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Climate deterrence: disasters and security after COP 21

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Abstract. The Paris Agreement (COP 21) indicates an effort of nations towards the creation of a worldwide mechanism to control climate. Estimated to enter into force in 2020, the Agreement recognizes that countries may be affected not only by climate changes, but also by the impact of the actions taken in response to those changes. The objectives of this paper are: to excite the discussion about securitization of climate change, discussing its relation with disasters and conflicts; and to identify items which have constructed the current *status* of climate change in political and security agendas, highlighting the contribution of COP 21. For that purpose, a *corpus* formed by 51 items, produced between the beginning of the Cold War (1945) and July 2016, has been examined according to the analysis units proposed by the Copenhagen School, mainstream for this research. The results obtained indicate: (i) construction of climate change as a threat to international security (linked to conflicts and disasters); (ii) building of financial mechanisms, among others, to align the conduct of countries in a political agenda; and (iii) increase of military sector participation in the debate about climate change and preparation for increased action in disasters. This study makes two contributions to the existing literature. First, it provides a framework of items which clarify the securitization process of climate change and its relation with security, disasters and the armed forces. Second, through this analysis, it underlines the inclusion of the military sector in the relation between climate change, security and disasters.

Keywords: Securitization, Conflicts, Disasters, Climatic Deterrence, Armed Forces.

1 Introduction

The United Nations Climate Conference (COP 21) ended with the adoption of a global climate agreement, estimated to enter into force in 2020 (On 5 October 2016, the threshold for entry into force of the Paris Agreement was achieved. The Paris Agreement will enter into force on 4 November 2016.). With ample support from the international community and member States, the Paris Agreement represents an effort to limit the increase of the planet's surface temperature. However, questions arise: What would be the implications of the Agreement for the climate change securitization

process? How would the relation between security and disasters be included in the securitization process?

The objectives of the present work are: to excite the discussion about the securitization of climate changes [1] - before COP 21, discussing its relation with disasters and conflicts; and to identify items which have constructed the current status of climate change in political and security agendas, highlighting the contribution of COP 21. Thus, the aim is to contribute to the proposed questions, which have been insufficiently discussed at the conceptual and operational levels.

2 Methodology

In order to answer the proposed questions, a corpus was gathered from western centres for security studies composed of official and academic documents on the following subjects: climate change (CC), security, disasters and armed forces (AF). The time frame established ranges from the beginning of the Cold War (1945) to July 2016; for the conceptual basis, however, the time frame was extended.

The criteria/filters used to select the final corpus were: (i) adhesion to the objective; (ii) to be a future bearing fact (repercussion in the public and political agendas); and (iii) to have impact on the security agenda. The selected mainstream was the Copenhagen School approach to securitization, taking into consideration the collectivity and the environment [2, 3, 4]. The analysis units selected for the study were those proposed by Buzan [3]: referent objects, securitizing actors and functional actors. The international system was maintained as level of analysis. To conclude, considerations will be presented on the results obtained, as well as suggestions for future approaches.

3 Results

The final corpus, composed by 51 items, comprises speech acts (discourses/documents) which support the securitization process phases, where CC is pointed out as a threat to referent objects linked to security. Some items do not fully correspond to the above mentioned nexus, but contributed to raise the debate on climate change, as a potential threat, and generated favourable conditions for the speech act to receive attention. Some disasters catalyzed by climate change were also included in the corpus.

Table 1 - Climate Change and Securitization shows the topics that were selected and examined. Besides intersection (CC, security, disasters and AF), elements such as the nexus between referent objects (OR) (It refers to what the securitizing actors declare to be existentially threatened and for which protection is sought. Normally it is the State, its sovereignty, economy, among others [2, 3, 4].), securitizing actors (SA) (The securitizing actors initiate the speech act calling attention to the fact that emergency measures are needed [2,3,4].) and functional actors (FA) (These are those capable of influencing the final decision in the field of security [2, 3, 4].) were also considered.

Table 1. Climate Change and Securitization.
Source: the Authors, expanded from Boeno et al. (2015).

| N ^o | Nexus with OR, AS & AF | Intersection with CC, security, disasters and AF |
|----------------|---|---|
| 1 | Cold War (1945-1991) | New non military threats, including CC. Widening of the security concept with environmental issues and awareness [5, 6, 7, 8, 9]. |
| 2 | Limits to Growth Report (1972) | Economic growth will depend on factors such as peace and stability. Comprehensive search for raw materials leads to social disruption, triggering conflicts. Alerted about the finitude of planet resources [10, 11]. |
| 3 | Stockholm Conference (1972) | Global consensus on development and the finite nature of world reserves of natural resources [12]. |
| 4 | Independent Commission on Disarmament and Security Issues (1982) | Concept of environmental security, distinction between common and collective security. Non military threats: shortage of resources and environmental destruction [13]. |
| 5 | New Political Thinking Gorbachov (1985) | Introduces the concept of comprehensive security linked to human survival. Associates non military threats to economic and environmental issues [13]. |
| 6 | The Brundtland Report (1987) | Broadens "security" through the environmental aspect. Environmental stresses may foster political tensions and conflicts, thus becoming a security issue [14]. |
| 7 | Toronto Conference (1988) | First big meeting of scientists and political decision makers to discuss climate changes. Presented a proposal to contain global warming and reduce emissions of greenhouse gases (GHG). Motivated the creation of the Intergovernmental Panel on Climate Change. |
| 8 | Intergovernmental Panel on Climate Change (IPCC) (1988) | These reports became a reference for the international community because they expressed consensus and uncertainties about CC. Its first report (1990) unveiled the scientific consensus that CC has an anthropogenic origin [15]. |
| 9 | United Nations Framework Convention on Climate Change (in Eco 1992) | Increases participation of Non Governmental Organizations (NGOs) in environmental and CC issues [16]. |
| 10 | United Nations Development Programme (1994) | The Human Development Report introduces the notion of human security, adding new dimensions to the security concept, such as economic, food, environmental and personal security, among others [17]. |
| 11 | I Conference of Parties (COP) (1995) | Global negotiation of Greenhouse Gases (GHG) reduction targets. Twenty COP were held until 2014, with different approaches to CC. |
| 12 | Kyoto Protocol (1997) (entered into force in 2005) | Agreement for the reduction of GHG that was not ratified by the USA. Europe, the only party to achieve the set targets, receives the largest number of immigrants [18, 19]. |
| 13 | II World Conference on Disaster Reduction (2005) | Risks of disasters, threats related to geological phenomena and CC should be included in sector-specific development plans [20]. |

| Nº | Nexus with OR, AS & AF | Intersection with CC, security, disasters and AF |
|----|---|---|
| 14 | New Orleans Disaster (Hurricanes Rita and Katrina) (2005) | Natural disasters comparable to terrorism as a threat to the United States of America (USA) - "Militarization of natural disasters" [21]. This war on "natural disasters" undermined trust in the institutions [22]. |
| 15 | Establishment of the Emergency Military Unit (UME) (2005) | It was created by Spain after AF action in natural disasters. The UME is an organized military force specifically trained and provided with the necessary means to operate during natural disasters [23]. |
| 16 | Documentary: An Inconvenient Truth (2006) | Documentary about CC, specifically about the average increase of global temperature; won the Oscar for Best Documentary that year. In 2007, Al Gore, the author of the documentary and former US vice-president, shared the Nobel Peace Prize with IPCC. |
| 17 | Stern Report (2007) | Mitigating global warming is less costly to world economy than adapting to it. Pressures will increase resulting in conflicts around basic resources [24]. |
| 18 | UN Security Council (SC) (2007) | Unstable climate fuels migratory pressures and the competition for resources. The SC did not keep CC in its agenda, and it was just useful to impart visibility to the subject [25]. |
| 19 | Oslo Guideline (2007) | Because of the increased deployment of the AF, the UN issued the Guideline on the Use of Military and Civil Defense Assets in Disaster Relief [26]. |
| 20 | Solana Report (2008) | Inclusion of CC in Foreign Affairs and Security (European interests). Policies evidencing resentment towards the countries that caused CC. Warning scenario for Europe, the destination of large migrations [27]. |
| 21 | Department of Energy and Climate Change (DECC) (2008) | The United Kingdom (UK) recognized that CC will contribute to escalate the environmental risk and the occurrence of extreme environmental events, increasing the humanitarian crises requiring contribution from the UK Armed Forces (United Kingdom, 2008). Establishment of the DECC to become the leading institution in the government program to change the United Kingdom into a low carbon economy [28]. |
| 22 | Statement by the UN Secretary General (2009) | CC constitutes a poverty-derived "threat multiplier". The document mentions the poor performance of institutions in organizing resources and solving conflicts [29]. |
| 23 | European Security Strategy (2009) | Identified global warming as an element of concern, with the potential to aggravate resource scarcity (namely water) and intensify confrontations, creating migratory movements in various regions [30]. |
| 24 | Central Intelligence Agency US (CIA) (2009) | Establishment of the Center for Climate and Security to provide advice to decision makers on the effects of climate on security. |
| 25 | Strategic Concept for the Defense and Security of the | Terrorist attacks, CC and shortage of water will shape the future security environment in areas of interest to NATO. |

| Nº | Nexus with OR, AS & AF | Intersection with CC, security, disasters and AF |
|----|--|---|
| | North Atlantic Treaty Organization (NATO) | The AF need to develop competencies to tackle international crises and humanitarian missions [31]. |
| 26 | Defense Policy Guidelines Germany (2011) | CC is a threat to German security. CC compromises the subsistence of human beings, causing migrations and conflicts. CC will be critical to the future of Germany and Europe [33]. |
| 27 | Report of the Department of Defense US (2011) | Issues guidelines aimed at increasing the capacity of the United States Africa Command (AFRICOM) and of the United States Southern Command (SOUTHCOM) to deal with conflicts catalyzed by CC, and to act during natural disasters [34]. |
| 28 | Security and Defense Policy of the European Union (2012) | Migrations caused by natural disasters exacerbated by CC fuel conflicts and saturate regions. Civil-military cooperation is critical to respond to disasters. The European Security Academy should investigate the reflexes of CC on security [35]. |
| 29 | White Paper on Defense and National Security France (2013) | Recognizes CC as a threat capable of aggravating and increasing extreme events, further weakening vulnerable regions. Current Arctic Ocean ice decrease has strategic consequences, such as the opening of new navigation routes [36]. |
| 30 | Portugal Strategic Concept of Defense (2013) | Natural disasters and CC were included in the list of threats to security. Increased awareness of losses and that major disasters require global support [37]. |
| 31 | IPCC Report (2013) | Increase of scientific consensus that CC has an anthropogenic origin and has potential to increase the rivalry between countries, not taking directly to war [38]. |
| 32 | XXX Conference of the American Armies (2013) | The effects of CC (AF and disasters) were one of the subjects discussed by the military commanders. Extreme climate may impact the civil population, influencing latent social tensions [39]. |
| 33 | Typhoon Haiyan (2013) | Showed what the AF will be required to do in the future because of climate effects. The capability of the Association of Southeast Asian Nations as a regional security actor was called into question. European and USA Forces were deployed [40, 41]. |
| 34 | Creation of the Logistics Support Units (2014) | Portugal crates general and emergency military support Forces prepared to provide national response to disaster situations [42]. |
| 35 | Center for Naval Analyses Reports (CNA) (2007 e 2014) | In seven years the status of CC went from concern to conflict catalyst. An increasing number of catastrophic events will create additional demands for American troops in distinct regions of the globe [43,44]. |
| 36 | Emergency Response Military Units (UMRE) (2014) | Argentina equipped 13 UMRE to support the community in emergencies related to fire, floods, among others, which overcome the support capacity of Civil Defence [45]. |

| Nº | Nexus with OR, AS & AF | Intersection with CC, security, disasters and AF |
|----|---|---|
| 37 | III Conference on Disaster Risk Reduction (2015) | CC exacerbates the frequency and intensity of disasters, halting the progress of sustainable development [46]. |
| 38 | The National Security Strategy of the United Kingdom (2015) | CC is potentially the greatest challenge to global stability and security, and therefore to national security. CC is increasingly a risk to the UK, with the full effects on UK national security more likely to be seen after 2035 [32]. |
| 39 | National Security Strategy of the United States of America (2015) | CC (a risk to American interests) is connected to natural disasters, migrations, terrorism and conflicts for international resources [47]. Approved the end of academy clearance for access to the CIA climate change database (Feb 15). |
| 40 | Conference of the American Armies (2015) | The objective was to discuss procedures for the Aid Operation in Case of Disaster by the Mexican AF [48]. |
| 41 | Seminar on Humanitarian Aid (2015) | The Brazilian Army sponsored the Seminar on the Humanitarian Aid Force; capacity building proposals for Humanitarian Aid Operations were presented [49]. |
| 42 | Encyclical: On Care For Our Common Home (2015) | Approaches the internationalization of the Amazon, CC, wars for natural resources, sovereignty of States, conflicts and migrations, among others [50]. |
| 43 | European Climate Diplomacy Day on 17 June | EU delegations and EU Member State Embassies all over the world join forces to emphasise the importance and benefit of climate action on the Climate Diplomacy Day. The sense of urgency is unmistakable as the decisive UN Climate Conference COP 21 in Paris would take place later that year. |
| 44 | Resolution 427/ NATO Parliamentary Assembly (2015) | Weeks before COP 21, NATO issues the resolution Climate Change and International Security. Urge to fully recognise climate change-related risks as significant threat multipliers in their foreign and security policies; to subsequently increase the frequency of military and political consultations on climate change within NATO, including at NATO summits [51]. |
| 45 | 2030 Agenda for Sustainable Development (2015) | Goal 13. Take urgent action to combat climate change and its impacts – to integrate CC related measures in national policies, strategies and plans. UNFCCC is the main forum to negotiate the global response to climate change [52]. |
| 46 | Global Risks (2015) | The Global Risks Report 2015, by the World Economic Forum: Extreme weather events are 2 nd top risk in terms of Likelihood; and Failure of climate-change adaptation is 5 th top risk in terms of Impact [53]. |
| 47 | United Nations Climate Change Conference COP 21 (2015) | Maintains the “principle of common but differentiated responsibilities”. Creates financial, technology transfer/development, and capability development mechanisms as incentive for the Parts to comply with the terms: financing and payment based on results [54]. (Paris Agreement) |
| 48 | Global Risks Report (2016) | The Global Risks Report 2016, by the World Economic Forum: Extreme weather events are 2 nd top risk in terms |

| N ^o | Nexus with OR, AS & AF | Intersection with CC, security, disasters and AF |
|----------------|---|---|
| 49 | Shock Waves: Managing the Impacts of Climate Change on Poverty (2016) | of Likelihood; and Failure of climate-change adaptation is 1 st top risks in terms of Impact [55]. The World Bank in collaboration with research institutions across the globe did the report with innovative analyses to provide insights on the relationship between climate change and poverty. It concludes that climate change and natural disasters are closely linked to poverty [56]. |
| 50 | International Law Commission (2016) | Third report on the protection of the atmosphere: States have the obligation to protect the atmosphere from atmospheric pollution and atmospheric degradation [57]. |
| 51 | Inter-American Defense Board (2016) | Panel: Focus Defense on Environmental Protection and Climate Change - better understanding the effects of climate change and identifying potential future participation of the Armed Forces in this regard (February); Conference - The Mechanisms of Attention, Response and Management of Disasters - identifying the gaps and opportunities in the hemispheric mechanisms of response to natural disasters (May) [58, 59]. |

4 Discussion

4.1 Climate change and security

Climate change of anthropogenic origin is understood as a process related to global (systemic and cumulative) changes, of which the most visible aspect is the rise of the average temperature on the surface of the planet. The most significant human influence on Earth's climate system is the emission of greenhouse gases (GHG) [61].

Securitization, understood as a speech act (discourse), generates the awareness that a threat exists, and allows the adoption of urgent and exceptional measures to fight this threat. A given theme would be securitized by entering the security agenda as a threat to a referent object, and as of the moment it is accepted as an abnormal situation by the general public [3]. Desecuritization, then, would be the inverse process, i.e. to prevent the securitization of the theme [2].

The first component of securitization is the belief that a threat exists [61]. To that end, the securitizing agents need to persuade their audience (significant political actors) that CC is a concrete threat to the security – of humanity or of the State. The adoption of emergency actions characterizes the second component of securitization, when the debate indicates a point of disruption of the normal situation and several actions and measures may be taken to mitigate the presented threat. Afterwards, when decision power is concentrated by the securitizing actor, the last component arises, which is the legitimization of actions against the threat, including the use of military force [2].

About the use of military force, Soromenho-Marques [19] alerts that the end of the Cold War did not mean the end of the nuclear threat (mitigated, nevertheless, by the

success of the nuclear deterrence strategy). The arms race model, which occurred during the Cold War, did not lead to a central conflict between the two superpowers of the time (USA and USSR), but to a “cooperation among enemies”, which would ultimately impose a political abolishment of the risk of central war through successful agreements in all categories of atomic armament. That was possible only because Washington and Moscow understood that, in the frame of a Mutual Assured Destruction which would derive from the use of the respective nuclear warheads, the possibility of victory (obtainment of political gain by military ways) was materially impossible, due to the ensuing generalized catastrophe which would result in Day After (The Day After is a American film, that first aired on November, 1983, on the ABC television.). In other words: the peaceful end of the Cold War (contradicting the inertia of thousands of years of previous history) is the first example of a true “compulsory cooperation” between strategic opponents, united by the imperative of self-preservation. The fundamental question which arises nowadays is that of knowing if, analogously, we will see a similar model of “compulsory cooperation” between the major greenhouse gases (GHG) emitting countries. Is climatic deterrence, similar to nuclear deterrence, possible? Will major countries from the current international system be able to understand, in due time, that climatic collapse is another form of Mutual Assured Destruction, and therefore that wanting to extend large levels of GHG emissions is absurd, in a very short term strategic selfishness perspective? Without the widespread acceptance of the meaning of this compulsory cooperation, to which the climatic deterrence notion rationally leads, it will be very difficult to believe in the possibility that adopting a new international policy for the protection of global climate (in this case, the Paris Agreement) will be able to confer, in fact and lastingly, greater stability to the international system.

In the examined items, Table 1, some securitizing discourses link ideas of abundance and scarcity of resources to CC, as well as to conflicts arising from those resources (food, drinking water, fertile soil). Similarly, other discourses establish a connection between CC and disasters. This second connection has larger scientific support. Meanwhile, its securitization is more complex, especially if the securitizing agent is part of the problem (country with large GHG emissions). Therefore, as far as agents’ interests are concerned, caution is needed both when linking CC with conflicts arising from resources, and when linking CC with disasters.

By analyzing the corpus, it can be inferred that CC appears in political and safety agendas as adjuvant, initially linked to the environmental issues and the shortage of resources [12, 19]. However, as a result of the efforts of the scientific community that reduced the uncertainty about the anthropogenic origin of CC and its connection with disasters, they started to be seen as a threat to global security, thus prompting the world to delve into the subject [60, 62]. Bearing that in mind, there is an increase in securitizing discourses which intend to construct climate changes as a threat.

4.2 Referent object, securitizing actor and functional actor

In the corpus, CC is presented to the audience as a threat to the existence of the referent object. CC is described both as a military and as a non military threat, endangering areas linked to the survival of humanity. Its most serious impacts would be felt on

global economy and international security [24, 27].

As a military threat, CC may become a catalyst of existing social conflicts and tensions, which in view of the fragile management capability of institutions and States, could evolve into armed conflicts [38, 63]. The UN [29] predicts that CC will impact the primary sectors of the economies of the different countries, as well as their respective indicators of income levels and quality of life, contributing to possible conflicts.

In the case of a successful securitization, CC is accepted as a military threat and probably there will be a military participation in conflicts arising from resources. In that case, it is reasonable to consider that, depending on the acceptance by the audience, the threat could be a social construct to benefit the securitizing agents who wish to legitimize their actions and decisions.

As a non military threat, CC is associated to natural disasters such as heat waves, droughts, rising sea level, torrential rain, floods, hurricanes, and other events. CC is capable of increasing the intensity and frequency of natural events, giving rise to colossal human and material damages [20, 40, 64].

In that approach, the threat presents itself as real. It would cease to depend on the acceptance of the audience, but it would depend on the social perception of the risk (For more information, see Beck [69, 70]). In this path, the scientific community plays a decisive role to diminish uncertainty about the link between CC and disasters. The participation of the military sector will take place in disaster management, such as in New Orleans [22] and in the Philippines [40, 65], where conflicts and violence streaks occurred and the armed forces were employed in the “during” and “post-disaster” stages.

The United States of America [47], the North Atlantic Treaty Organization [31], the European Union [30, 35], France [36], the United Kingdom [32] and Germany [33], among others, have included CC in the list of major threats (both military and non military) in their security strategies and defence documents. It is worth noting that the preparation and training of a nation’s defence means are oriented according to the threats listed in the respective strategic security documents. On that subject, Brzoska [66, 67] argues that uncertainties about climate change are going to affect military planning in the future.

Most of the discourses studied originate from the political agenda, confirming the necessary legitimacy of the securitizing actor to voice the political discourse (speech act or political decision) about the existence of the threat [4].

In the present paper, the main referent object identified was the State. On this issue, it was evidenced that economic and political interests have been linked to the above mentioned referent object to reinforce CC as a direct or indirect threat to security (national and international), to economy (regional and global) and to sustainable development. Two examples are the Stern [24] and Solana [27] Reports, where concern about the negative impacts of CC on European economic interests and on those of other economic blocks can be evinced

As to the functional actors, a trend can be detected to initially assign to military capacity the responsibility of “acting in face of the threats” and, later on, to a partnership between military and civil capacities. In the case of CC as a military threat, guidance from NATO and the USA, among others, was found about the need to increase the capacity of military sectors (military bias). As a non military threat, CC is related

to more destructive disasters, requiring the expansion of military capacity to act more frequently in the event of disaster in the future [1].

Some Latin American countries have been developing studies on the subject of CC and security, especially on the AF, departing from the traditional procedure of importing European and United States security models and theories [68]. Good examples of this fact are the events, such as seminars and congresses, organized by the AF and the academic communities that contribute to further the studies on CC, disasters and the AF.

Some Iberian-American Armed Forces, such as Spain (2005) [23] Portugal (2014) [37] and Argentina (2014)[45] have supplied military units to act specifically in the event of disaster, indicating a possible trend to militarize disasters from the beginning of this century.

On this subject, it is relevant that, weeks before COP 21, NATO (the largest military alliance in the world) directed its members to increase the frequency and participation of military consultations, inside NATO, in CC related matters [51]. Following that path, through NATO Science for Peace and Security Programme, the workshop Implications of Climate Change and Disasters on Military Activities: Building Resiliency and Mitigating Vulnerability in the Balkan Region [71] was held in Sofia/Bulgaria, in July 2016, reinforcing and demonstrating a greater involvement of the military sector in this issue.

After COP 21, the Inter-American Defence Board (2016) held two significant events about climate change and disaster management, with the purpose of better understanding the effects of climate change and to identify possible opportunities to strengthen regional response mechanisms to natural disasters [58, 59].

4.3 Future legitimization

Securitization will only happen when the subject enters the security agenda, thus rendering the emergency actions to face the threat legitimate and acceptable (including the use of military force), excluding the normal mechanisms that would be used to handle it. As a result, securitization enables total concentration of decision making powers in the hands of the securitizing agents, which are normally government actors [2].

As previously mentioned, CC was included into the leading Western security strategies, both as a military and a non military threat. CC was placed at the same level of threat as weapons of mass destruction and terrorist attacks (NATO, Germany, European Union, France, United Kingdom, and USA, among others). Thus, it seems reasonable to suggest that a possible alignment between the leading Western political and armed blocks of the North hemisphere came into being in the process of climate change securitization.

The USA directed the United States Africa Command (AFRICOM) and the United States Southern Command (SOUTHCOM) to increase their military capacity to act in conflicts catalyzed by CC and to use their AF in natural disasters (USA, 2011). This guidance suggests the existence of an increased concern about Africa and South America, coinciding with the warnings issued in the CNA [43], Stern [24] and Solana [27] reports. The same inference applies to NATO [31].

The CNA Military Advisory Security reports [43, 44] drew increased attention of the USA to Africa. The report issued in 2014 states that CC added environmental stress factors to ethnical conflicts in Africa, increasing the burden on fragile governments. As a result, the Al Qaeda in the Islamic Maghreb, which had been previously confined to the North of Africa, managed to expand its area of action. In its reports, this agency rates CC as a catalyst of conflicts, and alerts that an increasing number of catastrophic weather events will provoke disasters, generating an increased demand for deployment of American troops in different regions of the globe.

This has already occurred in the Philippines, after typhoon Haiyan (2013), when armed forces from different countries were called to act in the region. Questions were raised about the capacity of the Association of Southeast Asian Nations (ASEAN) to act as regional security agent, calling attention about the future demand for AF action in disasters [40, 64].

As for future demands, one of the challenges of the Paris Agreement (COP 21) was to deal with the “principle of common but differentiated responsibilities”, due to the fact that there are historically different GHG emission rates and different levels of industrial development, among other indicators, which foster the debate about past, current and future responsibility among countries.

COP 21 brought new elements to the debate about CC and security. The Agreement recognizes that countries may be affected not only by climate change, but also by the impact of the measures taken in response to those changes [54]. Which measures and which impacts?

The answer to these questions is not clear in the Paris Agreement. Meanwhile, the recognition that CC represents an urgent and potentially irreversible threat to human societies and to the planet generates the expectation of ample cooperation of all countries and of their participation in an international response against that threat [54]. In that sense, the Agreement reinforces the perception that we are dealing with the belief in a transborder threat and that the response should be based on strengthening mutual help and strengthening conflict solving mechanisms.

With estimated values of around US\$100 billion a year, the Agreement creates three mechanisms: financial; technology transfer and development; and capability development. These mechanisms present themselves as tools to align the conduct of countries in the fulfilment of the established terms in the areas of mitigation and adaptation [54]. From a reductionist point of view, it can be inferred that financial resources will be paid only after results are demonstrated. However, projects that may want to apply to available resources must align with the goals described in the Agreement.

The concern about the applicability of those instruments would lie in the use of a Veiled Coercing Climate Action, internationally inculcated in several forms of political and economic pressure. The third report on the protection of the atmosphere (International Law Commission), after COP 21, strengthens this concern [57].

After COP 21, the Council of the European Union [72] informed that the Agreement of Paris constitutes a legally bound agreement. It argues for several reasons that “the EU looks forward to the UN Security Council continuing its work on Climate Change”. It defines the role of environmental diplomacy as the defender of public and private financial flows with the aim of reducing GHG emissions. On the other hand, it also

proposes to strengthen mutual aid between the European block and other organizations in the search for solutions to the climate and security issues, establishing strong alliances to create opportunities and prevent conflicts.

There is something which is worth noting at this point: the main forum to negotiate the global response to CC is the UNFCCC [54], and not the UN Security Council. This stance from the European block seems to be an attempt to take the debate to the security agenda, securitizing the issue and facilitating the legitimization of future actions. We underline that the UN Security Council has had meetings in 2007, 2011 and 2013 to deal with CC, and that three of the five permanent members of the Council are part of the problem - group of the largest GHG emitting countries in the planet (USA, China, Russia) [73].

4.4 The role of Technology in securitization

The technological imperative, together with great powers politics, events, the internal dynamics of academic debates and institutionalisation, constitute the five driving forces of international security studies. Specifically about technology, it is worth highlighting that with every technological innovation the need arises to assess its impacts on security and the stability of strategic relations [61, 74] - and consequently on the securitization of issues.

The focus on technology in the field of security is not recent. One example was the impact of nuclear technology in various areas, such as strategy, medicine, energy and economy, among others [62]. Related to this subject, it is relevant that recent nuclear tests, performed during the second semester of 2016 in Asia, have alerted the international community that the nuclear threat is still an active piece on the board of international relations.

As stated before, CC has been presented as a non military threat, associated with disasters, increasing the intensity and frequency of natural events, and provoking enormous human and material damage [53, 55, 20, 46, 40, 64]. Bearing that in mind, technology provides important instruments for disaster management and reduces uncertainties in the relation between CC and disasters [20, 46, 75].

On the other path indicated, where CC is presented as a military threat, technology has also a fundamental role to play. By changing the conditions for the armed forces to act, technology will be indispensable to provide equipment which is more resistant, and possesses better mobility, capable of enduring greater temperature variation and severe meteorological conditions, apt to operate both in deserts and tropical forests, responding to the demands of military troops in different parts of the globe [76, 77].

For both paths described, the role of technology will be determinant. There is, however, a paradox at this point. The technologies to be developed will probably have a dual use, being used both in war conflicts and in disaster management. This is what has happened with the internet (initially for exclusive military use) and what is happening with new generation drones, which can be used for locating targets and also to map flooded regions, among other things.

The argument is that technology is relatively neutral (To deepen the knowledge on technological determinism and the relation of human nature with technology see LEVY

[78] and MARTINS [79], respectively.). Despite important debates about the technological imperative, the use given to a certain tool is what will indicate its impact on security and other areas. By way of example, a research (currently being developed by the Authors) done with armed forces from five countries of the Iberian-American context has identified different technological tools available (Public, private, paid and free) to help communication in disaster management, from which mobile phone apps, website tools, databases, social media, radios, satellites and hardware stand out, among many others. These are some tools which were created for different purposes and which are used for military activities.

At this point it seems relevant to remind the Paris Agreement [54]. With the purpose of improving resilience to CC, reduce greenhouse gases and their impacts on international security, the Paris Agreement financially supports the Development and transfer of technologies and implementation of the Technology Mechanism, boosting technology as a decisive factor for solving CC related problems.

This mechanism emphasizes the importance of technology as a way to involve the international community in climate issues (UN, 2015), increasing the management capacity of states, especially in developing countries under all kinds of pressures. About these pressures, Brundtland [14] refers that most technological research is dedicated to creating and processing innovations with commercial value.

Based on this, one can infer that, by financing the development of technologies for the adaptation and mitigation of CC and its impacts, such as disasters, the implementation of the Technology Mechanism may reduce economic pressures on research, as well as on the implantation and dissemination of technologies, strengthening cooperative action about technology development and transfer [54].

The CC securitization process, focus of the present paper, has reserved a special role for technology. Technology will probably be one of the most important decision factors for “Gatekeepers”, who will make humanity migrate from a fossil fuel based economy to a Renewable Energy (RE) based economy.

At this point it is relevant to refer the importance of academic debate (one of the driving forces of security studies, alongside technology), which has the power to decisively influence political decision makers about the path to take to desecuritize the climate change issue.

5 Conclusion

Climate change has been given an ostensibly higher status in Western discourses in the second decade of the 21st century, being characterized as one of the most serious threats to humanity. In the analysed items, the inclusion of this issue in the list of threats in the leading Western security strategies is perceivable, indicating an international alignment to fight climate change. This process has constructed climate change as a threat to international security, connected to conflicts and disasters.

By establishing the financial mechanism, the mechanism of technology transfer and development, and the mechanism of capability development, the Paris Agreement creates tools to direct the conduct of countries in the fight against climate change. In the

future, the way those mechanisms are employed will allow or prevent the binding of the Agreement with a Coercing Climate Action, internationally instilled in several forms of political and economic pressure.

The securitization process of climate change has followed two paths. The first, as a military threat, has influenced countries and economic blocks to consider future conflicts over basic resources (food, water and energy, among others), highlighting the importance of the military sector to be alert to participate in those possible conflicts. The second path indicates that climate change has influenced the quantity and intensity of extreme weather events (droughts, floods and hurricanes, among others), alerting to the need of enlarging military sector capabilities to act in the event of disaster in different planet regions.

The creation of specialized military units to act in the event of disaster and the organization of several academic and governmental events on climate change, armed forces and disasters, indicate that the participation of the military sector in the debate about climate change aligns more with the second path. Meanwhile, considering that several countries have sought to securitize this issue, the military sector may also be conducted to the first path. That will depend from future decisions and international agreements, considering that the result of the clash between climate deterrence and environmental diplomacy will influence the legitimization of actions against climate change.

The role of technology may be that of guarantor of the Paris Agreement, for the technology transfer and development mechanism may direct the conduct of countries in the combat to climate change and its impacts. For that to happen, the model adopted in order to apply that mechanism will need to operate in harmony with the financial mechanism and with the capacity development mechanism, allowing access to and the expansion of new technologies, which will counterbalance political and economic pressures, respecting the sovereignty of states.

Technologies amplify management capacity and reduce the frailty of states, simultaneously increasing the capacity of armed forces to act in disasters, thus constituting a fundamental link between the human factor and nature.

Last, it must be said that climate change linked to disasters seems more credible than climate change linked to conflicts over resources – situation where several interests are inserted in the securitization discourse, resulting in the need to deepen the conceptual and empirical analysis. Environmental diplomacy, by opting to maintain the issue in the public and political agendas and by describing it as a common and transborder threat, has better conditions to strengthen the mutual aid mechanisms and the mechanisms to solve conflicts. That will allow more countries to agglutinate around the new world agreement to control world climate.

As for future approaches, the Authors suggest discussing the possible implications of the UK's withdrawal from the EU, should that situation be confirmed, in the CC securitization process.

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