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The legal regime of arctic ice in international law

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The sovereignty over territory beyond the North Circle has been a subject of a nearly 100 year-old debate. During the last centuries the north part of the continents were occupied or obtained under other legally justified titles by neighboring States. Later, in the beginning of the 20th century shipping facilities attracted naval States to shorten sea routes between the Atlantic and Pacific Ocean and the restriction of freedom of the seas and expansion of State sovereignty was the aim of Arctic coastal States. Nowadays, it is the huge unexploited oil and gas resource lying in the continental shelf under the Arctic Ocean is the most attractive force in the area beside sea routes.¹ Regarding that these most valuable parts of the Arctic region are beyond the exclusive jurisdiction of coastal States but not beside the circle of interest of States, it is to be examined whether it is possible to expand jurisdiction on this part of the Arctic Ocean as it the domain of *mare liberum* just like many other similar area of the world. Or it is not? The surface of Arctic Ocean is as a matter of fact covered by ice sheets, ice islands and ice floes. Are the same titles of acquisition of territory legally applicable to expand and exercise jurisdiction over ice – and of course to obtain the coastal States' right to exploit the possibilities in the seaward zones belonging to coastal State? Does *terra firma* falls under the same legal regime as *terra glacia*? It is an important question of our time as owing to technical development and melting of ice the accessibility of northern regions is getting less difficult and causing more problems to the international community.²

I. The regime of the Arctic Ocean

The Arctic is a 4.300 meters deep ocean surrounded by a vast and nearly continuous continental belt and covered by not a coherent ice cover, but moving ice formations of various thicknesses.³ According to general law of the sea, beyond territorial waters of coastal States it is governed by the freedom of the seas doctrine restricted by rights inherent to contiguous and exclusive economic zones.⁴ However, it is a long time standing tendency that certain coastal States – namely Canada and the USSR – intend to expand their sovereignty beyond territorial seas under different titles like environmental protection.⁵

1.1. The freedom of navigation on high seas of the Arctic Ocean⁶

Owing to technical development and the reduction of massive ice sheet in the region, marine transport is becoming more and more frequent. During naval expeditions of the last

¹ J. Molde, *The Status of Ice in International Law*, 51 Nordisk Tidsskrift Int'l Ret 164, (1982), p. 164.

² J. Jansen, *Crime in the Arctic*, <http://arctic-council.org/article/2009/8/crime_in_the_arctic> (19.08.2010.)

³ See, Molde, supra note 1, p. 166, Pharand, Donat, *The Legal Status of the Arctic Regions*, Académie de droit international, Recueil des courses, 1979. II. Vol. 163. p. 79.

⁴ See, United Nations Convention on the Law of the Sea, 10 December 1982, 1833 U.N.T.S. 3. [UNCLOS] Art. 86.

⁵ See, Arctic Waters Pollution Prevention Act, Edict of the Presidium of the USSR Supreme Soviet, 28 February 1984, On the Economic Zone (1984).

⁶ Sea territory beyond territorial water of coastal States considers as high seas. See generally, UNCLOS, supra note 1.

century, two main sea routes were used in the northern waters: the *Northwest Passage* along Canadian territories and the *Northeast Passage* along Russian coasts beyond the territorial seas of the mentioned coastal States in an area where the freedom of navigation is a right to all States.⁷

The *Northwest Passage* is a sea route through the Arctic Ocean, along the northern coast of North America via waterways amidst the Canadian Arctic Archipelago, connecting the Atlantic and Pacific Oceans. As the strategic and economic importance of the route is obvious as it may be the new shipping route between the oceans to transport the exploited oil and gas in the area, thus the coastal States insist on keeping the routes under coastal control despite *mare liberum*.

The first incident which highlighted the Northwest Passage happened in 1969 when the U.S. *Manhattan*⁸ crossed the route to explore it as a potential new transfer route for oil cargo. This event injured Canadian interests as the State had long before considered the route as its own, belonging under Canadian jurisdiction, as in their point of view, the frozen territory of the route had been occupied by a Canadian Inuit. To emphasize its jurisdiction, Canada tried to make its governance unequivocal over the route by invoking different arguments. In the first place, Canada extended its territorial sea from 3 to 12 miles, then it established a new zone in a 200 mile from the shores for the prevention of vessel pollution.⁹ The Act does not prohibit navigation in the zone, just control it with safety regulations, which were legalized by the international community in Article 234 of UNCLOS.¹⁰ Concerning the Arctic Archipelago, that part of the route which goes through it, is governed under the regime of historic water¹¹ and straight baselines were also established around the coast – including ice shelves – to extend State territory considering the whole archipelago as an archipelago state despite that according to existing – and former – law of the sea this regime is not applicable there.¹² In addition, in 1988 the US and Canada concluded that without Canadian consent no U.S. vessel is entitled to sail the Northwest Passage.¹³ This Act inevitably recognizes Canadian governance over the Passage despite the fact that navigation on high seas is free to all.

Concerning *Northeast Passage* and the former USSR, the State followed the Canadian practice as established straight baselines along its coasts and all of their islands as in this case state territory is more expanded, thus the Passage crosses internal water between the coastal islands.¹⁴ This way the delimitation of maritime zone also expanded.¹⁵ The former USSR also established a 100 mile zone for the same pollution prevention purposes just like Canada in 1970.¹⁶

It is clearly seen from the practice of the above mentioned States that the freedom of the seas doctrine is restricted in Arctic Ocean concerning sea routes.

⁷ UNCLOS, supra note 1, Art. 87. 1. a)

⁸ Borgerson, Scott G., *Arctic Meltdown*, The Economic and Security Implications of Global Warming, Foreign Affairs Volume 87 No. 2. p. 70.

⁹ Arctic Waters Pollution Prevention Act 1970. <<http://laws.justice.gc.ca/en/ShowFullDoc/cs/A-12///en>>(2009.04.15.)

¹⁰ UNCLOS, supra note 1, Art. 194; M.M. Barton, Canada's Arctic Quest – Recognized Sovereignty in a Secure North. <http://wps.cfc.forces.gc.ca/papers/csc/csc33/exnh/barton.pdf>. (2007.09.15.)

¹¹ Pharand Donat, *Canada's Sovereignty over the Newly Enclosed Arctic Waters*, The Canadian Yearbook of International Law, 1987. p. 325.

¹² Theutenberg Bo Johnson, *The Arctic Law of the Sea*, 52 Nordisk Tidsskrift Int'l Ret 3 1983. p. 18-19.

¹³ Canada and United States of America Agreement on Arctic Cooperation signed at Ottawa on 11 January 1988. <http://untreaty.un.org/unts/60001_120000/30/4/00058175.pdf>(2009.04.15.); P. Kunig, *Arctic*, Encyclopedia of International Law 12, Geographic Issues. North-Holland 1990, p. 27.

¹⁴ Novaya Zemlya, Severnaya Zemlya és Novosibirskiy Ostrova szigetek.

¹⁵ R.D. Hayton, *Polar Problems and International Law*, American Journal of International Law, 1958, p. 749.

¹⁶ A. Kolodkin, M. Volosov, *The Legal Regim of the Soviet Arctic*, Marine Policy (March 1990), p. 158-168.

1.2. Air and space over Arctic Ocean

According to the principle of *mare liberum* every State has the right to fly over the high seas.¹⁷ It is the only privilege of the high seas which is not restricted by Arctic States.¹⁸

II. The question of ice: the terminology and specificity of ice formations on the Arctic Ocean

Ice is ice in the everyday terminology, but not in the case of Arctic as the different types of ice formations can serve basic for different legal approaches considering their status in international law. In this view, the ice drifting around in the Arctic Ocean consists of ordinary sea ice in the shape of *ice floes*, but also of *icebergs* broken off from glaciers, and the so called *ice islands*, the fragment of *ice shelves*. No matter which category may it be, because of its physical qualities, but it is a common view, that it is more similar to land than water or at least it is admitted as a *sui generis* category as a compromise between water and land.¹⁹

In 1946 the U.S. Air Forces spotted by radar that huge ice masses are moving on the surface of Arctic Ocean, very much thicker than the surrounding ice floes and when it was proved that it is was not a unique phenomenon, the search for their place of origin was intensified.²⁰ It was *Dr. Hattersley-Smith*²¹ who traced scientifically the origin of the huge ice islands drifting on Arctic to the ice shelves of northern Ellesmere Island.

Ice shelves were known to exist off the north coasts of big islands like Ellesmere Island, Spitsbergen or Severnaya Zemlya as the frozen continuation of land used by indigenous people – because of its characteristics – the same way as *terra firma*. They can extend a few meters or several hundred km from the shore and when its surface level becomes higher than about 2 m above sea level, it is stable enough to be called shelf. The periodic breaking-off of large areas of this shelf forms the *ice islands* drifting in the Arctic Ocean.²² By the 1960s only around the shores of Ellesmere Island located ice shelves.²³

Ice islands are huge fragments detached from ice shelves off Ellesmere Island which differs from *ice floes* in thickness as ice islands are more stable and massive because of their dimension and big shape. ²⁴ These ice formations are frequently used as drifting scientific stations, but they are exposed to the play of transpolar drifts and this way, to fragmentation as it happened in the case of ARLIS II. in 1965.²⁵ Additionally, it is to be noted that because of climate change,

¹⁷ UNCLOS, supra note 4, Art. 87 paragraph 1, b).

¹⁸ Pharand, supra note 3, p. 107-108.

¹⁹ R.S. Reid, *The Canadian claim to Sovereignty over the Waters of the Arctic*, Canadian Yearbook of International Law Vol. 12, 1974, p. 116-119.

²⁰ Pharand Donat., *The Legal Status of Ice Shelves and Ice Islands in the Arctic*, Les Cahiers de Droit, 1969, p. 462-463.

²¹ Dr. Hattersley-Smith member of the Royal Geographic Society was known as scientist of the polar areas. <[www.antarctica.ac.uk/apc/minutes/APC\(06\)01_minutes.pdf](http://www.antarctica.ac.uk/apc/minutes/APC(06)01_minutes.pdf)> (15.09.2007.)

²² G. Hattersley-Smith, *The Ellesmere Ice Shelf and the Ice Islands*, The Canadian Geographer n. 9 1957. at 67. Pharand, supra note 3; p. 87-88. Pharand, supra note 11, p. 325.

²³ The Milne Ice shelf, the Asyle Ice Shelf, the M'Clintock Ice Shelf and the Ward Hunt Ice Shelf. Average thickness of ice shelves was 45-50 m in the 1950s, in 1999 it was only 35 m. W.F. Vincent, J.A.E. Gibson, M.O. Jeffries, *Ice-shelf collapse, climate change, and habitat loss in the Canadian high Arctic*, Polar Record 37 (201): 133-142 (2001).

²⁴ Pharand, supra note 20, p. 467.

²⁵ Pharand, supra note 20, p. 469.

in the last decades the ice cover of Arctic Ocean has diminished radically, and there are periods when a huge quantity of ice disappears, than in winter time it regenerates. In these cases the newly formed ice cap is always less resistant to environmental impacts than the old ice, which never melts, thus not just their stability is questionable, but their relevance in international law. Nowadays, when the average temperature in the Arctic has enormously increased,²⁶ ice floes are directly affected by this phenomenon, thus in the authors point of view they can be ignored in the question of legal qualification of ice formations, as they are not stable enough to be able to cause neither practical, nor doctrinal problem in international law.

The main question then is whether the stable, massive ice islands are capable of occupation and thus can they be considered as floating pieces of territory or are they considered as a merely new category of international law.

III. The legal status of ice formations: the possibilities and difficulties of qualification of each category

As a matter of fact, ice formations are naturally formed frozen pieces of water, but according to State practice and the lack of explicit regulation the legal status is not defined and ice islands are even considered by some literature as a new mode of occupation of the sea restricting the freedom of the seas.²⁷ In this point of view it is necessary to make a legal difference between ice shelves and ice islands.

In literature and in legislator acts of coastal States – mainly that of Canada – ice shelves are often assimilated to lands as their relatively permanent nature makes it possible that the outer edge of ice could be used as a base for determining the marine zones.²⁸ For instance the fishing boundaries regulations No. 629 of 22nd December 1976 and No. 176 of 14th May 1980 lay down a system of straight baselines for determining fishing limits of Greenland. The same rule was established in 1963 for delimitation of territorial of Greenland.

Considering State sovereignty on ice sheets, it can be the object of occupation as the exercise of sovereignty can undoubtedly be effective regarding that local inhabitants use the frozen sea as an extension of the land to travel over by dogsled and snowmobile just as the same way as the ice covered land, thus the requirements of occupation namely the element of *animus* (will of the State) and *corpus* (effective exercise of sovereignty) is fully satisfied.²⁹

Under existing law of the sea³⁰ there is nothing to prevent States to establish straight baseline to determine their coastline because of the presence of ice sheets as these ice formations fully satisfy the demands for permanence and stability as well as *terra firma*. Article 7 of UNCLOS as a matter of fact provides for that if the coastline is deeply indented and cut into, this method can be applied, and it does not mention whether it is important what causes the cuts in the coastline. In addition, it regulates the question of unstable coastlines as it says

²⁶ Over the past 30 years, the annual average sea-ice extent has decreased by about 8%, or nearly 1 million km², an area larger than all of Norway, Sweden and Denmark combined, and the melting trend is accelerating. Sea-ice extent in summer has declined more dramatically than the annual average, with a loss of 15-20% of the late-summer ice coverage. *Impacts of a Warming Arctic. Highlights*, ACIA, Cambridge University Press 2004, p. 5.

²⁷ See especially, Ch. Hubert, *Les îles artificielles*, avril-juin 1967. 71, R.G.D.I.P. p. 342-368.

²⁸ Molde, *supra* note 1, p. 165

²⁹ Oppenheim L.F.L.: *Oppenheim's International Law*, Vol. 1, Peace, Longman, 1928, p. 451-53.

³⁰ UNCLOS, *supra* note 4, Art. 7.

that if *any natural conditions* cause the unstable character of the coastline, the appropriate points may be selected along the furthest seaward extent of the low-water line, too.³¹

Instability in connection with ice shelves means that they melt as temperature increase which is a common phenomenon in the Arctic, too. Before the entry into force of UNCLOS, the literature suggested to take the average limit of the extension of ice shelves in the summer and in the winter, too, and fix it in legislator act, or to apply by analogy the regulations concerning rivers as their bed and route is also changeable as it depends on - among others - its speed, on the fluvial deposit etc.³² Nowadays, regulations like that are not necessary as UNCLOS enables States to maintain the straight baselines established in accordance with a larger extent of ice sheet.³³

3.1. *Ice shelf as terra firma*

The legal status of ice shelves in international law has never been determined but there appears to be a consensus among interested States that they are ought to be considered as lands.³⁴ These shelves exist and used as continuous extent of land in every respect by indigenous people as they form an interconnection between the fjords of the coast in a perfect union. It differs from the category of ice islands which is analyzed in the following.

3.2. *The possible qualification of ice islands*

3.2.1. *Ice island as land*

If ice sheets are considered as State territory and considering that ice island originally formed the territory of the State as the part of ice sheets, with fragmentation they became independently drifting ice formations, thus the question of legal Status can be raised again: whether this formation remains the part of State or can it be considered as *res nullius* once detaches and subject to territorial acquisition by the first occupant?³⁵ Can it be considered as land at all as it has no more connection to the main shelf and it is like a drifting island? In this view, can it be considered as an island?

Earlier, when the spirit of sector theory was still in the air, several legislations of coastal States did not made any difference between sea, ice or land when delimitation of territorial effects of such act was defined, States simply ignored the importance of such ice formations.³⁶ When a Soviet used ice island as scientific station drifted into Canadian waters in 1977, for instance, the government stated that the presence of ice island does not constitute a threat to Sate interest as it is scientific in nature.³⁷ The USSR showed the same ignorance concerning scientific used ice islands drifting into Soviet waters.³⁸ As for problems caused by the moving character of ice islands, it was a common practice of the USSR to abandon scientific stations on ice islands when they drifted out of the waters of Soviet waters.³⁹

³¹ UNCLOS, supra note 4, Art. 7. (2)

³² Molde, supra note 1, p. 144.

³³ UNCLOS, supra note 4, Art. 7(2)

³⁴ Pharand, supra note 20, p. 461.

³⁵ Molde, supra note 1, p. 168; Pharand, supra note 20, p. 473.

³⁶ See, AWPPA, Soviet decree of 1926

³⁷ S. Boyde, *The Legal Status of the Arctic Sea Ice*, The Canadian Yearbook of International Law 1984, Vol. 22. p. 108.

³⁸ Ibid, p. 112.

³⁹ Ibid, p. 113.

This practice cannot be followed as technological development can enable States to exploit not just for scientific purposes these formations but for other aims, too in accordance with economic interest and sovereignty claims, therefore the question of legal qualification of ice island could not be waited more.

Many times ice islands were assimilated to *terra firma* as well as ice sheets, as they are fragments of the latter, as it was the basis for Canadian jurisdiction in the *R. v. Tootalic* case.⁴⁰ It is obvious that they cannot fall under the same regime as continents – as ice shelves – but whether they could be assimilated to ordinary islands. On the other hand, Soviet proposals indicated that broken off fragments of land-like ice shelf should be considered as Soviet territory, and it should remain subject to Soviet sovereignty once it entered the high seas or after breaking off, it should be considered as abandoned territory, *res nullius*, or it should be regarded as water and therefore high sea.⁴¹

The first possibility is not in conform with Soviet practice regarding that the abandon of ice islands entering the waters of other States, although it would pose enormous problems if a floating State territory would appear in the territorial sea of a foreign State. In this sense, the regime of ships would be more convenient to apply in order to coastal State protection. The second solution which considers ice island as high sea is quite contrary to the qualification of ice shelves as *terra firma*, but it also would signify the unimportance of these lands, and causes a misuse of the freedom of the seas. The third solution is more acceptable as similar to land base qualification, but this legal solution is also too far from the legal qualification of ice shelves which are the origins of the islands.

As for the qualification of ice islands as ordinary island, the regime of the latter needs to be examined whether an analogy can be applied for these ice formations, too. The UNCLOS rules are the same as the 1958 were in the qualification of islands,⁴² that is a naturally formed area of land, surrounded by water, which is above water at high tide.

The International Law Commission added that artificial elevations, which are above water at low tide only, are not to be considered as islands, even if an installation such as lighthouse is built upon them.⁴³ The importance of natural origin is also emphasized in the 1958 Continental Shelf Convention as it provides that technical installations for the exploration or exploitation of the continental shelf do not possess the status of islands and have no territorial sea of their own, and its presence does not affect the delimitation of maritime zones.⁴⁴

In view of these regulations, in order to have the legal status of an island, there are two conditions to fulfill: the physical feature must be naturally formed and it must have permanency of location. The first condition is satisfied as no one doubts the natural origin of ice, but the second one concerning localization is problematic as one of the main characteristics of ice island is that they are drifting. In the case if it is located or anchored to the continental

⁴⁰ The offence was the shooting of a female polar bear with young on sea ice in Parsley Bay in 1969 beyond territorial sea of Canada. Boyde, *supra* note 37, p. 110.

⁴¹ Boyde, *supra* note 37, p. 114. See also, Butler, William, E.: *Northeast Arctic Passage. Alphen aan den Rijn*. Vol. 72. The Netherlands, 1978, p. 76.

⁴² Convention on the Territorial Sea and the Contiguous Zone. Geneva (29 April 1958), 516 U.N.T.S. 205. Art. 10, paragraph 1. and UNCLOS, *supra* note 4, Art. 121. 1.

⁴³ Articles concerning the Law of the Sea with commentaries. Yearbook of the International Law Commission. 1956 Vol. II. commentary of Art. 10, 2. (i); See also, Pharand, *supra* note 3, p. 94.

⁴⁴ United Nations Convention on the Continental Shelf Geneva (29 April 1958). 499 U.N.T.S. 311. Art. 5 paragraph 4; UNCLOS, *supra* note 4, Art. 60 paragraph 8.

shelf for instance, the legal qualification became immediately similar to that of artificial islands created for scientific or economic purposes. Generally, as a matter of fact, the use of ice island aims the same as the use of artificial islands. (See) Nor the legal regime of rocks can be applicable to ice islands – except for that rocks shall have no exclusive economic zone or continental shelf – despite the similarity namely that both of them are inapt to sustain human habitation or economic life of their own, as rocks fall under the same regime as island thus not just natural formation is required but permanent location, too.⁴⁵

3.2.2. Ice island and ice floe as artificial island

The possibility of establishment of artificial islands in order to exploit or explore sea territories is not a recent achievement⁴⁶ nor the application of ice island as scientific or exploiting stations.

Until the beginning of the 1960s, drifting ice islands were simply used for scientific exploration of the Arctic environment as weather conditions and ice covering the ocean surface did not made possible anything else.⁴⁷ In the 1960s, when the real economic importance of Arctic was revealed,⁴⁸ the Canadian *Panarctic Oil* company has developed a technology whereby the natural ice islands are artificially thickened into ice platforms which is apt for carrying the weight of conventional land drilling rigs. Such installations are used in exploration of oil and gas reserves.⁴⁹ This way the original product of nature is transformed into a more or less artificial establishment and with drilling activity, it is inevitably fixed, thus falls under the legal regime of other drilling platforms on the continental shelf in accordance with existing rules. It means that they fall under the jurisdiction of the coastal State - regarding that it is the prerogative of the Coastal State to exploit its continental shelf - but does not enjoy the status of island surrounded by their own territorial sea. Coastal State is only entitled to establish a 500 m security zones in order to the safety of navigation.⁵⁰

Concerning ice islands which are not used for economic purposes in conformity with the freedom of the seas doctrine, but for scientific exploration may also fall under the same regime if they are fixed to the seabed or anchored, and not drifting.⁵¹ Those ice islands which are drifting on the Arctic Ocean as scientific stations evidently falls out of this legal category.

3.2.3. Ice formation as a ship

Ice islands used for scientific stations and drifting with currents are similar to ships because of their moving character. Although the legal status of these naval traffic instruments

⁴⁵ UNCLOS, supra note 4, Art. 123 paragraph 3.

⁴⁶ United Nations Convention on the Continental Shelf. Geneva, supra note 44, Art. 5 paragraph 4; UNCLOS Art. 80, Art. 60.

⁴⁷ The USSR established her first scientific station on ice island in 1937, the USA in 1952 and Canada in 1979.

⁴⁸ Exploration of resources of the region has started in the '50, and in the 80s it was clear that potentially recoverable reserves of hydrocarbon is between 100-200 billion barrels of crude oil and up to 2,000-3,000 trillion cubic feet of natural gas. Osherenko, Gail – Young, Oran R., *The Age of Arctic: Hot Conflicts and Cold Realities*, Cambridge, 1989, p. 45. Nowadays 25% of the world's remaining oil and gas location is estimated to be hidden here. Arctic Geological Survey: estimation of undiscovered oil and gas North of the Arctic Circle. A USGS fact sheet from July 2008. The U.S. Geological Survey (USGS) <http://geology.com/usgs/arctic-oil-and-gas-report.shtml>

⁴⁹ Pharand, supra note 3, p. 87-88.;

⁵⁰ UNCLOS, supra note 4, 80. cikk.

⁵¹ UNCLOS, Art. 87. paragraph 1., point d) and f) The high seas are open to all States, whether coastal or land-locked. Freedom of the high seas is exercised under the conditions laid down by this Convention and by other rules of international law. It comprises, inter alia, both for coastal and land-locked States: (d) freedom to construct artificial islands and other installations permitted under international law, subject to Part VI; (f) freedom of scientific research, subject to Parts VI and XIII.

have been governed by international law for long time but no international definition of a ship has ever been adopted.

The first initiative in the literature to determine the basic characteristics of ships issues from *Gidel* in 1932 as he concluded that the most important element in the definition of a ship was the capacity for navigation.⁵² His concept was adopted by *François* at the discussion of the International Law Commission as drafted an article which was not embodied in either of the conventions of 1958.⁵³ The Permanent Court of International Justice also dealt with the question of ships in the *Lotus* case in 1931 and it stated that ships on high seas was to be considered a floating part of the territory of State⁵⁴, but no definition was given.

Although many conventions govern naval transport but only a few include the definition of the concept of ship. The OILPOL – convention for instance defines ship as any seagoing vessel of any type whatsoever including floating craft, whether self-propelled or towed by another vessel, making sea voyage.⁵⁵ The Oslo Convention of 1972 uses a shorter but really general definition as it states that ships and aircraft means seagoing vessels and airborne craft of any type whatsoever, whether self-propelled or not, fixed or floating.⁵⁶ In 1978 the Federal Court of Canada defined ships as any description of vessel or boat used or capable of being used solely or partly for marine navigation without regard to method or lack of propulsion.⁵⁷

As it is seen from the different definitions cited for example, and in view the general governance, ship is normally capable of being propelled forward, steered by its own power.

In comparison, ice islands are also moving, but not movable and not registered anywhere, in addition, the team of scientists may be made up of the nationals of many States, not to mention the fact that either of the definitions mention that it refers to natural formations and not just artificial, man-made creations.⁵⁸

The question of qualification of ice island as ship occurred for the first time in 1970 in the case of *Escamilla* in connection with criminal jurisdiction of a crime committed on an ice island used as scientific station known.⁵⁹ Concerning the case, it was noted that there were certain similarities between ship and ice island as both of them could be used as a platform for work or any other activity like research and both of them moves about the ocean. Beyond these similarities, a ship belongs unequivocally to one particular State, but ice islands are not registered anywhere, in addition, the team of scientists may be made up of the nationals of many States.⁶⁰ In connection with *Escamilla-case*, another important element of qualification of ship was highlighted: the floating apparatus must be able to navigate on its own in order

⁵² Gidel Gilbert, *Le droit international public de la mer*. 1932, Vol. I. 65.

⁵³ International Law Commission Yearbook, Summary records of the seventh session, 2 Mai-8 July 1955. U.N. Document A/CN.4/SER.A/1955., p. 10.

⁵⁴ The Case of the S.S. Lotus (French Republic v. Turkish Republic) (1927) P.C.I.J. (Ser. A) No. 10. p.9. at point 3.

⁵⁵ International Convention on the Prevention of Pollution of the Seas by Oil, London, 12 May 1954, Art. 1 sect. 1.

⁵⁶ Oslo Convention for the Prevention of Marine Pollution from Dumping by Ships and Aircraft, Oslo, 15 February 1972, Art. 19 sect. 2.

⁵⁷ Pharand, *supra* note 3, p. 64.

⁵⁸ Pharand, *supra* note 3, p. 98-100.

⁵⁹ The crime happened on the scientific station established by the U.S. General Motors known as T-3 or Fletcher's Ice Island as M.J. Escamilla killed B. Lightsby. A. Cruickshank David, *Arctic Ice and International Law: The Escamilla Case*, 10 W. Ontario L. Rev. 178 (1971). p. 178.

⁶⁰ A.G. Ronhovde, *Jurisdiction over Ice Islands: The Escamilla Case in Retrospect*, Arctic Institute of North America, 1972, p. 13.

to be a ship.⁶¹ However many arguments were formed concerning legal status of ice islands, neither of them suggested any new legal regime for them.

The *Escamilla*-case pointed out some general problems regarding the lack of governance of drifting ice islands: what happens if wind and currents move the ice island into the territorial water of another state? Can this State exercise jurisdiction on it or shall the State respect the "*loi du pavillon*" like in the case of ships? And as a matter of fact, when is an ice island is occupied?

In the following I try to establish a legal regime for moving ice island used as scientific stations.

IV. Jurisdiction over ice islands used as scientific stations

Ice shelves are assimilated to *terra firma*, ice islands used for exploration or exploitation of continental shelf fixed or anchored to it falls under the regime of artificial islands, the only ice formation whose legal status is undefined is the drifting ice island.

As far as the author sees, the existing legal categories are apt to establish a legal regime for drifting stations. First, concerning the origin of ice from ice shelves, which belong to the jurisdiction of the coastal State, broken off fragments (ice islands) shall be considered as the remains of the State territory for a reasonable time until it is still present in the 200 mile zone. It is a prerogative of the coastal State to occupy the ice islands broken off the edges of their own coasts, and have it registered in an international registry system similar to that of ships. If the coastal State does not benefice of this prerogative, the ice island shall be considered *res nullius* when it drifts beyond the territorial sea of the coastal State as scientific research is the possibility for all the States in conformity with freedom of the seas. As for the jurisdiction on these ice islands, if it is presumed that they are used as drifting stations for the purpose or marine scientific research, and not as drilling platforms. In this view, ice island can be assimilated to ships, thus both the "flag State" and the coastal State shall be taken into consideration to determine jurisdiction.⁶²

4.1. Ice island beyond EEZ and continental shelf

The exclusive economic zone is an area where the coastal State is entitled to exercise its right to exploit its economic values but where the sea constitutes high seas,⁶³ but beyond this area and beyond the possible extent of continental shelf, the principle of *mare liberum* is to be applied without any limitation concerning rights of the coastal State.

No part of the high seas can fall under the jurisdiction of any State,⁶⁴ but in special cases coastal State has the right to interfere in the activity carried on an ice island, if the activity does not constitute a threat to the coastal State by military means or by pollution, the coastal State can apply the protective principle in order to exercise jurisdiction on these activities.

⁶¹ Pharand, *supra* note 3, p. 97.

⁶² Pharand, *supra* note 3, p. 100.

⁶³ UNCLOS, *supra* note 4, Art. 58-60.

⁶⁴ UNCLOS, *supra* note 86.

4.2. Ice island over continental shelf and in the EEZ of a coastal State

The exploitation and exploration of continental shelf is a priority of coastal State, foreign States can only perform research activities with the express consent of the coastal State, therefore, without the permission,⁶⁵ no ice island can be used for not even scientific purposes concerning continental shelf in this zone. If the research activity aims the continental shelf and the consent of the coastal State is given, the regime of artificial island shall be applied as the ice island is inevitably be fixed because of the drilling. It means that the activity is under the jurisdiction of the occupying State who carries out the activity.

The situation is different if the scientific research concerns the high seas and not the continental shelf, as it is the inherent right of all States issued from the principle of *mare liberum*, and requirement of consent of coastal State exists, and the freedom of research cannot be disturbed not even by the exploiting activity of coastal State, no matter what kind of instrument is used for, may it be a ship or an ice island.

4.3. Ice island on the territorial sea

According to existing law of the sea, coastal State has exclusive jurisdiction in the territorial sea except for two cases: the right of foreign ships to innocent passage and activities committed on the board of foreign States.⁶⁶ Because of the doctrine of floating State territory, coastal State cannot exercise criminal jurisdiction on foreign ships and ice islands -except for four cases.⁶⁷ Concerning the fact that ice island cannot be considered in every view as ships, it to be noted that the analogy of ships can only be applied to ice island if these ice formations are used for scientific research purposes.

V. Conclusion

Nowadays the area of the Arctic has got into focus as Russia managed to reach the North Pole and claimed the territory north of its coasts.⁶⁸ The Arctic is extremely rich in hydrocarbon stock and as technical development and changing of extreme weather conditions in the area, the exploitation of these resources is getting more realistic and easy, and coastal States will attach to their rights and will continue the extension of their sovereignty toward maritime areas.

⁶⁵ UNCLOS, supra note 4; Art. 246.

⁶⁶ UNCLOS, supra note 4, Art. 2; Art. 17. and Art. 27-28.

⁶⁷ UNCLOS, supra note 4, Art. 27.

⁶⁸ Russia sends troops to frozen north to claim Arctic resources. <<http://www.timesonline.co.uk/tol/news/world/europe/article5989257.ece>> (2009. 04. 11.)

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