emergenti dal Regolamento Roma II", 413; as well as S. TONOLO, "La nuova disciplina di conflitto delle obbligazioni extra-contrattuali nel Regolamento (CE) Roma II", *Studium iuris* (2008), 1; L. DE LIMA PINHEIRO, "Choice of Law on Non-Contractual Obligations between Communitarization and Globalization. A First Assessment of EC Regulation Rome II", *Rivista di diritto internazionale privato e processuale* (2008), 5; F. MUNARI, "L'entrata in vigore del Regolamento 'Roma II' e i suoi effetti sul private antitrust enforcement", *Diritto del commercio internazionale* (2008), 281; F. MUNARI, L. SCHIANO DI PEPE, "Liability for environmental torts in Europe: Choice of forum, choice of law and the case for pursuing effective legal uniformity", *Rivista di diritto internazionale privato e processuale* (2005), 607.

victims be distributed equitably among all affected persons on the basis of mandatory uniform rules, irrespective of the country to which they belong.

To this end, an international legal framework is the only way to ensure adequate, equitable and uniform compensation for persons who have suffered damage. Such a framework implies the unification of the basic rules that apply in the different countries to liability incurred for a specific event, leaving these countries free to take any additional measures which they deem appropriate, on a national basis.¹² From this perspective, such an international legal framework is not aimed at regulating States' relationships but at providing a substantive discipline for a subject that is, in essence, international.

A debate has developed in the course of ICAO, E.C.A.C. and UNIDROIT consultations over G.N.S.S.' "state of the art" legal framework. In this context, we can identify three possible approaches to the issue of third party liability: (i) a strict approach, which considers that the current liability regimen under domestic law is coping perfectly with G.N.S.S.; (ii) a wide approach, which deems that a universal liability system or convention should be set up; and (iii) a middle ground approach, which proposes a contractual approach accompanied by a framework agreement containing some uniform rules, including rules on liability. Advocates of the latter middle ground approach include those who deem that these common rules should be mandatory for all parties concerned, and others who lean towards mere recommendations.

4. The strict approach

As noted above, the strict approach is focused on the suitability of the present legal framework to manage any liability issue arising from a malfunction of a satellite navigation system. This is because, at present, there are only two operating systems (G.P.S. and G.L.O.N.A.S.S.)¹³ operated by two public operators (United States of America and Russia) mainly for military purposes, even though their signals are available for private and commercial use.¹⁴

Hence the argument runs that, because it was established essentially for public purposes, such a navigation service is not a suitable subject for either

¹² See the Premises to the *Convention on Third Party Liability in the Field of Nuclear Energy* 1960 (Paris Convention), the *Vienna Convention on Civil Liability for Nuclear Damage* 1963 and the *International Convention on Civil Liability for Oil Pollution Damage* 1971.

¹³ The European system (GALILEO) is under construction and scheduled to become operational in 2013 with service provided by a public-private partnership.

¹⁴ See H.G. BOLLWEG, "Initial Considerations Regarding the Feasibility of an International UNIDROIT Instrument to Cover Liability for Damage Caused by Malfunctions in Global (Navigation) Satellite Systems", *Unif. L. Rev. / Rev. dr. unif.* (2008), 917.

public or private international agreements. Following this assumption, and considering the dual use of the signal for both public and private purposes but with a notable military dimension of the existing technology, the countries that have developed these systems are unlikely to be prepared to expose themselves to an international liability convention resulting from international negotiations which would render them largely heteronomous. Admittedly, at the moment, G.P.S. and GLONASS operate mainly in a military dimension but, as already said, the G.N.S.S. market is growing rapidly, affecting all areas of life where information relating to the precise location of people and goods is necessary and encouraging commercial operators to develop new applications for this technology, so much so that the existing systems have also developed, or are currently developing, new commercial and civil applications. For example, the provision of navigation services is already a key element in the aviation sector where the management of those services is fundamental for the safety standards imposed by national authorities.

From another point of view, it has been observed that international negotiations for an international regimen of G.N.S.S. liability issues would be never-ending because of the divergent interests pursued by the different States. On the one hand, signal-provider countries would prefer to support a regimen based on limitation of liability and consistent with the insurability of such liability, such criteria being essential pre-requisites for finding private investors and stimulating the presence of privately-operated companies in this industry. On the other hand, end-user countries would prefer to have only limited restrictions on the imposition of liability on the signal provider and, eventually, in the event of limitation of compensation, for that compensation to be very high.

Against this argument, it is sufficient to observe that all the existing international instruments concerning liability are based on a compromise between these competing interests and that a solution has always been found. Indeed, even if the interests of signal providers and the possible victims of a system malfunction are not the same (we might refer, for example, to the interests of polluters and victims under the C.L.C. Convention), it has been proven that the best way of guaranteeing adequate compensation in all damage cases is to set up an international regimen.¹⁵

Further criticism of the need for an international liability regimen arises from the circumstance that, in many cases, even if the damage caused by a

¹⁵ See HAGUE ACADEMY OF INTERNATIONAL LAW, Centre for Studies and Research in International Law and International Relations, *The International Aspects of Natural and Industrial Catastrophes*, Dordrecht / Boston / London (1995).

system malfunction is incurred not by the first user, who is contractually tied to the system operator, but by a second, third or fourth user, the latter is nevertheless linked by contract to the respective prior user and the last prior user is in turn so linked to the system operator. In that case, it is argued, the best solution would be for claims to be settled in accordance with the contractual chain whereby the respective contract determines the existence, contents and extent of the respective liability.

However, if we look at the sort of possible “catastrophic events” that might occur, such as an air crash causing damage to people and goods located at the place where the disaster occurred, it is clear that there are many cases where the injured party would not be tied either directly or indirectly to contracts leading to the system operator, making it difficult or even impossible to find compensation based on contractual liability.

5. The middle ground approach: the contractual framework

In light of the above, the ICAO Study Group proposed, in 2004, a middle-ground approach,¹⁶ based on the assumption that “*a contractual framework may provide a link between the provider of signals and a State having jurisdiction under Article 28 of the Chicago Convention as regards the terms and conditions under which G.N.S.S. services are provided.*”

This approach seeks to achieve uniformity by establishing common elements applicable to all contracts that would be negotiated separately among different parties involved in the exploitation of G.N.S.S. applications; this framework would, as a consequence, co-ordinate the relationships between different players at various stages of the use of G.N.S.S. services for the benefit of all parties that might be injured or damaged due to a signal malfunction.

The idea of drafting contractual clauses and models is not a new one in the process of unifying rules concerning a specific industry. It reflects practitioners’ need for certainty which, through the general acceptance of the standards proposed, could then assume an “objective” shape capable of ruling the subject-matter concerned and prevailing over national laws.

¹⁶ See Final Report on the Work of the Secretariat Study Group on Legal Aspects of CNS/ATM Systems, presented in 2004 to the 35th ICAO General Assembly (ICAO docs. A35-WP/75; A35-WP/125).

However, it must be clarified that at the heart of such contractual discipline there must always be the expression of the parties' at least implicit willingness to be bound by that framework.

This takes us straight to the first negative aspect of this solution, *i.e.* that such a framework agreement is obviously voluntary in nature and based on the applicable national law. One example is the ICAO draft framework which provides that *"the liability of each party for failure to perform its obligations under this contract shall be governed by the liability regimen applicable to its activity"* and that *"the right of recourse and indemnification of a party may be limited by the proportion of its respective fault, if the applicable law so provides."* Clearly, this kind of assessment will neither improve certainty nor guarantee adequate compensation for the victims of damage.

In effect, the middle ground approach is comprised of two separate and distinct options: a flexible approach and a binding approach. Under the flexible approach, a number of model clauses would be drafted and it would be up to the negotiating parties to decide whether or not to use them in their contract. Under the binding approach, on the other hand, the contractual framework would include a number of mandatory standard clauses binding on all parties. In order to define such mandatory elements, a Framework Agreement among States at the governmental level is envisaged, whose nature and binding effect are equivocal and uncertain. However, even though in the ICAO Framework Agreement the liability element is classified as mandatory, the corresponding provision says that *"the liability of the parties shall be ruled by the material liability regime normally applicable to its activity, in accordance with applicable existing international and national laws. [...] In the event that loss or damage can be attributed to G.N.S.S. failure, malfunction or improper use, but cannot clearly be traced to a specific defendant, the defendants involved in the chain of the events which resulted in the occurrence of the loss or damage shall be declared jointly liable for the entire amount of the loss or damage."*

The main idea behind a Framework Agreement was also to create a readily available instrument to cover all legal clauses related to the operation of the G.N.S.S., harmonising contractual relationships between the parties involved and providing legal certainty for the benefit of any third party injured or damaged by a G.N.S.S. malfunction. The Framework Agreement is, therefore, based on a two-tier approach: on one level, it offers a regulatory agreement dealing with public law matters, including liability, and, on another level, it deals with private contractual arrangements between the various parties involved in the exploitation of G.N.S.S. where a very large

degree of autonomy is granted subject to certain mandatory elements determined by a regulatory agreement.

Such a solution would not seem entirely appropriate for managing third party liability issues comprehensively and consistently. The contractual nature of this solution comes along with the principle that a contract concerns only those that are parties to it and does not involve third parties who are totally unaware of the negotiations between those parties, in this case the service and signal providers. It would be strange, indeed, if the convention were to oblige victims of an accident caused by a system malfunction to bring an action in accordance with a contractual scheme to which they were extraneous.

Eventually, as proposed by ICAO, the Framework Agreement, accompanied by related contract clauses, might be adjusted to provide an “interim solution” between the *status quo* and the long-term solution that will take the form of an international convention. In fact, from a practical point of view, it would take significantly longer to negotiate a convention than a Framework Agreement, so that the latter contractual instrument would help to bridge the gap between its adoption and that of an international convention. Moreover, a convention is more likely to evolve smoothly when it is based on a workable interim solution.

One example of such an approach is the international discipline for oil pollution,¹⁷ where the entities involved in the carriage of oil by sea set up a system that operated on a voluntary and contractual basis (TOVALOP and CRISTAL) prior to the drawing up and entry into force of an international convention (CLC Convention and FUND Convention). The reason for this private agreement was the players’ anticipation of the guarantees that a uniform regimen would offer, particularly from a financial perspective, in respect of the restoration of damage to the environment.

It should be noted that once a convention has been implemented, private agreements still retain their relevance in a subsidiary role, in particular by extending the convention’s scope of application and by filling any gaps found within the international regimen.

6. The wide approach: the *need* for an international convention

In light of the various objections to the suitability of the present legal framework relating to G.N.S.S. services and since a great number of States

¹⁷ See S.M. CARBONE / L. SCHIANO DI PEPE, “Uniform Law and Conflicts in Private Enforcement of Environmental Law: the Maritime Sector and Beyond”, *Il Diritto marittimo* (2009), 50.

would have to authorise the use of signals over which they have no control, it would seem that the only way to secure confidence in G.N.S.S. and to encourage private bodies to invest in this technology would be to oblige both providers and users to act and operate under a binding international legal instrument, namely an international convention. Such a convention would provide a predictable and reliable regimen regarding liability in respect of third parties not linked through any contractual relationship to the subjects involved in the chain of G.N.S.S. services. A global operating environment needs a global solution in the form of international legal instruments.

In this respect, international conventions offer the advantage of providing not only a uniform discipline but also a mandatory regimen that would establish a clear basic legal structure imposing minimum rights and duties on the parties, giving autonomous parties the right, on the one hand, to extend the scope of application if necessary and, on the other hand,¹⁸ making it impossible for these same parties to reduce the scope of application below the pre-determined minimum responsibilities.

More precisely, one of the reasons that has led to the elaboration of various international conventions relates to the fact that the political imperatives of national legislators and the economic pressure exerted by private or public operators in the industry concerned can be excluded from the negotiating process for an international instrument.¹⁹

Because of this, and in view of the global nature of G.N.S.S. technology already referred to, the international scope of the subject-matter is self-evident. This means that many different legal orders are implicated in regulating the phenomenon, each setting their own laws and principles according to their different political purposes and economic needs. The only way to cope with such a scenario is to set up a uniform international regimen through an international agreement capable of ruling the subject-matter independently from national legislators' imperatives.

¹⁸ In that case, a problem concerning the value of the remand will arise. In fact it is doubtful if the will of parties to make the uniform regimen applicable to a situation not included in the Convention's scope of application makes the international regimen binding with reference to all its rules, or whether parties should repeal it in part, as an expression of party autonomy.

¹⁹ See S.M. CARBONE, "Accordi interstatali e diritto marittimo uniforme (a proposito di un recente scritto di Natalino Irti)", *Il Diritto marittimo* (2008), 351; R. LUZZATTO, "Metodi di unificazione del diritto marittimo e interpretazione uniforme", *Il Diritto marittimo* (1999), 147; S.M. CARBONE, "Il diritto marittimo uniforme nell'ordinamento italiano tra codificazione e decodificazione", *Il Diritto marittimo* (1999), 94; S. BARIATTI, *L'interpretazione delle convenzioni internazionali di diritto uniforme*, Padova (1986), 1 ss.

Usually, an international uniform regulation consists of a compromise between the different national disciplines for a particular industry or, alternatively, involves a condensed version of States' legislations and imposes uniform rules, often to the detriment of the substantial interests that lie at the heart of national laws. However, in cases where the "international" aspect is an intrinsic factor of the subject, an international regimen is logically the most appropriate way of balancing the interests involved. Here, States need not feel that their traditions are being interfered with, especially where the particular industry originally wished to be regulated at an international level anyway.

For the international regulation to be fair, its principles will take their cue mainly from other international third party liability conventions already ratified by States, as well as from national principles without, however, being in any way dependent on or influenced by national legislative frameworks.

The aim of such an instrument is to create a framework for a legal institution based on a specific national legal and political order, grounding it on the principles directly belonging to the international community but obviously derived from national principles. This will provide the best level of protection for all the interests involved while at the same time creating certainty regarding the applicable regimen, one that would protect both the liable party and the persons injured by a system malfunction.

A uniform law convention would provide a comprehensive legal framework for a particular subject-matter, playing the role usually reserved for national laws in regulating a particular legal question, thereby providing imperative rules for the most relevant issues.

Different motives often guide the actions of national legislators who are directed to establish mandatory rules in order to protect the particular interest of a specific class of economic operators, thereby creating significant disparities in legislation between States.

This is the reason why, with reference to third party liability in satellite navigation, a proper international convention should provide the rules in the event of a harmful event, including, *inter alia*, the kind of damage that can be restored, liability exemption causes, liability limits, the distribution of liability criteria, joint and several liability, the types of liability and the right of recourse by establishing uniform mandatory rules.

It is not easy to agree on substantive regulations to be achieved at the international level. The negotiation process depends heavily on how far States are willing to go in limiting national traditions and social evolution in order to

strike a balance between all the interests involved, and on the differences characterising the principles at the heart of any given legal institution.

In respect of third party liability, even though some common principles can be found at the international level (see, for example, the existing civil liability conventions), each State has its own rules to identify the party liable, to establish the onus of proof, to quantify the compensation of damage, etc.

Moreover, in cases of damage incurred by third parties outside any contractual relation, many international conventions on civil liability already grant compensation to the injured party, even where the damage is caused by a system malfunction in satellite navigation; obviously such conventions are connected to a particular industry (*i.e.* oil pollution, transport of nuclear materials ...), notably for a specific kind of damage that can interfere with the provision of a relevant signal.

Considering the variety of applications for G.N.S.S. technology and the consequent variety of international and national regimens that could be applied, the authors of this article contend that it would be better to set up a convention that protects victims of a system malfunction in all cases, not leaving the chance of finding an adequate regimen for their compensation to fate. It is not difficult to imagine how a system malfunction can cause different kinds of damage, *e.g.*, an accident involving ships may result in an oil spill, while a car crash may damage a third party's goods. In the former case, the victims would benefit from the international uniform liability regimen, whereas in the latter, they would find compensation only through the applicable national law, with all the consequences that this approach implies in terms of the compensatory amount and the evidentiary rules. At the same time, a single system malfunction could cause different types of damage to one and the same person, who would be obliged to claim compensation from different subjects under different normative rules.

By unifying the liability rules in an international convention, the possibility of disparate levels of damage caused by the same event (*i.e.* system malfunction/failure) would be avoided and the peculiarities of the tortious event would be duly taken into consideration.

From a substantive point of view, in order to understand the need for a convention, it is necessary to analyse the main problems arising from the existing framework that will be faced by the international instrument.

First, there is no common notion of damage "*caused by a system failure or malfunction*"; what can be seen as a consequence of a system malfunction in one country may not be causally connected to G.N.S.S. in another legal

system. Moreover, the characterisation of the party responsible for a system malfunction may be different in each State, depending on the chain of the service provision.

Another problem arises from the fact that, at present, G.N.S.S. services are provided by State Authorities, some of which might invoke State immunity as a defence if directly sued in foreign courts by the victims of a system malfunction.

According to international customary law and international conventions,²⁰ State Authorities and State Agencies cannot be sued in foreign courts in relation to "*acta iure imperii*", which refers to any situation where a State acts as an Authority and not as an economic operator, *i.e.* "*iure privatorum*". In this respect, it is vital to know whether the State-run infrastructure supplies a public or a private service, or both.

It is reasonable to assume, therefore, that when the signal service is provided for military purposes, the State-immunity rule will be invoked, whereas if the application is of a mere commercial nature, even States must be treated as common economic operators liable to be sued for compensation for damage caused by a system malfunction. In any case, if the problem of State immunity is not properly addressed, it is easy to foresee that, with reference to G.N.S.S. activities, States will seek to extend the principle of immunity as far as they can, given the high levels of compensation for which they otherwise risk being liable.

This problem is not a new issue in the liability regimen but rather a focal point for international conventions on different specific matters that exclude the State-immunity exception in order to improve the position of the victims. One example is the 1960 Paris Convention²¹ which, in its Article 13, says that "*if an action is brought against a Contracting Party under this Convention, such Contracting Party may not, except in respect of measures of execution, invoke any jurisdictional immunities before the court competent in accordance with this Article*"; another is Article 14 of the 1992 Fund Convention,²² according to which "*Any State which is bound by a declaration made under this Article shall, in any proceedings brought against it before a competent court in respect of any obligation specified in the declaration, waive any immunity that it would otherwise be entitled to invoke.*"

²⁰ See the *Basel Convention on State Immunity* 1972 and the *United Nations Convention if Jurisdictional Immunities of States and Their Property* 2004.

²¹ *Cf. supra* note 12.

²² *Cf. supra* note 6.

Another problem arising from the current legal framework concerns international jurisdiction. As we have said, the multiplicity of applications connected to the satellite system goes hand in hand with the multiplicity of persons and goods that could be injured or damaged. Therefore, on the one hand, different courts may grant different levels of compensation for the same damage, involving a race to those courts that award the higher compensation and giving rise to the well known phenomenon of “*forum shopping*” and, on the other hand, if there is no uniform liability regimen signalling who is responsible for the system malfunction, conflicting decisions may be taken in which the service provider or the signal provider may or may not be considered as the party responsible for the damage. However, since international treaties covering specific matters usually have a jurisdiction clause that determines the exclusive competence of a specific court, this unsatisfactory situation can be avoided.

In this connection, we recall what we have already observed in relation to the global effects of G.N.S.S. and the need for a uniform and mandatory liability regimen by means of an international convention. We have already indicated that a contractual framework is not the answer because, even if the “choice-of-law” clause were binding, each contract would designate a different national law selected in the best interests of the contractual parties but not necessarily in the best interests of the victims. If a framework agreement supporting a contract could definitely point to a particular national law as the best choice for contracts concerning G.N.S.S., could these same laws not also provide the ideal balance between competing interests of service providers and victims? Is there a national law that deals with G.N.S.S. liability issues? Is that law the best solution for victims? Will service providers and signal providers accept this rule?

These considerations lead us to believe that the best solution would be a convention setting up a uniform liability regimen rather than leaving this matter to conflict-of-law rules related to G.N.S.S. services.

The final aspect that deserves attention concerns recognition and enforcement of judgements and the granting of compensation for the victims of a G.N.S.S. malfunction. If a judgement cannot be enforced or even recognised in the State where the defendant’s assets are located, any liability regimen would be useless. At present, there is no uniform international regimen dedicated to this purpose. However, at the European level, parties could benefit from the Brussels I Regulation, should the matter fall within the scope of application of that regulation (*i.e.* civil and commercial matters), something that is not clear at present.

Many situations may be imagined where a foreign judgement affording compensation to a victim of the system malfunction will not be recognised or enforced; after all, in many cases, States would be directly involved in any disputes concerning G.N.S.S. and the relevant issues could affect the fundamental principles of their legal system.

In light of its review of the existing legal framework, the ICAO Study Group proposed a different approach to the problem of liability relating to G.N.S.S. and identified three desirable key elements: (i) to ensure that the doctrine of sovereign immunity and related principles would not be an obstacle to bringing all potential defendants, including all parties involved in the provision of the G.N.S.S. services, into legal proceedings before the court where the victim of an accident involving failure or malfunction of G.N.S.S. has brought action; (ii) to establish an adequate recourse action mechanism; and (iii) to ensure adequate compensatory coverage through compensatory fund arrangements, as has been done in the maritime transport industry and other industries (e.g. the nuclear damages convention).

Although ICAO is not fully convinced of the need for an international convention at this time, the authors of this article conclude, in the light of the foregoing, that a predictable and consistent regimen addressing possible dramatic situations would be the best solution, both in order to boost confidence in the new G.N.S.S. technology and to encourage private investors to develop new applications.

Even though the present rules do not altogether exclude victims from compensation in cases of damage caused by G.N.S.S., the complexity and the uncertainty of these rules make it difficult, or even impossible, for victims of such damage to receive fair compensation, encouraging potential defendants to ignore these concerns until it is too late.

7. Which model for a convention on third party liability?

Now that we have examined the arguments at the heart of the need for an international convention on civil liability for satellite-based services, the next step concerns the identification of a model for the draft convention.

First of all, the convention should deal with a uniform substantive law of civil liability related to G.N.S.S. services and not with private international law rules. It is not uncommon for States to find an agreement on the harmonisation of private international law rules related to a specific topic, both with reference to conflict-of-law rules and to international jurisdiction, even when a

uniform discipline is seemingly impossible to achieve due to great differences in the national substantive laws.

However, this compromise does not fully satisfy the requirement for certainty in respect of G.N.S.S. since the issue of the identification of the responsible party and the amount of compensation will, in any case, vary from State to State.

Obviously, an international convention cannot cover all the issues related to a G.N.S.S. liability system; that is why national substantive laws will retain a subsidiary role while the international rules confine themselves to establishing basic principles and standards in order to provide financial protection against damage resulting from a G.N.S.S. malfunction.

From the analysis of the existing international instruments on civil liability, it is evident that the best way to manage this kind of liability is to submit it to a strict liability principle, channelled exclusively toward a solely responsible, easily identifiable and economically reliable party to the exclusion of any other private or public party.

In applying a strict liability principle to G.N.S.S., the damaged party would only be required to show that the loss could be attributed to the system malfunction and would not have to demonstrate the fault or negligence of the party called upon for compensation. According to this regimen, the damaged party is relieved of the burden of proof – it need not prove that the damage was linked to the negligent conduct of the responsible party and need only prove the causal connection between the damage and the system malfunction.

In applying the rule of responsibility, the responsible party must be identified. Considering the possible chain going from the signal provider to the end-user, it might be quite difficult to identify the exact person to be sued for compensation. Therefore, the international and uniform regimen, in channelling liability, must be able easily to identify a specific party that is economically reliable and performing a presumably hazardous activity. This principle has been worked out to “internalise” costs deriving from the performance of hazardous activities, allocating the total costs of reimbursement, prevention and restoration to the party that created the conditions which resulted in the alleged losses.

The reference model should be that embodied by the 1963 Vienna Nuclear Convention, as amended by the 1997 Protocol,²³ which establishes

²³ *Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage* 1997.

that liability is channeled exclusively to the operators of the nuclear installations and that liability of the operator is absolute, *i.e.* the operator is held liable irrespective of fault. This means that no person other than the operator shall be held liable for nuclear damage in respect of any victims.

Channelling the liability on one person entails attributing responsibility to a party that can be easily identified, is economically reliable and engaged in presumably extremely hazardous activities while simultaneously making it possible to exclude from responsibility any other party involved in performing such services, at least towards third parties.

A proper G.N.S.S. civil liability convention would allow victims of an accident arising from a G.N.S.S. system malfunction to identify the responsible party as the "person" with the abovementioned characteristics. That "person" would be the most qualified to be the responsible party both *vis-à-vis* the victims (owing to the plain relationship between itself as service provider and the end-users, rendering it easily identifiable and, as a consequence, capable of being sued before the competent court) and *vis-à-vis* the party from which compensation was claimed. The service provider would be the most appropriate party to internalise the costs of a performed hazardous activity since it would be in a position to take out adequate insurance coverage before commencing operations.

However, some protection clauses should be introduced in order to mitigate the impact on the responsible party of strict liability channelled towards a specific party. Some common exemptions from responsibility include cases where an accident is caused directly by an act of armed conflict, hostilities, civil war or insurrection, the consequence of armed conflict or by an act of terrorism or any act having similar characteristics, and by serious natural disasters of an exceptional nature. Furthermore, the operator can be wholly or partially relieved from its obligation to pay compensation in respect of the damage suffered by a party who caused the damage either through its own gross negligence or from an act or omission committed with intent to cause damage.

Furthermore, statutes of limitation to compensatory actions and limits to the amount of compensation could be established; in respect of the maximum amount that can be awarded, the limit is usually established by considering not only the value of the type of service that is provided but, above all, by considering the insurance market and its ability to support claims for indemnity from damaged parties. In fact, international practice calls for compulsory insurance at the responsible party's charge for an amount at least equivalent to the abovementioned limit in order to guarantee full financial

coverage for the alleged damages and for the protection of victims and responsible parties alike.

Strictly connected to this clause, the means to claim directly against the insurer can be given to the damaged party. This approach would certainly reduce procedural costs and simplify the compensation mechanism, distinguishing the relationship between the insurer and the insured responsible party from the right of the victims to be made whole.

Given the significant damage that could also be caused by a system malfunction, and always keeping in mind the aims of an international regulation in this field, a supplementary compensatory fund could be established the reference models for which would be the 1971 FUND Convention and the Convention on Supplementary Compensation for Nuclear Damage 1997, providing for payment of supplementary compensation to those not able to obtain full compensation for the damage from the responsible party.

With regard to the FUND Convention, this compensatory fund is financed by contributions levied on companies in FUND Convention countries that receive crude oil and heavy-fuel oil by sea, a key application of G.N.S.S. activities. Because of the unique bond between private operators and public entities in the exploitation of satellite systems, the authors of this article suggest that the fund should be financed by States in proportion to the benefits they derive from the system's use.

With reference to the conditions under which the damaged party should benefit from the supplementary compensation, the general rule – stating that the right to extra-compensation arises only if the responsible party and its insurer cannot meet the reimbursement obligation, if the liability limit is lower than the total reimbursement claims or if an exoneration clause excludes liability – should be capable of being easily translated and applied to G.N.S.S.

Finally, provisions should be included as to the conditions under which sovereign immunity may not be invoked in order to avoid situations where parties would be unable to seek redress due to this rule. The convention should also propose exclusive jurisdiction for a court, preferably for courts of the participating countries, in whose territory the damage occurred.

8. Conclusions

It emerges from the analysis of the premises of possible solutions for issues of liability deriving from G.N.S.S. that the proper legal framework for a uniform regimen of G.N.S.S. third party liability is an international uniform law convention. The need for such an instrument arises mainly from the fact that

such a regimen implies mandatory rules and may not depend on acts of private autonomy not capable of (i) protecting victims of accidents in a specific industry characterised by a high risk factor and (ii) introducing an element of certainty in the system of compensation for major damage.

The case for an international convention becomes even stronger if we consider the global aspect of G.N.S.S. and the spectacular growth of this technology across the spectrum of economic activity, by now independent of its original military purposes. In fact, differences among States' legal orders are emphasised where trans-national phenomena are concerned and where the relevant damage can be imagined and different courts could be seized.

In such cases, the uncertainty connected with the new technology underscores the need for a uniform mandatory regimen as the best solution to remove that uncertainty and to balance the different interests involved in the exploitation of satellite-based applications.

Moreover, the international nature of the subject-matter implies that many different legal orders now regulate the phenomenon, each setting their own laws and principles based on different political imperatives and economic needs. As we have seen, these differences in national regulations cause uncertainty for all the parties interested in the provision of G.N.S.S. services; hence, in order to address States' policies and laws, a uniform international regimen should be established independent of national legislative trends.

