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## Chapter five

### Climate Change and Armed Forces. The culture of permanent transformation

Ignacio García Sánchez

«If we picked up one of the many questions faced by Washington and were asked to give our opinion on how to deal with this world full of uncertainty..., we would see that this puzzle is being solved with great surprises and marked characteristics of the time in which we live..., pressing the most important companies in the world with the so-called «dilemma of innovation», or how the concepts on which they are based do not allow them to adapt to the new... It is very human to say that the more confused we are, the more we cling on to old ideas. Maybe they still work, we think. It was always like this. In fact, the more important and powerful the figure, the more difficult it seems to get rid of the inherited structures. In the world of international relations today, at the level where the most important and pressing questions about war and peace are debated..., the group most concerned about this is, of course, the military. They are, after all, where the *shock* of what is new will hit first»<sup>1</sup>.

#### Abstract

Climate Change is a global challenge for all society sectors, and certainly also for the future of the planet we inhabit. It is one of the fundamental axes

<sup>1</sup> COOPER RAMO, Joshua, «*The Seventh Sense: Power, Fortune, and Survival in the Age of Networks*», Hachette Book Group, New York, 2016, pp. 60-62. Translation by the author.

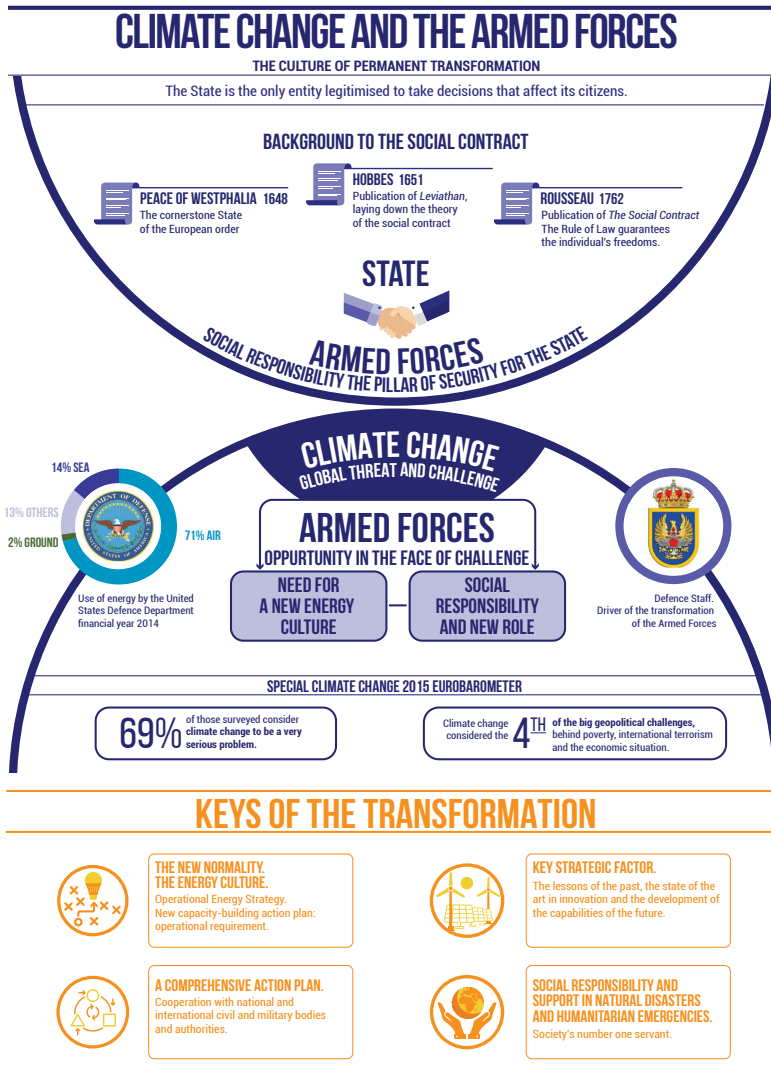
on which the geopolitical framework that structures international relations will evolve. A framework which, from the peace of Westphalia (1648) and the publication of the work of political philosopher Thomas Hobbes, *Leviathan*, (1651), is based on the concept of security and the only legitimate structure for the use of force, in its theoretical and practical level, the State and its judicial, military and police apparatus.

A configuration that will hardly change in the distant future. However, we can assume that, at least, in Climate Change related implications, we will continue to see increasing pressures throughout the present century on these two institutions, in the sense of being able to prevent and react in all the areas in which their effects are manifested.

In this scenario of growing media impact, progressive degree of social sensitivity and high level of uncertainty, this chapter intends to show how the military wants and must be exemplary in the social effort on mitigation and adaptation, to remain the backbone of an increasingly just, free, and prosperous society, capable of facing the future with responsibility and optimism.

#### **Keywords**

Climate Change, Geopolitics, State, Military, Security, Energy, Innovation, Technology



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## Introduction. A window of opportunity before the great challenge of our time

«We know that humanity has always had to face natural calamities, be it floods, droughts, storms or earthquakes. But, at present, disasters are due both to the activity of man and to the forces of nature. Certainly the term «natural» is increasingly equivocal. A wide variation in the number and intensity of natural phenomena is normal and probable. However, what we have seen in recent decades is not natural variation, but a clear upward trend caused by human activity»<sup>2</sup>.

### The practical framework. The State at the controls of the system

«The peace of Westphalia represented a 180-degree turn in the history of nations because the notions it established were not very complex but comprehensive. The State - not the empire, the dynasty or the religious confession - became the cornerstone of the European order. The concept of sovereign state was established... The Westphalian concept adopted multiplicity as a starting point and marked out a variety of multiple societies, each accepted as a reality in itself, in the search for a common order. By the middle of the 20TH CENTURY, this international system already worked on all continents, and continues to be the framework of the international order as we know it today»<sup>3</sup>.

The Peace of Westphalia, as Henry Kissinger (1923-) clearly expresses in his last work, *The World Order: Reflections on the nature of countries and the course of history*, «has acquired a special resonance in our time as the initiator of a new concept of international order that has spread throughout the whole world»<sup>4</sup>. After the devastating European thirty-year war, the more than 235 official envoys and their assistants established a framework of international relations that seems difficult to replace. The last three and most important ideological struggles suffered: national-socialist imperialism that resulted in World War II; Communism, through the Soviet Union and its corollary of the Cold War; and the current one, with the birth of the caliphate of the universal Islamic State, proclaimed from the mosque of Al Nuri in Mosul by Abu Bakr Al Baghdadi (1971-), as the caliph Ibrahim, on 29 June 2014; they have all been destined to fail. No wonder that the famous and debated work of the famous

<sup>2</sup> *New York Times*, «An Increasing Vulnerability to Natural Disasters.» By Kofi A. Annan and International Herald Tribune, 10th September 1999. Translation by the author. <http://www.nytimes.com/1999/09/10/opinion/an-increasing-vulnerability-to-natural-disasters.html> Visited 6 August 2017.

<sup>3</sup> KISSINGER, Henry. *The world order: reflections on the nature of countries and the course of history*, Penguin Random House, Third edition, Barcelona, 2016, translation by Teresa Arijón, pp. 38.39.

<sup>4</sup> *Ibidem*, p. 35

American political scientist of Japanese origin Francis Fukuyama (1952-), *The end of history and the last man*, remains fully valid.

A peace achieved through an eminently practical sense, without universalist ideologies, one would say, the triumph of reason based «on strategic interests»<sup>5</sup>; on an always unstable balance of egalitarian sovereign entities with a clear objective, the defence of their «own interests and prestige..., [establishing] the intrinsic equality of sovereign states, regardless of their power or national system»<sup>6</sup>.

Without entering into the debate between the different trends within realism and idealism<sup>7</sup> (Liberalism in Saxon terminology), and between them, to try to explain how this framework of relationships is articulated, it does assume a universally accepted geopolitical view of the world. The State becomes the cornerstone of international law, the only entity legitimised to take decisions that immediately affect its citizens. The only one with the power to legislate, transferring its precepts as an obligation to all its social body within its own doctrinal framework and, perhaps more importantly, with legitimised institutions to impose the application of that legal framework. Thus, in Westphalia the right was affirmed of each State present in the negotiations to choose its own internal structure, ideology, and religious orientation.

«The brilliant thing about this system, and the reason it spread throughout the world, was that its provisions were procedural, not substantial. If a State accepted these basic requirements it could be recognised as an international body capable of maintaining its own culture, politics, religion and internal policies, and protected from any external intervention by the international system»<sup>8</sup>.

But the complex instrument of the balance of power emanating from the peace of Westphalia, originally instituted to prevent war, did not succeed. And it does not seem to be especially well designed to manage the global challenges of universal dimensions that now affect us. Risks that do not disturb all the States of the system equally, and which in their origin it seems not everyone has the same aliquot part of responsibility. Climate change could be the paradigm.

However, despite all the limitations imposed by a complex system of international relations, the State still feels that it is the best player to tackle the problem. Even recognising the importance of other non-governmental players, organisations, private companies, lobbies..., and other administrative

<sup>5</sup> Ibidem, p. 36

<sup>6</sup> Ibidem, p. 37

<sup>7</sup> On this particular issue, I go into more detail in the first chapter of the Spanish Institute of Strategic Studies, Strategy dossier no. 184, *A global strategy of the European Union for difficult times*, in its first chapter, «Quo Vadis Europe? From the Solana document to the Global Strategy», pp. 35 to 67.

<sup>8</sup> Ibidem, KISSINGER, *The world order*, p. 38

entities, such as cities, autonomous communities, federal states...; the ultimate responsibility for the economic and legal management and, even more importantly, the supreme authority legitimately recognised for the legal use of force, which implies the direction and control of their armed forces (FAS), continues to grant them the title of main player. As an example, the Paris agreement (22 April 2016), where another of the essential elements of the Westphalian system, diplomacy, managed to achieve the intended goal.

«Diplomatic exchanges, including the appointment of representatives resident in the capitals of the other states (a practice that until then was generally fulfilled only by the Venetians), tended to regulate relations and promote the arts of peace. The parties viewed future conferences and meetings on the Westphalian model as forums for resolving disputes before they engendered a conflict»<sup>9</sup>.

### The theoretical framework. The doctrine of the social contract

«Hobbes [1588-1679] starts from the equality between all men. He believes that everyone aspires to the same thing, and that when they do not succeed, enmity and hatred ensue; he who does not get what he wants, mistrusts the other and attacks him in defence. Hence Hobbes's pessimistic conception of man; *homo homini lupus*, man is a wolf for man. Men have no direct interest in the company of their fellows, but only in so far as they can submit them. The three motors of discord among humans are: competition, which provokes aggression for profit; mistrust, which causes men to attack to achieve security, and vainglory, which makes them enemies through rivalries in reputation.

This natural situation defines a state of perpetual struggle, war of all against all ( *bellum omnium versus omnes* ), according to Hobbes's tremendous formula. But these are not acts of struggle, but of a state, [ ] a permanent disposition in which there is no security for the contrary.

Man is endowed with a power which he has at his disposal. [ ] As everyone knows this attitude, they mistrust each other; the natural state is attack. But man realises that this situation of insecurity is unsustainable; this state of struggle leads to misery, and man is forced to seek peace. Hobbes distinguishes between *jus* or law, which he interprets as freedom, and *lex* or law, which means obligation. Man has freedom - that is, the right - to do what he can and wants; but with one right three things can be done: to exercise it, to renounce it or to transfer it. When the right is transferred mutually, this is called agreement, contract or *covenant*. This leads to the idea of the political community.

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<sup>9</sup> Ibidem, p. 38

To achieve security, man tries to substitute the *status naturae* for a *status civilis*, through an agreement in which each one transfers his right to the State»<sup>10</sup>.

If the expression of the State as a basic element of international relations has a practical start during the complex negotiations that led to the signing of the three agreements that make up the so-called Westphalian peace, the theoretical framework of political philosophy that makes it possible begins at the end of the Middle Ages, with the religious crisis and the appearance of national feeling. In the Renaissance, the concern for the State begins from the perspective of rationalism and its application to man and nature. And from this birth, according to Julián Marías (1914-2005), his «radical vice» is born, as the «anti-historical» rationalism, the thought about society and the State, «which are historical realities» are born without this perspective.

Thus Nicolas Machiavelli (1469-1527) states in *The Prince* that the State «is not subordinated to any superior, religious or moral instance.» But it is in English empiricism, as opposed to the rationalist idealism of the European continent, where the modern era is shaped, focusing on the «State philosophy» from an approach of knowledge and sensitive experiences. What Julián Marías calls «sensualist empiricism».

«From the English thinkers of the sixteenth to the seventeenth come the ideas that have perhaps most intensely influenced the transformation of European society: sensualism; the criticism of the faculty of knowing, which in some cases becomes scepticism; the ideas of tolerance; the liberal principles; the spirit of the Enlightenment; deism or natural religion; finally, as a practical reaction to metaphysical scepticism, the philosophy of *common sense*, utilitarian morality and pragmatism»<sup>11</sup>.

A set of ideas that seek to legitimise a regime in which, as argued by John Rawls (1921-2002) in *Lectures on the history of political philosophy*, the social and political institutions are reasonable for each and every citizen. This required normalisation connects with the thinking of that time in relation to the social contract. A contractual justification, Constitution, which amalgamates the three basic categories of institutions of a liberal democracy in «stable equilibrium», which Francis Fukuyama establishes in his work, *The Origins of the Political Order: from Prehistory to the French Revolution*, namely: the State, the principle of legality and responsible government.

But behind this social contract is natural determinism, where morality must be integrated into its environment making it independent of all other content. Whether the intrinsically good nature of man is considered, Rousseau (1712-

<sup>10</sup> MARÍAS, Julián. *History of Philosophy*, Alianza Editorial, Madrid, 17th edition, 2016, pp. 240.241.

<sup>11</sup> Ibidem, pp. 237 and 238.

1778), or bad, Hobbes (1588-1679), the community must harmonise society with its natural environment. «Using Ortega's terminology, one could speak of a State as a skin that replaces a State as an orthopaedic device»<sup>12</sup>. Thus, Montesquieu (1689-1755), thinker of the Enlightenment, which according to Julián Marías is the intellectual movement that guides the theory of society and the State towards history, forming the core of the «theoreticians of the idea of progress», highlights the influence of climate on the three forms of constitution that are repeated throughout history: «First, despotism, in which there is no more than fearful obedience, and then two forms of State, in which it unveils a motor of history different for each of them. In monarchy, the main engine is honour; in the republic, virtue»<sup>13</sup>.

Rousseau<sup>14</sup>, who publishes *The social contract* in 1762, considers this pact tacit like the origin of the society in general and the State in particular. The individual, who is prior to society and has a good nature, accepts an agreement that brings together three wills: the individual, with strong contradictions due to development and progress, all the so-called vices of civilisation; the general, «the majority will, [which] because it is so, is the will of the community as such, that is, also of the dissenters, not as individuals, but as members of the State», with a clear imperative, «the return to nature»; and that of all, the sum of the individual wills, almost never unanimous and that looks at the private interest.

Rousseau also predicts a beginning and an end to the States<sup>15</sup>, when the will of the government moves away from the general will, when it moves away from the natural ecosystem in which it is framed and that endows it with the main value to be protected, freedom. Well, that general will presses the State more than ever if it wants to honour the contract and be a respectable part of the commitment to return to citizens their original state of freedom, integrated in the natural environment to which they belong.

It is this original value of the State and its commitment to the natural environment that leads us to assess the report of the Eurobarometer on climate change<sup>16</sup>. Carried out in May and June 2015 and published in November of the same year, it establishes without any doubt that the

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<sup>12</sup> Ibidem, p. 245

<sup>13</sup> Ibidem, p. 252

<sup>14</sup> For a quick reading on the contradictions of the most influential enlightened philosopher in modern times see the article, «The Enigma of Rousseau», by María José Villaverde, Professor of Political Science at the UCM, [https://elpais.com/elpais/2012/11/26/opinion/1353958342\\_852665.html](https://elpais.com/elpais/2012/11/26/opinion/1353958342_852665.html) Visited 9 August 2017. Rousseau drew up the constitution of Corsica; though annexed by France he never got to promulgate it and collaborated in the writing of that of Poland.

<sup>15</sup> The ideal for Rousseau is the city.

<sup>16</sup> It can be downloaded from:

<http://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2060>. Visited on 9 August 2017.



environment remains a key concern in the European context. Thus, 91% (95%)<sup>17</sup> of respondents consider it a serious problem and 69% (79%) very serious, with 15% (8%) considering it the most important facing humanity. It is the fourth of the great geopolitical challenges<sup>18</sup>, behind poverty (30% - 51%), international terrorism (19% - 8%) and the economic situation (16% - 26%), demanding collective action (93% - 95%), in which the main responsibility is the national governments (42% - 42%), the private sector (35% - 31%) and the European Union (35% - 31%); the latter is that which most increases with respect to the previous study carried out in 2013. There is also a high degree of individual awareness in relation to changes in the way of life and carrying out specific actions (94% - 93%).

### *The social pact and the new legitimacy for the natural environment*

«Let us suppose that men have reached such a point that the obstacles that damage their conservation in the state of nature overcome through their resistance the forces that each individual can use to keep themselves in this state. In such a case its primitive state can not last any longer, and the human race would perish if its mode of existence did not change.

But since men can not create new forces by themselves, but rather unite and direct those that already exist, they are only left one method to preserve them, which consists of forming by aggregation a sum of forces capable of overcoming the resistance, putting these forces in motion by means of a single moving force and make them act in agreement»<sup>19</sup>.

Francis Fukuyama at the end of the story, to establish his theory of political order -considers that all theory must be inferred from the facts and not the other way around- based on the historical dialectic of Hegel in the conquest of respect and the right to personal dignity. However, in the two volumes dealing with political development<sup>20</sup>, he relies on biological evolution, and Charles Darwin's theory of natural selection. He thus considers that its origin is biological, with two basic characteristics, competitiveness and sociability<sup>21</sup>

<sup>17</sup> The second percentage in brackets is the Spanish case, while the first is the European average.

<sup>18</sup> In the Spanish case, the second is the economic situation and the third, equal, international terrorism and climate change.

<sup>19</sup> ROUSSEAU, Jean Jacques. *The social contract, that is, principles of political law*, Universal Virtual Library, 2003, p. 9.

<sup>20</sup> We have already cited one, *The origins of the political order; from prehistory to the French Revolution*, and now we will cite the second that follows, *Order and decadence of politics; from the industrial revolution to the globalisation of democracy*, Ediciones Deusto, Barcelona, 2016, translation by Jorge Paredes.

<sup>21</sup> Both, from my point of view, come from the only basic instinct in all living beings: survival (this concept is used by the realists to transfer it into the theory of international relations,

which, taking into account Darwinian evolution built around the principles of variation and selection, «organisms undergo random genetic mutations and those best adapted to their environments survive and multiply»<sup>22</sup>, form the general framework to understand political development. However, he establishes a significant difference, the concept of «culture», instead of genetics, and another concept, the «conservatism inherent in human institutions», although in this last case it would be necessary to ask whether it does not also exist in all ecosystems and it is a biological characteristic of all species.

The famous theory of political development that defends the construction of European states through the need to wage war, supported among others by Charles Tilly (1929-2008), contains broad reminiscences of Plato's theory of the State (427-347 BC); of small dimensions, the Greek *polis*, and ruled by justice, with three large social classes: «The people - made up of merchants, industrialists and farmers -, the vigilantes and the philosophers»<sup>23</sup>. Each connected to a virtue of Platonic morality: the first, because it is the most sensual, requires moderation, which is why it is associated with temperance; the second, the affective, of the warriors, strength; and the third, the rational part has to be endowed with wisdom or prudence. The three in turn must keep a stable balance, so they are amalgamated with the fourth of the virtues, «supreme virtue,» justice, which represents the natural relationship of the social community with each other and with the State. Four virtues that Julián Marías points out in the aforementioned work «have passed as cardinal virtues, even to Christianity: prudence, justice, strength and temperance, according to the usual denomination.»

But this idea, which underlies a deep subordination of the individual to the community with a strong sense of justice, arises from a «displacement of the axis of philosophy»<sup>24</sup> bringing two principles into opposition, humanism

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anarchic as lacking in superior authority and in continuous conflict for survival, i.e. the so-called vital interests, namely: sovereignty, independence, integrity and constitutional order) with two associated primary instincts, food and procreation. See GARCIA SÁNCHEZ, Ignacio. «The culture of peace, security and defence, and the armed forces; the vital signs of the European Union and Spain», *lee bulletin (bie<sup>3</sup>)* no. 5 p. 197, Ministry of Defence, Technical General Secretariat, Madrid, March 2017.

<sup>22</sup> Ibidem, FUKUYAMA, *The origins of political order*, p. 52

<sup>23</sup> Ibidem, MARÍAS, *The History of Philosophy*, p. 83

<sup>24</sup> «The sophists carried out a spiritual revolution in the strict sense, shifting the axis of philosophical reflection from the *physis* and the cosmos to man and even what concerns the life of man as a member of a society. It is understood then that the dominant themes of sophistry were... what we would today call the culture of man. Therefore, it can be accurately stated that thanks to the sophists the humanist period of ancient philosophy begins». REALES, Giovanni; ANTISERI, Darío. *History of philosophical and scientific thought, I, Antiquity and Middle Ages*, Herder, Barcelona, 1988, translation by Juan Andrés Iglesias, p. 75

(law) and nature (moral)<sup>25</sup>, that lasts until our days and that counterpoises the two tendencies in the development of the political philosophy that up to the present day dispute the reality of climate change<sup>26</sup>. Thus, the naturalistic tendency of sophistry expressed in the fifth century BC. that «nature unites men, while the law often divides them. Thus the law is devalued when it opposes nature and to the same extent that as opposes it».<sup>27</sup> And he has its counterpoint in Aristotle (384-322 BC) who is able to combine society and nature, with a guiding idea «society is nature and not convention; therefore, something inherent to man himself, not simply stated»<sup>28</sup>. In this line, he establishes the origin of society in the family, whose goal is to survive, while the village, the group of families seeks well-being, to achieve the perfect community, the *polis*, where both tendencies are integrated in the same nature of the man as a political animal.

These dialectics, as we see, constant historical<sup>29</sup>, and which currently confronts, in relation to the phenomenon of climate change, the «deniers» and the majority of the scientific community, over the mitigation of its known causes and the various forms of adaptation to the multiple impacts associated with it, leads us to the concept of legitimacy. A major issue in the matter that concerns us, as would be the element of balance of the three fundamental pillars of society according to Fukuyama<sup>30</sup>.

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<sup>25</sup> Nature is understood as: «a) the source and origin of all things, b) the outlet or the ultimate term of all things and, c) the permanent support that governs all things.» Ibidem, p. 37

<sup>26</sup> For a detailed analysis of the development of the debate between these two tendencies in American society, read the fictionalised account of: SABIN, Paul. *The bet, Paul Ehrlich, Julian Simon, and our gamble over the Earth's future*, Yale university press, New Haven & London, 2013.

<sup>27</sup> Ibidem, p. 81, 82.

<sup>28</sup> Ibidem, MARÍAS, *The History of Philosophy*, p. 104

<sup>29</sup> John Stuart Mill (1806-1873), one of the great authors of British empiricism and the utilitarian movement describes it: «the creed that accepts «utility» as the foundation of morality», or «the principle of maximum happiness,» sustains that actions are good insofar as they tend to promote happiness, and bad inasmuch as they tend to produce the opposite of happiness. «Happiness» is understood as pleasure and absence of pain; and «unhappiness», pain and deprivation of pleasure». In this sense, «In a society of barbarians, despotism would be legitimate,» provided that its purpose was the progress of the society in question and that the means were justified by effectively leading to that end». But when civilisation has developed to a certain point, the principle of utility requires the individual to enjoy full freedom, except for the freedom to harm others.» COPLESTON, Frederick. *The history of philosophy, vol. VIII, from Bentham to Russel*, Editorial Ariel, Barcelona, 1994, pp. 43, 50 and 51.

<sup>30</sup> The State, power and authority with a sufficient level «to defend themselves externally and internally and to enforce compliance with generally agreed laws»; the principle of legality, the law, which regularises, normalises and structures that power and defines the limits of authority; and responsible government, the idea of serving the interests of the community in its integrity and plurality, the social responsibility of all institutions. Ibidem, FUKUYAMA, *Order and decadence of politics*, pp. 55 and 56.

A legitimacy that gives citizens, as outlined by Max Weber (1864-1920), in the third chapter, «Sociology of power: the types of domination», of his work, *Economy and society*<sup>31</sup>, «The reason for obedience considering the power of the one issuing the mandate legitimate»<sup>32</sup> and that is based on the contract, social agreement, or double contract, of the society among its members and society with the government, as defended by the Jesuit Francisco Suarez (1547-1617) in his work, *De legibus*<sup>33</sup>, where he reveals his legal philosophy, and the political theory and the conditions of rebellion and tyrannicide<sup>34</sup>:

«But it is a necessary condition for the legitimacy of such a rebellion that the king's government be manifestly tyrannical, and that the rules corresponding to a just war be observed. Suarez refers to St. Thomas in that matter ... Suarez thus affirms the right to resistance, which is a logical consequence of his doctrine of the origin and transfer of sovereignty. Undoubtedly he did not encourage any unnecessary revolts; but it is easily understandable that his work on the Catholic faith seemed offensive to James I of England, who believed in the divine right of kings and the principle of legitimacy.»<sup>35</sup>.

The challenge posed by the phenomenon of climate change offers an opportunity to recast society with itself, and in relation to its natural environment as a legitimating principle. As Hanna Arendt (1906-1975) warns, «The law was not of divine origin either in Rome or in Greece. In Rome what was legitimating was the act of foundation. And that is the path that the American Revolution took. The men of the revolution considered themselves «founding fathers», according to the Roman spirit implied in the [Latin] word *condere*»<sup>36</sup>. A model of transformational thinking that must overcome the «denigration of man in many revolutions and [ ] the poverty of political life even in economically developed countries.»

Also, the globalisation and transcendence of its impact constitutes an important argument in the legitimation of the action of the State and, therefore, that of the monetary institution as the backbone of its sovereign function, strengthening the bonds of solidarity among all the institutions<sup>37</sup>, among which the armed

<sup>31</sup> See the edition and translation.

<sup>32</sup> WEBER, Max. *Sociology of power: the types of domination*, Alianza Editorial, Madrid, 2012, Edition and translation by Joaquín Abellán, p. 13

<sup>33</sup> COPLESTON, Frederick. *The history of philosophy, vol. III, from Ockham to Suarez*, Editorial Ariel, Barcelona, 1994, pp. 332 and 333.

<sup>34</sup> «In his defence of the Catholic and apostolic faith, Suarez considers the particular issue of tyrannicide.» Ibidem, p. 379

<sup>35</sup> Ibidem, p. 379

<sup>36</sup> HIRSCHBERGER, Johannes. *History of philosophy - III: philosophy of the twentieth century*, Raúl Gabás Pallás, 2011, p. 298.

<sup>37</sup> «The institutions are «stable, appreciated and recurring patterns of behaviour» that last beyond each government of individual leaders; they are in essence permanent rules that forge, limit and channel human behaviour.» Ibidem, FUKUYAMA, *Order and decadence of politics*, p. 16

forces occupy the historical centrality of the value of cohesion, as the backbone of the role of the State at the service of the society to which they are responsible, whether or not they have been the origin of the States.

But above all, after the deep crisis suffered by the political and economic institutions during the financial crisis after the bankruptcy of Lehman Brothers on 14 September 2008, which caused situations unimaginable at the beginning of the century and keeps all the political community affected by continuous scandals and challenges of a universal nature on the very essence of existence. So, according to the «theory of consensus» by Jürgen Habermas (1929-), it would be necessary to forge «a bridge between solidarity and justice, [ ] which makes us concretely in solidarity with other men, and the strictly universal pretensions of rational argumentation.»

### **The armed forces as part of the problem. From self-reference to social responsibility**

«Currently, power in the world is distributed according to a model that looks a lot like a three-dimensional chess game. On the top of that chessboard, military power ..., in the middle, economic power ..., in the lower part, the dominance of transnational relations that cross borders without government control ... This chessboard also includes new global challenges such as pandemics and climate change ... Whether rooted in human nature as in the classical realism of Thucydides and Machiavelli, or in powerful systemic forces expressed by modern structural realism, the military capabilities that allow war to prevail conventionally represent the most important form of power in international relations. In fact, in the 19TH century, the definition of great power meant the ability to win at war and certainly war persists today. But ... the world, since the 19th century, is increasingly complex and the realistic model is no longer adapted in all places in the same way.»<sup>38</sup>

### ***Political, social and technological development on the back of the military institution***

«... intelligent power would occupy the central element of a strategic culture capable of mastering the three geostrategic lines of action proposed by the American political scientist [Joseph S. Nye Jr. (1937-)], in clear harmony with the subdivision of power of Bertrand Russel (1872-1970):

<sup>38</sup> NYE, Jr., Joseph S. *The future of power*, Public Affairs, New York, 2011, pp. xv, 28.

*commanding changes*, the ability to force others to change their behaviours against their initial preferences;

*controlling agendas*, the ability to condition the preferences of others, so that they want what you want, shaping their expectations, or what is legitimate or possible;

*establishing preferences*, promoting ideas and values that change the perceptions and preferences of others to influence their intentions subliminally.

However, he considers that the political culture and institutions of the United States have a certain tendency to favour the first phase of power, which since Thucydides and Machiavelli has been considered political realism: «War was the definitive game in which the letters of international politics were placed on the tables»<sup>39</sup>.

If we analyse the evolution and development of humanity up to our days from a geopolitical perspective, we would inevitably have to conclude on the complexity and variability of the factors that have been involved. According to the definition we use in the Centre for Higher Studies of the National Defence (CESEDEN), five factors are analysed:

- The physical, where geography, the environment, climate ..., play an essential role;
- The human, with demography, migrations, ethnicity, religion, culture, education ..., vital realities of the history of peoples;
- The sociopolitical, in which structures and systems, together with thought, communication, influence, leadership ..., impose a reality in power relations at every moment;
- The economic, enabling and a fundamental driving force of all future, with its natural and energy resources, trade, finance ...;
- And the military, for which the concepts of peace, security, conflict, war and technological developments, proliferation ..., serves as the context of their influence.

An integral scenario, the military, where nothing is irrelevant, either as a player, spectator or victim of the drama of power, domination, progress and survival itself. An institution, the military, with a final goal, a supreme objective, peace, which is doomed to war within the framework of the abstract concept of «reason of State», as explained by José García Carneiro and Francisco Javier Vidarte in his work, *War and philosophy: conceptions of war in the history of thought*:

<sup>39</sup> GARCÍA SÁNCHEZ, Ignacio José. «On power, the art of war and military capabilities: the dilemma of perpetual peace», *lee bulletin (bie<sup>3</sup>)* no. 1, Ministry of Defence, Madrid, 2016, pp. 212, 213.

«Clausewitz [1780-1831] tries to remove from conflict, from war, all the responsibility immanent in, or constitutive of, a «natural state» consubstantial with the social group or prior to its creation or formation. In his book, *Vom Kriege (Of war)*, he insists, among other things, on apprehending the rationality of war, on demonstrating that war has a reason for being (a reasonable cause) and that this is none other than politics. From that moment on, this affirmation is accepted as legal tender and is perpetuated until today..., this conception, «war is nothing more than the State's policy pursued by other means», «politics makes a simple instrument of the indomitable element of war», has an immediate effect as a rationalising principle of war, justification of the use of war in relations between peoples, in other words, by subordinating war ... to politics... war is given as right by virtue of the rationality of politics»<sup>40</sup>.

This, from the studies carried out with chimpanzees, explains the centrality of the structures of the control of violence, their organisation, preparation, capacities and strategies in the development and evolution of the political order. The military institution is a transversal element to all other geopolitical areas, sometimes as a mere user of its potential as a factor of advantage, and sometimes as a creative instinct and the main driver of a decisive transformation in social progress and development. Paradigmatic of these two positions are two critical moments that definitively transform the geopolitical framework and radically modify its geostrategic lines of action:

- «..., savings and energy efficiency are consubstantial to the nature of the armed forces and a key strategic factor. In 1912, Winston Churchill, who was responsible for the British Navy as the first Lord of the Admiralty, decided to transform the fleet ships with propulsion systems that used coal as an energy source, to new systems that used oil; a decision that initiated the so-called oil era that has dominated geopolitics and guided the geostrategy of the 20th CENTURY. One hundred years [2011] after this important decision, which meant a strategic advantage factor in both operational and logistical aspects, we are on the threshold of a new era, post-oil»<sup>41</sup>.
- On 16 July 1945, the nuclear age begins. This is when the first nuclear device in history, with a power of 21 kilotons, was detonated in the test area of the Alamogordo desert in New Mexico. As Natividad Carpintero writes in her thesis, «*Historical and philological analysis of the beginnings*

<sup>40</sup> GARCÍA CANEIRO, José; VIDARTE, Francisco José. *War and philosophy: conceptions of war in the history of thought*, Tirant lo Blanch, Valencia, 2002, pp. 96, 97.

<sup>41</sup> GARCIA SÁNCHEZ, Ignacio José. «Climate change: implications for security and defence», [in Strategy dossier no. 150, *Security, energy model and climate change*, directed by Manuel Marín González], Ministry of Defence, Madrid, 2011, p. 214.

*of nuclear fission,»* the discovery of nuclear fission will occupy one of the most transcendental and dramatic chapters of our contemporary history and, ultimately, of the history of humanity since its origins ... The discovery took place in Berlin, in 1938, in the midst of a Germany in full political turmoil and also on the dawn of World War II ... This pre-war situation was enough for the United States, Germany and the United Kingdom to try to develop a nuclear explosive to use during the war ... which culminated in the tragic bombings of Hiroshima and Nagasaki [6 and 9 August 1945, respectively]».

«*The industrial military complex*»<sup>42</sup>, *A runaway horse, again?*

«The important differences [military power] between the great powers [1890-1938] that were occurring are more clearly seen when the industrial productions of the steel sector are examined in detail. Iron and steel production have been considered one of the main indicators of military power at that time, as well as its industrialisation»<sup>43</sup>.

«The French Government proposes that the entire Franco-German production of coal and steel be submitted to a high common authority in an organisation open to the other countries of Europe ... The solidarity of production that is thus created will make it clear that any war between France and Germany is not only unthinkable, but materially impossible»<sup>44</sup>.

According to the International Energy Agency, in 2010, of the total CO<sub>2</sub> emissions, 21% would correspond to industry, while of the 25% corresponding to the production of heat and electricity, industry would be considered responsible for 11%. Percentages which, as an example, and taking into account the duration of the processes of removal of carbon dioxide from the atmosphere, would indicate a degree of responsibility of the most developed countries in the current situation of CO<sub>2</sub> levels and a demand for the future.<sup>45</sup>

<sup>42</sup> A description coined by President Eisenhower (1890-1969), during the farewell speech of his second presidential term, on 17 January 1961, when he announced: «We must protect ourselves from the acquisition of unjustified influence, whether or not it is sought, by the military-industrial complex.» THOMPSON, Loren. *Eisenhower's «military-industrial complex» shrinks to 1% of economy*, Forbes, May 8, 2017.

<sup>43</sup> KENNEDY, Paul. *The rise and fall of the great powers: economic change and military conflict from 1500 to 2000*, Random House, New York, 1989, p. 199. Translation by the author.

<sup>44</sup> Statement by Robert Schuman, 9 May 1950. [https://europa.eu/european-union/about-eu/symbols/europe-day/schuman-declaration\\_es](https://europa.eu/european-union/about-eu/symbols/europe-day/schuman-declaration_es) Visited 16 August 2017.

<sup>45</sup> «The concentration of a greenhouse gas in the atmosphere depends on the ratio established between the emission rates of the gas into the atmosphere and the duration of the processes that remove it from the atmosphere. For example, there is an exchange of carbon dioxide (CO<sub>2</sub>) between the atmosphere, the ocean and the land through processes such as the transfer of gases between the ocean and the atmosphere and chemical processes (for example: wilting) and biological processes (for example: photosynthesis). While more than



We are currently in a situation similar to that which preceded the first and second world wars, although in a more dispersed way. Globally, power is much more distributed, more balanced, and political positions, strategic alliances, prior historical relationships are not taken for granted, so the geopolitical debate is in the environment. Economic and military weight begins to be redistributed considerably, which, together with the prevailing geostrategic instability, means that defence investments multiply and the defence industry rubs its hands in a voracious, but increasingly competitive, market.

No region will accumulate more than 20% of world economic output, with a tendency to equal the per capita income of developed countries in relation to emerging countries, announces the PWC report, *The long view: how will the global economic order change by 2050?*<sup>46</sup>. By 2050, according to the report, China will accumulate 20% of the world's wealth, while the United States and the European Union will fall to 12% and 9% respectively from the current 16% and 15%, and India will reach 15%. In 1995, the economies of the E7<sup>47</sup> were half of those of the G7<sup>48</sup>; by 2015 they were already the same size, and by 2040 the situation will have completely reversed. In this situation, the market growth forecasts of the defence industry show slight symptoms of a change in trend. A decline marked by the so-called dividends of peace, after the end of the cold war, and which in recent years, with the financial crisis, had not managed to recover. A fundamental factor was the cut in the US defence budget, with the constant threat of activation of the *sequestration* mechanism<sup>49</sup>. A scenario in which, in fact, the countries that produce energy

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half of the CO<sub>2</sub> emitted takes a century now to be removed from the atmosphere, a part of the CO<sub>2</sub> emitted (close to 20%) remains in the atmosphere for many millennia. As a result of the slow process of elimination, the CO<sub>2</sub> in the atmosphere continues to increase in the long term, even though its emission is substantially reduced compared to current levels. Methane (CH<sub>4</sub>) is removed from the atmosphere by chemical processes, while nitrous oxide (N<sub>2</sub>O) and some halo carbons are destroyed in the upper atmosphere by solar radiation. Each of these processes operates on different time scales ranging from several years to millennia. One measure of this is the permanence of a gas in the atmosphere, defined as the time it takes a disturbance to reduce to 37% of its initial amount. Although it is possible to accurately determine the permanence in the atmosphere of CH<sub>4</sub>, N<sub>2</sub>O, and other oligogases such as hydro chlorofluorocarbon-22 (HCFC-22), a refrigerant fluid, (about 12 years for CH<sub>4</sub>, 110 for N<sub>2</sub>O, and 12 for HCFC-22), the permanence of CO<sub>2</sub> in the atmosphere can not be defined». [https://www.ipcc.ch/publications\\_and\\_data/ar4/wg1/es/faq-10-3.html](https://www.ipcc.ch/publications_and_data/ar4/wg1/es/faq-10-3.html). Visited 16 August 2017

<sup>46</sup> <https://www.pwc.es/es/publicaciones/economia/assets/pwc-world-in-2050-final-report.pdf>. Visited 16 August 2017

<sup>47</sup> E7: China, India, Indonesia, Brazil, Russia, Mexico and Turkey.

<sup>48</sup> G7: USA, UK, France, Germany, Japan, Canada and Italy.

<sup>49</sup> According to Deloitte in its annual reports on the defence aerospace sector, in 2016 it forecast a relaunch of the sector, *2016 global aerospace and defence sector outlook: poised for a rebound*; and in 2017 it maintained the feeling of optimism, *2017 global aerospace and defence sector outlook: growth prospects remain upbeat*, with an expected growth of 2%, with the defence subsector at 3.2% growth. The sector in Europe would grow 2.5% and profits would rise to 12.7% while in the US, the growth would be smaller, 1.7%, but the gains would surpass an increase of 12.75.

resources increased their defence spending thanks to a rise in the price of a barrel of oil never seen before.<sup>50</sup> (figure 1).



Graph 1 Price of a barrel Brent oil during the financial crisis.

In a scenario of economic improvement and geopolitical instability, «world military expenditure in 2015 was 1.676 billion <sup>51</sup>dollars, a figure that represents 2.3% of the world gross domestic product or 228 dollars per person. Total spending was 1% higher in real terms than in 2014»<sup>52</sup>, with a sharp increase in Asia, Oceania and Eastern Europe<sup>53</sup>. According to the ESPAS report<sup>54</sup>, *Global trends to 2030: can the EU meet the challenges ahead?*, according to data from SIPRI, the increase in defence spending of the 9 main countries <sup>55</sup>would go from 1.399 trillion dollars in 2012, to 3.976 trillion dollars in 2012 prices. In this context, the SIPRI document evaluates the increase in the volume of international transfers of large armaments at 14% between 2006/10 and 2011/15 (see figure 2), with the USA having 33% of the market, Russia 25% and the main European countries 23%. The flow of these weapons to the Middle East increased by 61%, and by 26% and 19% towards Asia/Oceania and Africa respectively. A market that, «following the trend of recent years, again disappointed in terms of transparency»<sup>56</sup>.

<sup>50</sup> The price of a barrel of Brent oil was quoted on 11 July 2008, at \$147.02 <https://www.theguardian.com/business/2008/jul/12/oil.commodities>. Visited 17 July 2017

<sup>51</sup> Trillion: a million million, which is expressed by the unit followed by 12 zeros

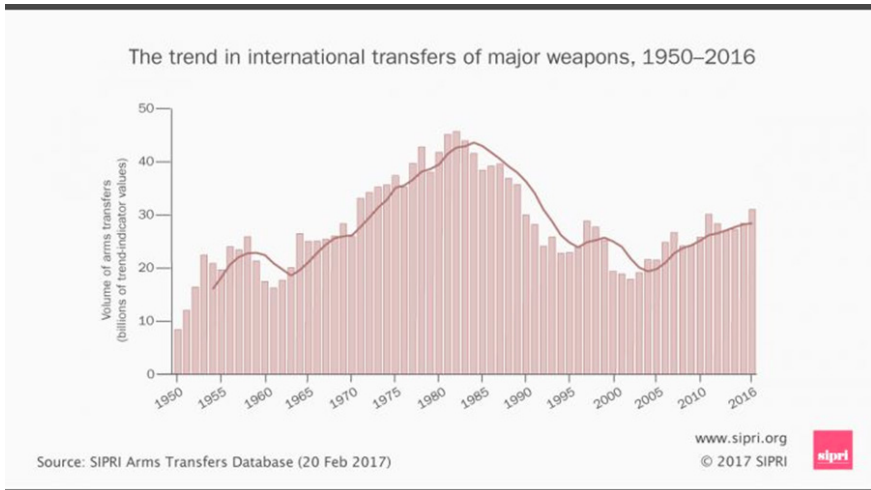
<sup>52</sup> SIPRI, *Yearbook 2016: armaments, disarmament and international security*, summary in Spanish, p. 17 SIPRI (Stockholm International Peace Research Institute) [www.sipriyearbook.org](http://www.sipriyearbook.org).

<sup>53</sup> According to SIPRI *yearbook 2016*, the increase in Asia and Oceania had been 5.4% and in Eastern Europe, 7.5%. Deloitte estimates that the budgets allocated to the navies in China and the Pacific States would increase by up to 60% by 2020, compared to 2011 levels, due to ongoing naval programmes.

<sup>54</sup> *European Strategy and Policy Analysis System*.

<sup>55</sup> USA, China, India, Russia, United Kingdom, France, Japan, Germany and Brazil.

<sup>56</sup> *Ibidem*, SIPRI *yearbook 2016*, p. 21.



Graph 2

In Europe, as we have seen, the defence industry is one of the main industrial sectors. It employs around half a million people and generates up to 1,200,000 indirect jobs. It created a wealth of 97.3 billion euros in 2014, becoming one of the largest contributors to growth in the region. The sector has more than 1,350 small and medium enterprises that are critical in the supply chain, mainly based in: France, Germany, Italy, Spain, Sweden and the United Kingdom. Another of the main assets of the sector in Europe is its potential to innovate, in addition to its focus on engineering and high-end technologies focused primarily on the sectors of electronics, space and civil aviation. Aspects that remove it from the most polluting environments and move it towards the most productive sectors. According to a McKinsey survey in April 2015 among executives of the defence industry for the next three years, it is considered necessary for companies to balance defence and commercial products. They also considered that there would be greater competition in cybersecurity, unmanned systems and satellite launches.

### *The carbon footprint, the stigma of power*

«In October 1918 [World War I], Germany's situation with respect to oil was desperate ... The armistice or peace treaty was signed at 5 o'clock in the morning of 11 November 1918 and came into effect 6 hours later, ending the war. The impact of oil on the war is eloquently summed up by [British Foreign Minister] Lord Curzon, «The Allied cause had floated to victory over a wave of oil,» and by Senator Bérenger of France, «Oil, the blood of the earth, was the blood of victory ... Germany had boasted too much about its superiority in iron and coal, but had not sufficiently

taken into account our superiority in oil.» ... As oil had been the blood of war, so would it be the blood of peace»<sup>57</sup>.

Coal first, oil later, from the industrial revolution fossil fuels with a greater carbon footprint became the real backbones on which mobility and military combat power were structured. During the First World War, in the last allied offensive on the western front, 12,000 barrels of oil were consumed each day<sup>58</sup>. World War II witnessed the outbreak of the Pacific conflict, with the air attack on Pearl Harbour, due to the oil embargo imposed by the United States on Japan in response to the invasion of Manchuria. Also, at the end of the War, Joseph Stalin is given a toast, paraphrasing Lord Curzon, to the American oil, in which victory had «floated»<sup>59</sup> over Nazi Germany and imperial Japan. A situation that the nuclear era has not been able to change, but that climate change may radically transform.

Thus, the report of Oil Change International, March 2008, *A climate war: the war in Iraq and global warming*<sup>60</sup>, concludes that, from a very conservative point of view, war since March 2003 has put 141 million metric tons of carbon dioxide into the air. According to the report, this would amount to the emissions of 25 million cars in one year; the emissions of a country between New Zealand and Cuba; or the reduction planned by the state of California from 2009 to 2016.

It is interesting to highlight in this respect that the 1997 Kyoto Protocol specifically left the emissions produced by the Armed Forces of any country out of its regulatory framework. A demand from the United States negotiating team led by Al Gore, although the country would never sign it. In relation to Paris, unlike Kyoto, the agreement does not exhaustively exclude military emissions, but does not specify anything about them. That is, the word military does not appear. It is true that the agreement is more lax, less regulatory than that of Kyoto and therefore a decision that is left to the will of governments.

What there is no doubt about is the formidable carbon footprint that the armed forces produce (see figure 3); for example, the multi-purpose fighter F-16 consumes in one hour what a normal use of a car would consume in three years<sup>61</sup>.

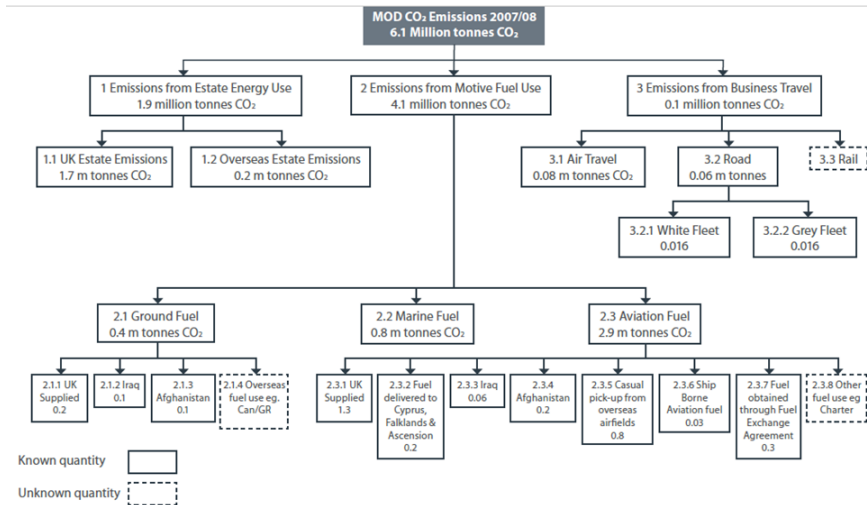
<sup>57</sup> <https://www.e-education.psu.edu/egee120/node/233>. Visited 17 August 2017

<sup>58</sup> NATO Energy Security Centre of Excellence, *Energy in conventional warfare*, Vilnius, 216 Energy in conflict series, p. 14.

<sup>59</sup> SHEA, Jamie. Lecture 4 - Energy security: is this a challenge for the markets or for the strategic community as well? [http://www.nato.int/cps/en/natohq/audio.htm?query=lectures+Jamie+Shea&keywordquery=\\*&date\\_from=dd.mm.yyyy&date\\_to=dd.mm.yyyy](http://www.nato.int/cps/en/natohq/audio.htm?query=lectures+Jamie+Shea&keywordquery=*&date_from=dd.mm.yyyy&date_to=dd.mm.yyyy). Visited 18 August 2017

<sup>60</sup> REISCH, Nikki; KRETZMANN, Steve. *A climate war: the war in Iraq and global warming*, Oil Change International, advanced edition, March 2008.

<sup>61</sup> [http://therealnews.com/t2/index.php?option=com\\_content&task=view&id=31&Itemid=74&jumival=15284](http://therealnews.com/t2/index.php?option=com_content&task=view&id=31&Itemid=74&jumival=15284) Visited 18 August 2017.



Graph 3 United Kingdom MD CO<sub>2</sub> emissions 2007/2008. 6.1 million metric tones.

Thus, it is considered that the North American Armed Forces are the most polluting organisation on earth<sup>62</sup>. Something that the Pentagon accepts, not just as a responsibility as a net contributor to the global warming of the planet, but also because of the serious vulnerabilities it entails. So, in a video<sup>63</sup> published on 6 June 2017, the former secretary of the US Navy during the two Obama administrations, 2009 to 2017, Ray Mabus, said that the reality of climate change is «the new norm, you do not have to convince anyone ever again, it has become part of our culture». While claiming that the Department of Defence<sup>64</sup> is the organisation that consumes most fuel in the world, with 2% of total oil and gas in the United States<sup>65</sup>, he stated

<sup>62</sup> A report to Congress in 2012 said that the DoD had consumed about 117 million barrels of oil, just a little less than all the fuel used by the British automobile fleet in the same year.

<sup>63</sup> MABUS, Ray. *An eye to the future: how the United States Navy is managing climate change*, Harvard Business School, 6 June 2017. <https://www.youtube.com/watch?v=owZsQcdGHiU&feature=youtu.be>. Visited 18 August 2017

<sup>64</sup> «With more than 1,300,000 active duty members and 792,000 civilians, the Department of Defence (DoD) is the nation's largest employer. More than 811,000 people serve in the National Guard and Reserves. More than 2 million retired military and their families receive benefits. Our military, civil servants and workers operate in every time zone and in every climate, and more than 450,000 give service abroad. As one of the nation's largest health services, the DoD TRICARE programme serves approximately 9.4 million beneficiaries. The DoD manages a multimillion dollar global supply chain, with an inventory of 5 million items and a base budget of just over \$520 million in the 2016 fiscal year. The DoD is one of the largest property owners of the federal government, managing a global portfolio consisting of almost 572,000 facilities (buildings, structures and linear structures), located in more than 4,900 locations worldwide and covering more than 106,900 km<sup>2</sup>». FY2016 annual performance report.

<sup>65</sup> The British Ministry of Defence, in its first strategy on climate change, December 2008, estimated that the department's emissions, 6.1 million metric tons, accounted for 70% of all emissions from the Central State Administration, and 1% of the country's total (figure 3).

the vulnerability of the logistics chain in Afghanistan, which on average caused one marine to die or fall wounded for every 50 convoys. Thus, the goal to achieve in 2020 is that 50% of the energy consumed should come from non-fossil sources<sup>66</sup>. Also, in the North American Air Force, which consumes approximately 50% of the fuel of the Department of Defence, <sup>67</sup>one of its objectives is to improve energy efficiency by 10% by 2020 compared to 2011; while the Army, traditionally little concerned about energy consumption<sup>68</sup>, aims by 2025 to use renewable sources in 25% of its energy balance<sup>69</sup>.

In this line of effort, the US Department of Defence has to publish a report each fiscal year in which it reports «consumption, progress in implementing the *Operational Energy Strategy*<sup>70</sup>, support for contingency operations and investments in alternative fuels»<sup>71</sup>. In the last fiscal year, 2016, consumption was almost 86 million barrels of fuel, which is 57% of the total of the federal government. To minimise the logistics chain, 54% was purchased outside the USA and always as close as possible to the area of operations. However, due mainly to the smaller involvement of US forces in conflicts abroad, but also to the continued improvements in energy efficiency plans and programmes, consumption has continued to decrease since its peak in 2007, by more than 30% (see graph 4).

Although, as recognised by the *Operational Energy Strategy* of the United States Department of Defence, «the reduction in energy consumption is an essential component of the energy strategy, it will not always be an option. The Department must remain focused on improving its combat power as a primary objective, while supporting and promoting those programmes and initiatives that reduce consumption and improve sustainability precisely as a means of increasing combat capacity. After improvements in its capabilities,

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<sup>66</sup> The Navy does not reach 30% of the total consumption of the Department of Defence. Its use is divided into: air components 40%, ships 38%, expeditionary forces 16% and facilities 65%.

<sup>67</sup> Within the Air Force, 86% is consumed by its air components, 11% by its facilities and the remaining 3% by land transport vehicles.

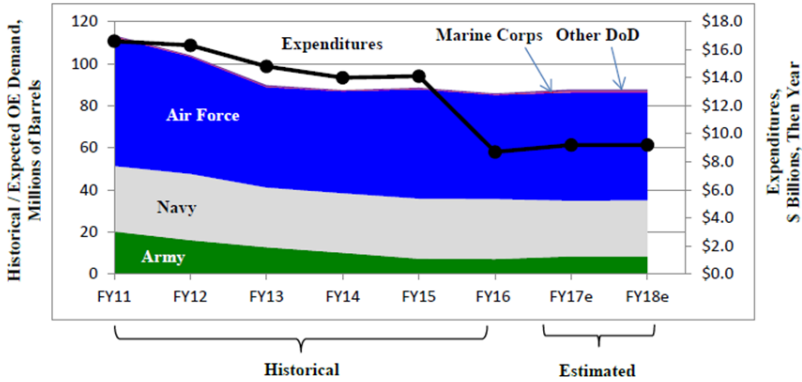
<sup>68</sup> «In the conference «The energy sustainability programme of the army» Richard G. Kidd IV, Undersecretary of the Army for Energy and Sustainability, declared that «energy and energy security had historically been undervalued» and «energy had unintentionally been treated as a free resource»». KENDING, Richard J., *Evolution of the operational energy strategy and its consideration in the defence procurement process*, Naval Postgraduate School, Monterey, California, 2016, p. 56 Translation by the author.

<sup>69</sup> It has launched the «Army's Net Zero» initiative that aims to improve federal objectives in terms of energy, water and waste at its bases both in the Americas and in support of the general objective of use. See: *Army Net Zero: energy roadmap and program summary* (FY 2013) and recently the update *2015 Progress report: Army Net Zero initiative*, October 2016.

<sup>70</sup> So far, two operational energy strategies have been published, the first in 2011 and the second in 2016.

<sup>71</sup> Department of Defence, *Fiscal Year 2016: annual operational energy report*, Office of the Undersecretary of Defence for Procurement, Technology and Logistics, Washington, 24 July 2017. Translation by the author.

Figure 1: DoD Operational Energy Demand, FY 2010 – FY 2017<sup>9</sup>



<sup>8</sup> Standard DLA Energy fuel prices can be found at <http://www.dla.mil/Energy/Business/StandardPrices.aspx>  
<sup>9</sup> Updated analysis of expenditures may lead to different results from previous Operational Energy Annual Reports. Expenditures are not adjusted for inflation; data on historical demand may not capture final end use nor account for fuel transfers between the Services; Historical and Estimated Demand include Base and Overseas Contingency Operations (OCO) funding and purchases using Transportation Working Capital Fund (TWCF).

Graph 4

Table 2: DoD Operational Energy Demand by Service

		FY11	FY12	FY13	FY14	FY15	FY16	FY17e	FY18e
Operational Energy Demand, Million Barrels	Army	20.2	16.1	12.7	10.1	7.3	7.1	8.4	8.4
	Navy	31.1	31.5	28.4	28.2	28.5	28.5	26.4	26.6
	Air Force	61.3	55.7	47.8	48.6	52.0	49.6	51.5	51.3
	Marine Corps	0.3	0.2	0.2	0.2	0.2	0.2	0.5	0.5
	Other DoD	0.5	0.4	0.7	0.3	0.5	0.4	0.9	0.9
	<b>Total Demand</b>		<b>113.5</b>	<b>103.9</b>	<b>89.8</b>	<b>87.4</b>	<b>88.6</b>	<b>85.7</b>	<b>87.7</b>
	<b>Expenditures, \$ Billions</b>	<b>\$16.6</b>	<b>\$16.3</b>	<b>\$14.8</b>	<b>\$14.0</b>	<b>\$14.1</b>	<b>\$8.7</b>	<b>\$9.2</b>	<b>\$9.2</b>

the Department should identify and correct the risks, regardless of the level of mitigation, and be able to use these operational and logistical risks to inform investment priorities. Finally, the Department should increase training and education in energy efficiency and its practical implementation in the use of energy in current operations.»<sup>72</sup>

<sup>72</sup> Department of Defence, *2016 Operational Energy Strategy*, Office of the Undersecretary of Defence for Energy, Installations and Environment, Washington, 3 December 2015, p. 10 Translation by the author.

**The armed forces as part of the solution. The sense of duty of a society with a future**

«That's right, Lord, what we were explains what we are. The history of the construction of our Spain is read along with its military history. And thus we continue, making history, making armed forces and making Spain»<sup>73</sup>.

*The state of the art of integral transformation*

«Climate change is a very serious threat to global security and an immediate risk to our national security; and have no doubt, it will profoundly change how our military defends our country.

-President Barack Obama, 20 May 2015-»<sup>74</sup>.

«The term «military transformation» could be understood simply as a «profound change» in military affairs. Which would not imply a quick or general change, or discard what is still working well. The changes, however, should be dramatic rather than mere tweaks in the margin, such as modest improvements in aircraft, tanks or ships. Transformation is a process without a known endpoint»<sup>75</sup>.

Joseph Nye (1937-) in his book, *The future of power*, deals with the relevance of the military apparatus in an imaginary and always impossible algorithm, measuring the relative power of the states in the world we live in and their possible future development. And he is sceptical of the relevance of military force and its combat capacity in issues such as the world of finance and climate change; and also of the power that non-state players are gradually acquiring, and uses terrorism as an example<sup>76</sup>. A statement that not only seems questionable, but can become a real nightmare for the government that decides to use it, if we take into account the financial and environmental cost involved.

Undoubtedly, a statement that seems to understand the armed forces from a static perspective, without the ability to react and seek solutions to the challenges of the present with a constant look to the future. In this sense, the brochure, *The General Staff of Defence, driving force of the transformation of the Armed Forces*, emphasises in the introduction that: «The world evolves,

<sup>73</sup> DE COSPEDAL, María Dolores. «Speech of the Military Festival 2017», Ministry of Defence, Royal Palace of Madrid, 6 January 2017, p. 2.

<sup>74</sup> Quoted by, SCOTT, Shirley V.; KHAN, Shahedul. *The Implications of climate change for the military and for conflict prevention, including through peace missions*, ASPJ Africa and Francophonie, 3<sup>rd</sup> Quarter 2016. Translation by the author.

<sup>75</sup> DAVIS, Paul K. *Military transformation? Which transformation, and what lies ahead?* RAND Corporation, National Security Research Division. Translation by the author.

<sup>76</sup> *Ibidem*, NYE, *The future of Power*, pp. 4, 5.



and does so giddily. In this context, for the armed forces to maintain their capacity to respond to the new (and very diverse) threats presented to them, it is necessary to establish a process of constant transformation, which not only provides solutions to the present, but also grants the organisation the necessary flexibility to also adapt to the new changes that the future will surely bring. It is, in other words, a question of feeding the «culture of permanent transformation» that allows us to evolve to the pace of events and respond to the new tasks assigned to us»<sup>77</sup>. In its seven interior pages, there is a brief summary of the fundamentals of change, the key elements and some of the basic characteristics of the future of the armed forces, ending with one, «our social responsibility», that shows the link between security, freedom, well-being and development, stressing that «national defence is an essential common good, the investment that guarantees it is great», which requires an effective and rigorous management of the public funds used, but that transcends «other concepts linked to it such as environmental awareness, energy saving, the prevention of occupational risks, the total integration of women or the non-discrimination of people ...»<sup>78</sup>.

Moreover, as an organisation within the society it serves and a necessary, though not sufficient, element of the structure of the State, it has a permanent obligation to serve as a reference to citizenship, but not only as guarantors of a framework of coexistence or holders of the features that represent the culture that identifies them, but, and most importantly, as a value of the future, as a symbol of confidence in the ability to face the challenges of tomorrow. The Armed Forces must spur society to prepare for the most adverse conditions that may arise, improving their resilience, and leading their capacity for adaptation and change through example. They should encourage study and research in the human, social and technical sciences, serving as a forum for debate, experimental laboratory, test field and the first line of effort of a society that has to be projected into the future; and not only because the capabilities thought of today are to be used in 20/25 years.

Cooper Ramo (1968-) explains in chapter 5, *Fishnet -in which we learn why networks spread so quickly-*, from the book, *The seventh sense*, how the resolution of a military problem marks the beginning of a whole social and technological revolution. «In 1959, a young electronic engineer named Paul Baran ..., arrives on his first day of work at a modern building next to Santa Monica beach. RAND - an elegant acronym of the 50s for *Research and Development* - had been established by the American Air Force and the *Douglas Aircraft* company with the aim of putting pressure on the best minds in mathematics and science to win the Cold War»<sup>79</sup>. The problem to solve; the best kept secret by the United States;

<sup>77</sup> It can be downloaded at (visited on 20 August 2017): [http://www.emad.mde.es/EMAD/novemad/noticias/2014/02/140201\\_motor\\_transformacion\\_FAs.html](http://www.emad.mde.es/EMAD/novemad/noticias/2014/02/140201_motor_transformacion_FAs.html). [http://www.ieee.es/Galerias/fichero/Varios/EMAD\\_Folleto-JEMAD.pdf](http://www.ieee.es/Galerias/fichero/Varios/EMAD_Folleto-JEMAD.pdf).

<sup>78</sup> Ibidem, p. 8.

<sup>79</sup> Ibidem, COOPER RAMO, *The seventh sense*, pp. 125-143.

if the Soviet Union launched a nuclear attack, there would be no response from the American side. The communication system that should start the counter attack would not survive the explosion. «After two years of patient studies in RAND, Baran begins to develop the bases of the solution. In a series of talks and discussions with Air Force officers starting in the summer of 1961, he paves the way to the answer, talk by talk, equation by equation.» The main obstacle, the telecommunications system designed by AT&T, which not only saw threatened «the annual cheque of \$2 billion from the Department of Defence, but also saw a whole way of thinking disappear in Baran's *fishnet*». The solution, a network without central control, resilient, with innumerable connection routes, growing as more nodes were incorporated, impossible to cut. «The first large network built according to the Baran principles was called ARPANET (Advanced Research Projects Agency Network), a mesh of connections that even today serves as the backbone of some parts of the Internet.»

With this same spirit of search for solutions to security problems, the US security strategy has, since 1991, during the presidency of George HW Bush, continuously included the phenomenon of climate change in its paging. At the beginning «the need to assess climate change is established as one of the most complex, non-traditional issues affecting security»<sup>80</sup>, in 1997, with Bill Clinton in the presidency, to define it «as a transnational threat, with terrorism, drug trafficking and organised international crime», to one year later relate it to energy security and economic development, supporting the adoption of mitigation measures.

Dealing with this concern, prior to the conference of the parties, COP 15, in Copenhagen, December 2009, the Pentagon, supported by civil society committed to security and defence issues through its centres of thought and universities, began a considerable effort to raise society's awareness of the risks and threats associated with the development of the phenomenon. Paradigmatic was the report of the military advisory council<sup>81</sup> of the CNA<sup>82</sup>, *National security and the threat of climate change*, published in April 2007, as a result of the work of 11 retired three and four star generals and admirals, and which, among other results, popularises the name of the phenomenon as *threat multiplier*, which our first two national security strategies (2011, 2013) introduced as «risk enhancer and threat multiplier»<sup>83</sup>.

<sup>80</sup> Ibidem, GARCÍA SÁNCHEZ, *Climate change*, p. 201.

<sup>81</sup> <https://www.cna.org/mab/reports>. Visited 21 August 2017

<sup>82</sup> The Centre for Naval Analysis (CNA, although on its website, accessed on 21 August 2017, <https://www.cna.org/centers/cna/> a note is made in which CNA it is not considered an acronym and can be correctly referenced as «CNA, organisation for non-profit research analysis located in Arlington, VA») of the US Navy and as such financed with federal funds was founded in 1942.

<sup>83</sup> Strategy dossier no. 159, *The risk enhancers*, of the Spanish Institute of Strategic Studies, coordinated by the former minister Eduardo Serra Rexach, Ministry of Defence, Madrid, February 2013. [http://www.ieee.es/publicaciones-new/cuadernos-de-estrategia/2013/Cuaderno\\_159.html](http://www.ieee.es/publicaciones-new/cuadernos-de-estrategia/2013/Cuaderno_159.html).

In the first national security strategy of President Obama, 2010, the phenomenon is mentioned on 23 occasions and is described as «a real, urgent and severe danger»<sup>84</sup>. In the second and last, 2015, the reduction of greenhouse gas emissions in 2015 between 26% and 28% in relation to the 2005 levels is already established, highlighting that it was the country that most reduced these emissions in the previous 6 years<sup>85</sup>. It should be noted that in the document, *Strategy for a deep decarbonisation of the United States for the middle of the century*, of November 2016, the federal government establishes a reduction target of 40% for all its agencies by 2025<sup>86</sup>.

Another example of long-term strategic thinking that has led the military world to raise awareness about the phenomenon of climate change also takes place in the preludes of the Copenhagen summit (2008), and is related to the publication of the book<sup>87</sup>, *The wars of the climate, the struggle to survive in an overheated world*. The author explains how, through a friend in Washington, he meets with several Pentagon officials, at that time under the presidency of George W. Bush. These officers explain that they want him to write this book. Under the Bush presidency, the Pentagon is very constrained to bring the threat of climate change to public debate and considers a global effort to reduce the emission of greenhouse gases essential. The approach they make is as follows; if there is no universal effort and global warming follows the predictive models made by scientists, the most likely situation is that, sooner or later, its impact on the Central American region, especially its dry corridor<sup>88</sup>, will gather momentum, causing an increasingly large number of migrants pressuring the southern border of the United States with Mexico. The time could come when the pressure would be of such magnitude that Congress would order the army to close the border. At some point in that mission it might be necessary to open fire on the desperate masses. With that order the army, with troops mostly of Hispanic origin, could refuse out of conscience to shoot on people of their same race and culture; but what could

<sup>84</sup> Ibidem, GARCÍA SÁNCHEZ, *Climate change*, p. 202.

<sup>85</sup> The contribution of the European Union in the Paris agreement is at least a 40% reduction compared to 1990 levels by 2030.

<sup>86</sup> The White House, *United States mid-century strategy for deep decarbonisation*, Washington, November 2016, p. 83.

<sup>87</sup> Presentation of the book by the author, Gwynne Dyer, Canadian, at the NATO Headquarters, on 14 January 2010. [http://www.nato.int/cps/en/natohq/audio.htm?query=climate+wars&keywordquery=\\*&date\\_from=dd.mm.yyyy&date\\_to=dd.mm.yyyy](http://www.nato.int/cps/en/natohq/audio.htm?query=climate+wars&keywordquery=*&date_from=dd.mm.yyyy&date_to=dd.mm.yyyy). Visited 21 August 2017

<sup>88</sup> Central American Dry Corridor. A group of ecosystems located in the ecoregion of the dry tropical forest of Central America. This ecoregion begins in Chiapas, Mexico and continues along the lower areas of the Pacific side and the central pre-mountain region of Guatemala, El Salvador, Honduras, Nicaragua and part of Costa Rica (to Guanacaste). In Honduras, the corridor stretches through the centre and west of the country, until it approaches the Caribbean coast. Source: FAO, 2012. Characterisation study of the Central American dry corridor. CA-4 countries. Volume 1. Action against Hunger, European Union, United Nations Food and Agriculture Organisation. Viale delle Terme di Caracalla, 00100 Rome, Italy .

be worse, in a society such as the United States, which at that time could have a majority minority of the Hispanic population exceeding 25%, there could be a civil war or the dismemberment of the federation of states that make it up today.

*The centrality of energy, a battle to win*

«The leader of the progress, development and growth of our societies, both from the industrial and social point of view, is energy, which acts as an element of centrality»<sup>89</sup>.

The centrality of energy is something that seems beyond doubt, although it is usually associated with a «trilemma», in which it depends on the sources, the vertices vary considerably (see figure 5).

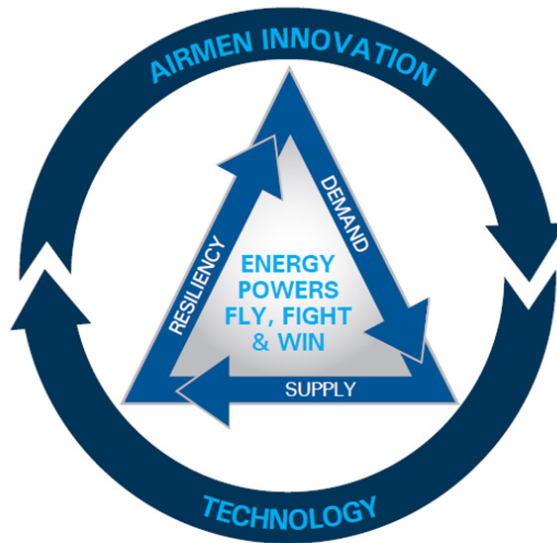


Figure 1: Air Force Approach to Energy

Figure 5 USAF Energy Flight Plan 2017-2036.

For example, continuing with the quote that opens the section, the World Energy Council has opened a programme it calls «Energy Trilemma»<sup>90</sup>,

<sup>89</sup> CAMACHO PAREJO, Marta. «The energy trilemma», Separata of no. 38 of Cuadernos de Energía. Spanish Energy Club, Spanish Energy Institute, 2012, Cited by GARCÍA SÁNCHEZ, Ignacio. «The rise of China and its energy supply», from Strategy dossier no. 166, *Energy and geostrategy 2014*, Ministry of Defence, Madrid, May 2014, p. 232

<sup>90</sup> <https://www.worldenergy.org/work-programme/strategic-insight/assessment-of-energy-climate-change-policy/>. Visited 21 August 2017

where it defines the three dimensions as: security, equity and environmental sustainability. The UN, in the year of sustainable energy, 2012, established three complementary objectives: universal access, efficiency and renewable energies. It later became the 7th goal of sustainable development, «energy is central to almost all the great challenges and opportunities that the world is currently facing»<sup>91</sup>. The International Energy Agency was founded during the 1974 oil crisis with three fundamental objectives, focused, of course, on energy: security, economic development and environmental protection. The European Union focuses on security, climate and competitiveness, with a more integrated, interconnected and resilient market. NATO focuses on security<sup>92</sup> with three basic objectives: critical infrastructures; the transit areas and communication lines; and cooperation and consultations among its members. While Spain, in its *National Energy Security Strategy*, establishes as «vectors or components»: environmental and economic supply and sustainability.

But the vision of the Armed Forces that includes all of the above as an essential element of society, goes much further, «fostering a culture that values energy as a strategic resource ..., and which inculcates an integral management of good practices»<sup>93</sup>. In this sense, the concept of operational energy of the North American Department of Defence is included (see figure 6).

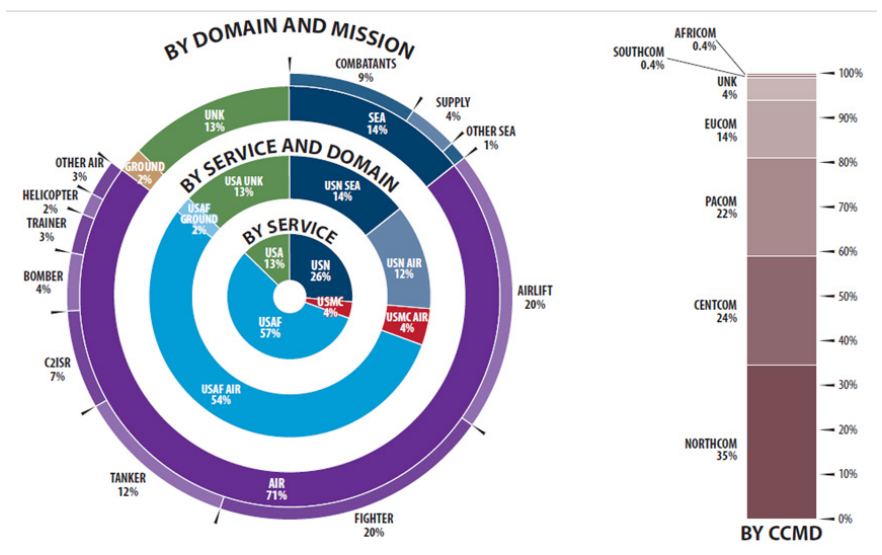


Figure 6 Source: figure 1: Operational Energy Use, FY 2014. 2016 Operational Energy Strategy.

<sup>91</sup> <http://www.un.org/sustainabledevelopment/es/energy/>. Visited 21 August 2017

<sup>92</sup> See: <http://www.natolibguides.info/energysecurity>. Visited 23 August 2017

<sup>93</sup> U.S. Air Force, *Energy Flight Plan 2017-2036*, Department of Facilities, Environment and Energy, 6 January 2017, p. 3.

The new energy culture must leave behind the old models where there was only one approach, the combat capacity. Today, the new integral soldier has to adopt the holistic view of the circular economy which, fully informed by the society he serves, fulfils the entrusted mission (see figure 7).

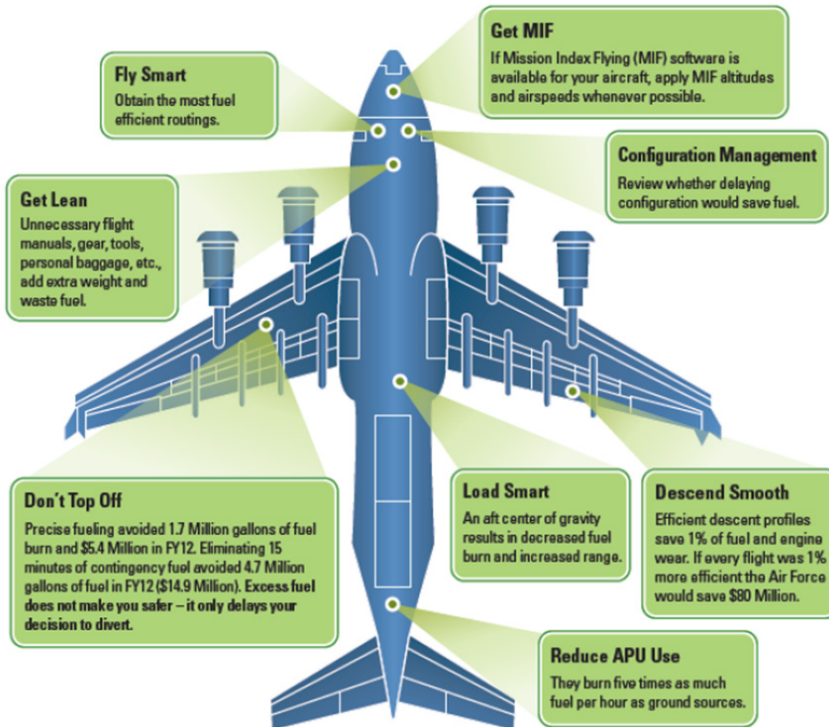


Figure 7 Source: «Do Your Part», Practical Examples of Air Force Energy Reduction Initiatives. Source: U.S. Air Force (2015). Air Force initiatives to improve energy use in airlift and tanker aircraft DOD 2016 Operational Energy Strategy. USAF Energy Flight Plan 2017-2036.

A new military energy culture that puts into question a system totally dependent on oil products, which has lasted for more than 100 years, without compromising the combat capacity and therefore the life of its components and the people who it defends, and therefore mobility and projection capacity in any area of operations, is a formidable but essential task. In this sense, the concept of «operational energy» is important, in contrast to the rest of the energy used by the Department of Defence, called «facility energy». In the North American case, the figures of the latter show

a cost that exceeds 20% of the total; in fiscal year 2015 approximately 3.9 billion dollars<sup>94</sup>, and 30% of consumption<sup>95</sup> (see figure 8).

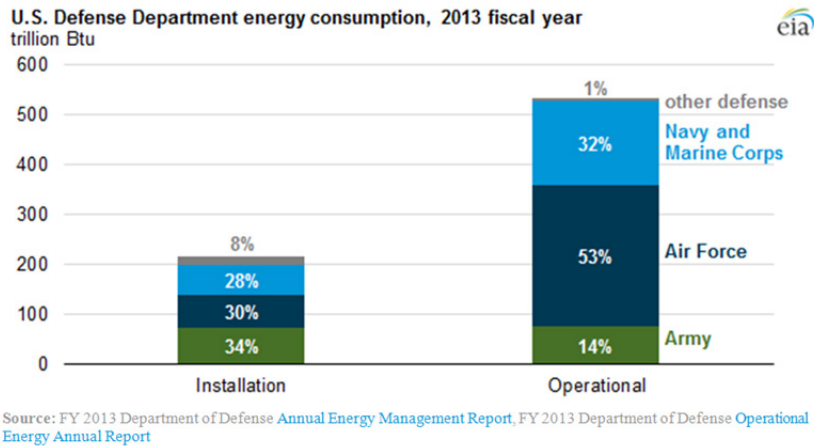


Figure 8. Percentages of energy consumption for facilities and operational energy.

The facility energy implementation programme leads federal policies in relation to energy efficiency, except for some strategic considerations<sup>96</sup>. The annual execution report for the fiscal year 2016<sup>97</sup> presented to the president, the Congress and the American citizenship, is a true document of social responsibility, since «it allows the reader to evaluate the effectiveness of the Department of Defence in relation to its missions as well as efficiency in the rigorous management of public resources». It is divided into three strategic purposes which, in turn, are subdivided into 12 strategic objectives according to the four-year strategic plan in line with the four-year defence report (QDR), published in 2014, so the strategic plan covers the fiscal years of 2015 to 2018. The 12 objectives result in 53 measures that establish the execution criteria. Of these 53 measures: three are not available when the report is published; in 37 of 50, 74%, exceed the imposed goals, while 26%, 13 of 50, do not achieve the proposed goal. In addition, of these 53 measures, 35 are associated with APG (*agency priority goals*), one of which

<sup>94</sup> U.S. Department of Defence. *Annual performance report fiscal year (FY) 2016*, Washington, 14 December 2016, p. 68

<sup>95</sup> Ibidem, KENDING. «Evolution of the operational energy strategy», p. 6

See also, EIA, «Defence Department energy use falls to lowest level since at least 1975». Visited 21 August 2017, <https://www.eia.gov/todayinenergy/detail.php?id=19871>.

<sup>96</sup> Ibidem, GARCÍA SÁNCHEZ. *Climate change: implications for security and defence*, p. 218

<sup>97</sup> <http://dcmo.defense.gov/Portals/47/FY%202016%20Annual%20Performance%20Report.pdf?ver=2017-05-26-172231-263>. Visited 22 August 2017

is energy. Of these priority objectives, 25, 78%, exceed the imposed targets, while 7, 22%, show a lower than expected performance.

Energy (APG 3.5.2) meets the 2nd priority in the 3<sup>rd</sup> purpose: «to acquire dominant capabilities through innovation, technical excellence and institutional defence reform»; and the 5th objective: «to improve performance in general, to enhance the commercial management of operations, and to achieve efficiencies, efficacies and cost reduction that can be transferred to needs with a higher priority». The goals are broken down into the calls: facility energy or facilitator<sup>98</sup> and operational energy<sup>99</sup>. Regarding the first, the goal to achieve would be to reduce the energy intensity by 2025 by 25% compared to 2015. The annual goal is to reduce by 2.5%, having reduced by 19.9% in 2015, compared to 2003, and in 2016, 5.10%. With regard to operational energy, the goal for the end of this cycle, September 2018, is to include the concept fully (100%), in the process of strength development; for which, three indicators have been established that, in September 2016, were at 96%, 75% and 92% respectively.

In addition, in the document, there are other federal objectives that are identified with the acronym CAP (*cross-agency priority*), of which the Department leads two: cybersecurity and strategic resources; and contributes to another 11, among which is climate change. In relation to the latter, CAP 3.5.8, the DoD «has doubled the federal target -20% in 2020- of electricity consumption from renewable sources and improved energy efficiency in all its facilities, including 4 billion dollars in contracts as part of the federal strategy to reduce direct greenhouse gas emissions by 28% by 2020, and indirect emissions by 13%, compared to 2008»<sup>100</sup>.

In this framework, the effort related to operational energy is exposed to an increase in the complexity of the geopolitical environment, as is the emergence of new players who want to have their role in a scenario of characteristics closer to any of the three versions of the realistic model of international relations: classical, structural and offensive, according to the theories developed by Hans Morgenthau (1904-1980), Kenneth Waltz (1924-2015) and John Mearsheimer (1947-) respectively; than to the neoliberalism represented by the model of complex interdependence of Joseph Nye (1937-) and Robert Keohane (1941-); or idealism, exemplified in the idea of collective security, which comes into being with the perpetual peace of Immanuel Kant (1724-1804), has a continuation with Woodrow Wilson (1856-1924) and the League of Nations, and more recently with the Kupchan brothers Charles (1958-) and Clifford; or the school of Critical Theory that has its origins in Kant, Georg Wilhelm Friedrich Hegel (1770-1831), materialises with Karl Marx (1818-1883), and continues the Frankfurt school with Marx Horkheimer

<sup>98</sup> [http://www.acq.osd.mil/eie/IE/FEP\\_index.html](http://www.acq.osd.mil/eie/IE/FEP_index.html) Visited 23 August 2017.

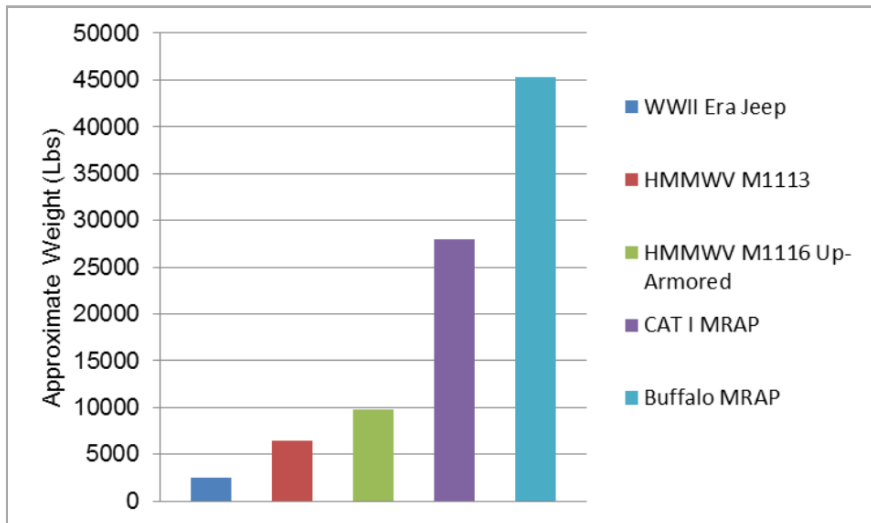
<sup>99</sup> [http://www.acq.osd.mil/eie/OE/OE\\_index.html](http://www.acq.osd.mil/eie/OE/OE_index.html) Visited 23 August 2017.

<sup>100</sup> Ibidem, p. 75.



(1895-1973) and whose maximum exponent at present is Jürgen Habermas (1929-)<sup>101</sup>. In addition, the North American strategic rebalancing towards the Asia-Pacific scenario, recently renamed Indo-Pacific, imposes a large logistical constraint on its armed forces. However, cultural transformation is considered a critical element to remain prevalent in the new geostrategic environment.

Thus, the document, *Evolution of the operational energy strategy and its consideration in the process of acquisition of the Defence*, explains how the analysis of weapons systems and increasingly heavy operational platforms (see graph 9) that increase the consumption of fuel without increasing combat capacity in the same proportion, reports a request from the Logistics, Technology and Acquisitions division to the Scientific Council of the Department of Defence in 1999 to form a work group to study technologies



Graph 9. Evolution of the weight of the main vehicle used by the US Army since the Second World War.

that improve the energy efficiency of those platforms and weapons systems.

The group published its work in January 2001, *Greater combat capacity through a reduction in fuel load*. In addition to identifying numerous technologies, the document puts its finger on the institutional wound: bureaucratic barriers, cultural conformism, the pressures of the military industrial complex that undoubtedly lead to inefficiency, with an excessive consumption that

<sup>101</sup> See, GARCÍA SÁNCHEZ, Ignacio José. «War between States? The balance of power and realistic logic?» in, Spanish Institute of Strategic Studies, *Geopolitical Panorama of Conflicts 2016*, Ministry of Defence, Madrid, December 2016. And, «Quo Vadis Europe? From the Solana document to Global Strategy», in Strategy dossier 184, *A global strategy of the European Union for difficult times*, Ministry of Defence, Madrid, February 2017.

can endanger the fulfilment of the mission. In short, 5 conclusions with 5 associated recommendations:

1. Energy efficiency is not valued or specified in the Department's requirements during the acquisition process. Recommendation: base investment decisions on the cost of fuel consumed and the benefits on combat capacity.
2. The real cost of fuel is not considered a factor in the decision process. Recommendation: integrate combat capabilities and fuel logistic requirements in war games and through new analytical tools.
3. Resource allocation and accounting processes do not reward energy efficiency or penalise inefficiency. Recommendation: provide leadership that encourages energy efficiency throughout the Department.
4. The models of energy needs are not linked to the processes of the acquisition programmes or to the development of their technical specifications. Recommendation: establish specific objectives related to the improvement of energy efficiency.
5. High-performance, low-consumption technologies that improve combat capacity and operational efficiency (2001) can now be developed through investments in science and technology and systems design. Recommendation: explicitly include energy efficiency among the requirements in the acquisition process.

In 2006, again, the Scientific Council was asked to form a working group to «analyse opportunities to reduce the energy consumption of the DoD, identify the institutional obstacles on their implementation and evaluate potential security and commercial benefits»<sup>102</sup>. The subsequent document, *More combat capacity-less fuel*, is published in February 2008 concluding that:

1. The recommendations of the previous document have not been implemented. Recommendation: accelerate efforts to implement key performance parameters (KPP) and full blown cost of energy (FBCE)<sup>103</sup>.
2. The Department of Defence lacks the strategy, the policies, the algorithms, the information system and the organic structure necessary to manage energy risks in an appropriate manner. Recommendation: establish a strategic plan that sets measurable objectives, creates a management process structure for the recommended changes in 2001 and implements processes with responsibilities and tasks.
3. Efficient technologies are currently available from the energy point of view, but are devalued, so their implementation is slow due to inade-

<sup>102</sup> Ibidem, KENDING, *Evolution of the operational energy strategy*, p. 20.

<sup>103</sup> To see its implementation in NATO: CRIADO DE PASTOR, Héctor. «Energy generation technologies», in Spanish Institute of Strategic Studies, *Security and Defence Documents 74, Economic intelligence, technology and logistics: a transversal vision*, Ministry of Defence, Madrid, April 2017, pp. 208, 209.

quate investments in science and technology. Recommendation: invest in energy efficiency and technologies that allow the use of alternative energies at a level commensurate with their operational and commercial value.

This new view has extended and the energy culture has permeated all sectors of the military institution. And so, the QDR 2010 established the criteria and formulated the necessary guidelines for the publication of the first operational strategy in 2011, of which an update was published in 2016, necessary for the new scenario in which the Asia-Pacific pivot context prevails, recognising the challenge represented by a priority theatre with a much more widespread logistics chain that limits the requirements for the availability of operational energy. In addition, the new adversaries with increasingly sophisticated capabilities: «Anti Access and Area Denial», (A2/AD in its English acronym), represent a threat to its viability and sustainability.

NATO in turn<sup>104</sup> echoed this trend at the Chicago Summit in 2012, encouraging its members to work «to substantially improve the energy efficiency of our military forces» and funded a work group «Smart Energy Team (SENT)»<sup>105</sup> from January 2013 to May 2015. The final report highlights that only 50% of its members submitted their responses to the questionnaire sent. At the Warsaw Summit in 2016, the need to «improve the energy efficiency of our military forces by establishing common standards, reducing dependence on fossil fuels and implementing military solutions» is re-emphasised.

In short, an energy culture<sup>106</sup> absolutely essential for a future where the geopolitical demands on the military factor are extreme in all areas, physical (geographic), human, economic and socio-political, within its cross-sectional conceptualisation, demanding a long-term geostrategic vision, exemplary and brave leadership, an efficient structure and an energy and environmental culture that permeates the entire organisation, its plans and programmes, in a process of permanent transformation.

### *New challenges, new missions, a new society*

«The «global commons» are those areas of the world shared by all States; they can be classified into two large groups depending on the

<sup>104</sup> See: <http://www.natolibguides.info/smartenergy>. Visited 23 August 2017

<sup>105</sup> The final report of the work group, «SENT Comprehensive report», 6 May 2015, can be downloaded from: [http://www.natolibguides.info/ld.php?content\\_id=18110194](http://www.natolibguides.info/ld.php?content_id=18110194). Visited 23 August 2017

<sup>106</sup> Examples in the DoD are the annual awards of excellence for facilities, environment, the month of energy, October, events for Earth Day, 26 April ... <http://www.acq.osd.mil/eie/>. And, in NATO, the specific events that are regularly scheduled under the direction of the Emerging Security Challenges Division (ESCD), created on 4 August 2010 in the International General Staff. <http://www.natolibguides.info/smartenergy/calendar>. Visited 23 August 2017

challenge they represent: strategic and environmental. The «common strategic» areas include the domains of the sea, air, space and cyberspace, as well as the nuclear domain with regard to the control of nuclear proliferation. The «common environmental» areas include the geopolitical implications of the management of water sources, the Arctic and global climate change ... Global climate change is the last component of the «common environmental» areas and the one of greatest geopolitical impact ... The protection and exemplary management of «global commons» -sea, air, space, cyberspace, nuclear proliferation, water security, the Arctic and the environment- is imperative for sustainable global economic development and basic geopolitical stability»<sup>107</sup>.

The geopolitical impact of climate change establishes new challenges to the continuous process of transformation of the Armed Forces in all its areas<sup>108</sup>. The changes that are currently noticed will continue, depending on the success of the mitigation policies in progress. Another feature of the phenomenon is its uncertainty<sup>109</sup>. In spite of the scientific advances, the ever more perfected predictive models and the deep commitment of the international scientific community in its research, there are numerous inaccuracies and dilemmas that, in some cases, allow positions such as the negation of the phenomenon itself to be defended. An aspect that accentuates the natural difficulty to establish global strategic trends with horizons of 25 to 30 years and the future operating environments, 20 to 25 years, that allow a concept of military use to be established and the capabilities that facilitate it to be designed.

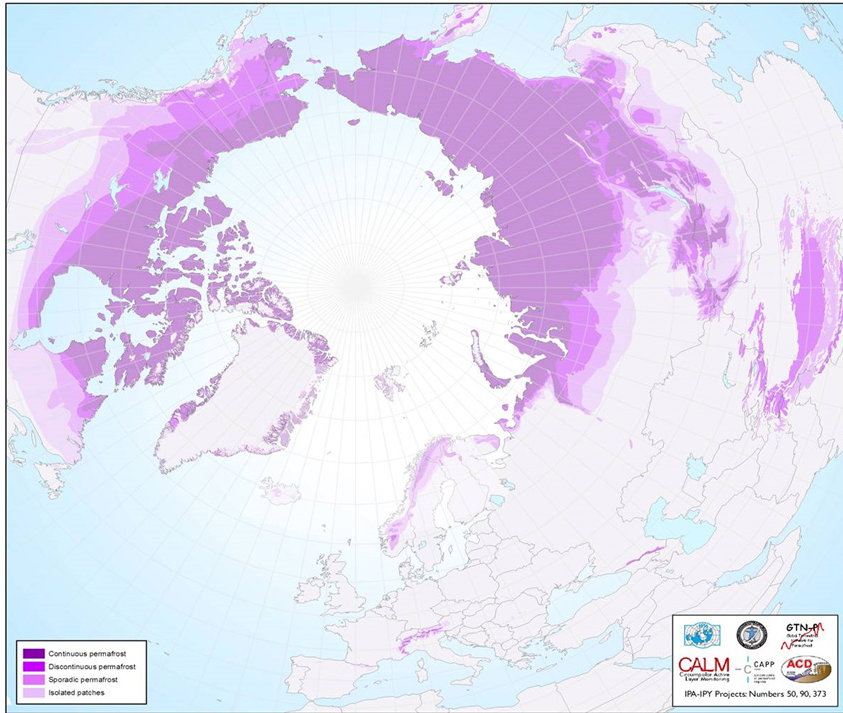
It is the geophysical aspect that is perhaps the one with the greatest direct influence. The global increase in temperature, especially in the oceans, with the consequent melting of sea and continental ice, requires immediate action, especially for those countries with military installations that see how the permafrost that supported their buildings begins to weaken (see graph 10)<sup>110</sup>.

<sup>107</sup> BRZEZINSKI, Zbigniew. *Strategic vision: America and the crisis of global power*, Basic Books, New York, 2013, pp. 110, 118, 119. Translation by the author.

<sup>108</sup> NATO uses the acronym DOTMLPFI: *doctrine, organisation, training, material, leadership, personnel, facilities and interoperability*;

<sup>109</sup> See, US Department of Defence, *Assessing Impacts of climatic change on coastal military installations: policy implications*, Strategic Environmental Research and Development Program, (SERDP) January 2016, Consideration 7, p. 31 For more information about US Department of Defence environmental research programmes see: <https://www.serdp-estcp.org/>. Visited 24 August 2017.

<sup>110</sup> See: *Loss of permafrost: impact on DoD lands in Alaska*, <https://www.serdp-estcp.org/News-and-Events/In-the-Spotlight/Loss-of-Permafrost-Impact-on-DoD-Lands-in-Alaska>. <https://www.theguardian.com/cities/2016/oct/14/thawing-permafrost-destroying-arctic-cities-norilsk-russia>. Visited 23 August 2017



Graph 10. <https://ipa.arcticportal.org/images/stories/permafrost%20map.jpg>. Visited 23 August 2017 International Permafrost Association.

But without doubt, the Arctic Ocean is the new frontier<sup>111</sup> that opens up to the geostrategic game of the great powers and where the Armed Forces are having an ever greater presence.

The recent documents related to the increasing militarisation of the Arctic by the three heavyweights that coincide on the so-called roof of the world are clear, the European Union<sup>112</sup>, United States<sup>113</sup> and Russia. In this sense, «in the last military doctrine signed by President Putin, the Russian Federation considered NATO its main threat and accused the Alliance of practising the doctrine of containment with the aim of isolating Russia. Thus, for the first

<sup>111</sup> GARCÍA SÁNCHEZ, Ignacio. «The Arctic: Old or new geopolitics?», Chapter 3 in the Spanish Institute of Strategic Studies, *Geopolitical Panorama of Conflicts 2015*, Ministry of Defence, Madrid, November 2015.

<sup>112</sup> Global Strategy for the European Union's Foreign and Security Policy, *Shared vision, common action: a stronger Europe*, Brussels, June 2016. <http://europa.eu/globalstrategy/en/global-strategy-foreign-and-security-policy-european-union>. Visited 24 August 2017.

<sup>113</sup> Department of Defence, *Report to Congress on Strategy to Protect United States National Security Interests in the Arctic Region*, December 2016. Department of Defence, *Arctic strategy*, November 2013. US Navy, *Arctic roadmap 2014-2030*. US Coast Guard, *Arctic Strategy*, Washington, May 2013.

time, it created a new joint command for the Arctic region and increased the military effort in the area. And, in the new maritime doctrine, the Arctic and Atlantic fronts are specifically pointed out as their main concerns, as well as the need to reinforce the presence of the Russian Navy in the Arctic and Crimea»<sup>114</sup>. Of course, the rest of the Arctic nations also develop policies for the presence of their armed forces in the increasingly disputed Arctic waters. Thus, for example, the Canadian Ministry of Defence, among other actions, will actively promote its presence in the area, will continue with the construction of the special Patrol boat for the Arctic, will finance a programme of surveillance of the area with \$133 million in five years to «Improve intelligence on possible challenges posed by foreign military forces...», will hold regular exercises in the north that will include the participation of rangers and improve the readiness to conduct operations in the region<sup>115</sup>.

Other aspects related to the high temperatures of both the air and the sea, have already, and will have in the future a greater influence on the operation of personnel, platforms and weapons systems and, of course, their future designs. «The change in weather conditions and the increase in extreme weather events, including high and low temperatures, drought and floods... have a significant impact on operations. These circumstances include a greater risk to life, physical security, with an increase in injuries, and a degrading effect on the performance of the mission... Numerous military studies cite weather conditions as one of the main factors in the battle, with examples from the Revolutionary War to Operation Desert Storm».<sup>116</sup>

In this sense we can mention here the comments of the commanders of the ships of the operation Atalanta, on the impossibility of its units reaching maximum speed to attend calls for help from vessels threatened by Somali pirate ships, due to the increase in sea temperature and, another example, with the *New York Times* recently publishing the news of mass cancellations of flights in Phoenix due to high temperatures<sup>117</sup>.

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<sup>114</sup> Ibídem, GARCÍA SÁNCHEZ. «The Arctic», p. 109. Some news about the military effort in the area: <http://www.bbc.com/news/world-europe-34391961>, «Russia builds an air defence base in the Arctic», 29 September 2015. <http://www.bbc.com/news/world-europe-39629819>, «The new Russian military base «clover» in the Arctic unveiled through a virtual tour», 18 April 2017. Visited 23 August 2017

<sup>115</sup> Department of National Defence and the Canadian Armed Forces, *2017-2018 Departmental plan*, 2017.

<sup>116</sup> WEATHERLY, J. W.; HILL, D. R. *The impact of climate and extreme weather events on military operations*, U.S. Army Engineering Research and Development Centre, New Hampshire, December 2004. p. 1.

<sup>117</sup> WICHTER, Zach. «Too hot to fly? Climate change may take a toll on air travel», *The New York Times*, 20 June 2017. <https://www.nytimes.com/2017/06/20/business/flying-climate-change.html>. Visited 24 August 2017

Other characteristics such as acidification, salinity, density and possible modification of marine currents are important factors in underwater acoustics. Although, as the World Economic Forum of Davos says, more information has been collected from the oceans in the last two years than in the rest of the history of the planet, the sea is still unknown. «Less than 5% of the volume of the oceans is monitored comprehensively». Along this line the North American Navy on 24 March 2017 reported the establishment of a *Task Force Ocean*, to advance in the knowledge of oceanographic sciences in order to maintain the competitive edge in the sea domain below the surface. Although global capabilities are insurmountable, the gap is closing and we cannot be complacent. It is time to increase the commitment to knowledge to stay ahead of potential competitors»<sup>118</sup>.

Continuing with the seas and oceans, the rise in sea level presents a formidable risk for military installations near the coast, some quite threatened, especially when combined with extreme weather events such as hurricanes or large storms. A sample of the scope and concern can be seen in the video of Arnold Schwarzenegger's visit to the Norfolk Naval Air Base<sup>119</sup>, where the NATO headquarters of the Transformation Command is also located.

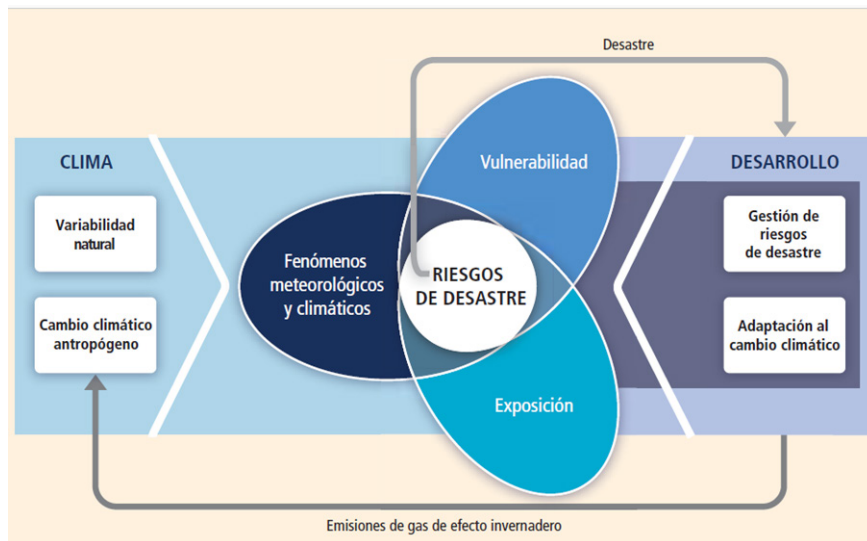
This aspect, the extreme weather phenomena, is another of great transcendence, which expands the missions of the armed forces and is very important in the perception of the military institution by society as a whole. In this sense, the retired Admiral James Stavridis in his last book (June 2017), *Sea power, the history and geopolitics of the World's Oceans*, suggests making Guantánamo an international base whose mission is to help in cases of natural disasters and humanitarian disasters in a particularly threatened region.

The special report of the intergovernmental group of experts on climate change, *Managing the risks of extreme weather events and disasters to improve adaptation to climate change*, of 2012 (see figure 11) has only been corroborated and, thus, two days before the celebration of world weather day, 23 March, the director of the world climate research programme of the UN World Meteorological Organisation declared that «even without a strong Niño in 2017, we are seeing remarkable meteorological phenomena across the globe that defy the limits of our understanding of the climate system. We are in an unexplored territory»<sup>120</sup>.

<sup>118</sup> Department of the Navy, *Navy announces launch of Task Force Ocean, plans to advance ocean science*, Office of the Oceanographer of the Navy, 24 March 2017. [http://www.navy.mil/submit/display.asp?story\\_id=99455](http://www.navy.mil/submit/display.asp?story_id=99455). Visited 24 August 2017

<sup>119</sup> You Tube, *Arnold Schwarzenegger - Climate Change's Threat to the U.S. Navy*, 27 June 2017, <https://youtu.be/WzEZv1JRGa>. Visited 24 August 2017

<sup>120</sup> World Meteorological Organisation, «Climate breaks multiple records in 2016 with global impacts», 21 March 2017 <https://public.wmo.int/en/media/press-release/climate-breaks-multiple-records-2016-global-impacts>. Visited 24 August 2017.



Graph 11 Handling of the risks of extreme weather events and disasters to improve adaptation to climate change.

Undoubtedly, «climate change in among the future trends that will impact our national security. Increased global temperatures, changes in rainfall patterns, sea level rise and more extreme weather events will intensify the challenges of global instability, hunger, poverty and conflict. They will likely cause shortages of food and water, pandemics, disputes over refugees and resources, and destruction by natural disasters in regions around the world»<sup>121</sup>.

The increasing frequency and severity of the disasters caused by these phenomena is driving society to demand the intervention of the State which has, in its Armed Forces, a very valuable instrument for its 24/7 availability, autonomous capabilities, and ease of projection. From the struggle to contain their spread in the focus of pandemics, to the delivery of food and drinking water supply in the most remote places, through the rescue of entire populations at risk or during the materialisation of natural disasters, the supply and rehabilitation of basic social services in support of civil authorities who, time and again, are overwhelmed by the size of the events. In Spain, a paradigmatic example is the Military Emergency Unit, in this case specially organised and prepared to fight the forest fires that year after year devastate the forest mass of the peninsula and the archipelagos.

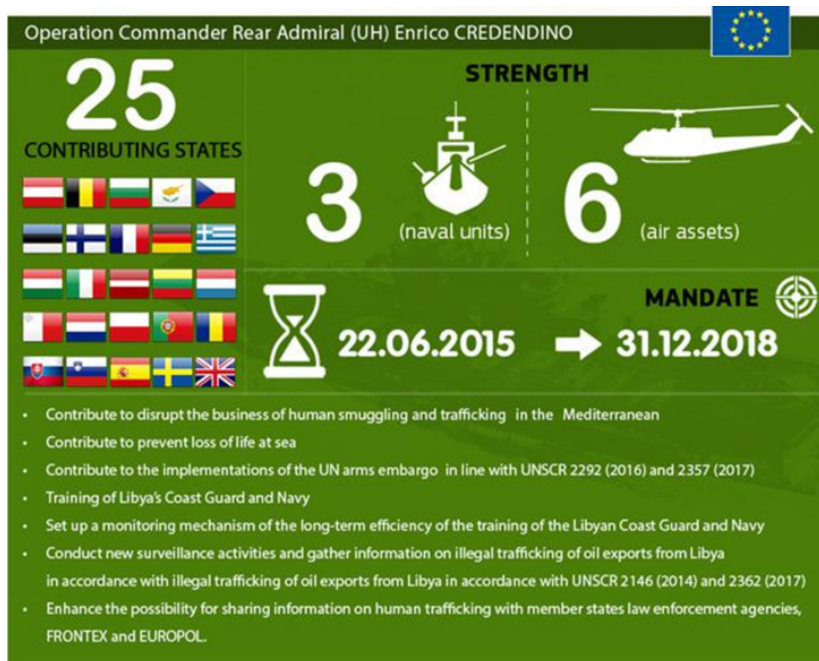
One, increasingly versatile, model followed by many nations and, moreover, in the specific case of Ibero-American countries, allows military institutions historically focused on internal security police missions to be transformed into modern national defence organisations with specific missions in support

<sup>121</sup> Department of Defence of the United States, 2014 *climate change: adaptation road map*, foreword.



of civil authorities during humanitarian catastrophes and natural disasters, in addition to actively cooperating in peace, security and international stability, collaborating in United Nations missions and peace operations.

Regarding the human factor, without a doubt, and we are seeing it today, the Armed Forces will be required to collaborate with the civil authorities in support of the State Security Forces and Corps for the control and stabilisation of migrations. A phenomenon caused by many factors, but which, if not directly caused by climate change, is exacerbated by its consequences. In addition to the example described above, we can not fail to mention the case of operation Sofia (see figure 12)<sup>122</sup>; and the NATO operation *Sea Guardian*<sup>123</sup>, the evolution of the operation *Active Endeavour*<sup>124</sup>, during the European refugee crisis. Missions that, due to their characteristics, always question the adequacy of the military forces for these purposes<sup>125</sup>.



Infographic created by the European External Action Service (EEAS)



This graphic and its contents are meant for illustrative purposes only

Figure 12

<sup>122</sup> [https://eeas.europa.eu/csdp-missions-operations/eunavfor-med\\_en](https://eeas.europa.eu/csdp-missions-operations/eunavfor-med_en). Visited 24 August 2017.

<sup>123</sup> <http://www.mc.nato.int/missions/operation-sea-guardian.aspx>. Visited 24 August 2017.

<sup>124</sup> Anti-terrorist operation in the Mediterranean, which began after the terrorist attacks in New York and Washington on 11 September 2001.

<sup>125</sup> DEL POZO, Fernando. «The NATO naval forces and the refugee crisis», *Bulletin of the Spanish Institute of Strategic Studies, (Bie<sup>3</sup>)* no. 2, 2016, Ministry of Defence, Madrid, September 2016, pp. 419-430.

The Armed Forces are more committed than ever to the socio-political environment that serves as their framework. Using the famous quote from Abraham Lincoln, widely used and expanded by Barack Obama, the Armed Forces must be more than ever «of society, by society, for society, and with society.» The opportunities offered by the universal challenge<sup>126</sup> of climate change to show the most human, social and committed face of the Armed Forces will deepen and expand; it is just a matter of asserting the principle of being the first servants of society. In addition, the change of sociopolitical paradigm moves us to a new reality where two domains, cyberspace and environment, become the scenarios of debate and uncertainty and present themselves as challenges of such magnitude that few institutions, in addition to the Armed Forces, can aspire to lead their management and guarantee a minimum degree of certainty and security that contributes to giving that social and political transformation a human sense. In line with the values that represent: «Unity, loyalty, courage, commitment, spirit of service, companionship and respect»<sup>127</sup>, or as the social responsibility report of the US Department of Defence sets out: «duty, integrity, ethics, honour, courage and loyalty»<sup>128</sup>.

With the global warming of the planet due to an economic system created out of the industrial revolution, the centrality of fossil fuels in a sustainable economic development is answered. A new little explored and largely unknown horizon becomes evident to society and is inexorable. A future that seems designed by military engineers and that tends to reduce the vulnerability of the logistics supply chains of fossil fuels. The autonomy, the scalability, the technological development, the interoperability, resilience, its diversification..., a whole rosary of operating advantages that should allow the effort of the public policies of research and development in alternative energies to be led.

If we started the section with the area where climate change has a more direct impact, we ended it with the institution that is most involved, most attentive and concerned over its implications. In short, with the quote with which we began the chapter, with the institution «military. They are, after all, where the *shock* of the new will strike first.»

If we analyse the implications of climate change through the DOTMLPFI spectrum of military functions, we will see that the transformation of the

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<sup>126</sup> «Certainly, what I find really fascinating and provocative is that climate change is the mother of all threats. It is the first threat that concerns all the countries of the world at the same time, from which no continent escapes. This has never happened before. Climate change is different [from any other risk]. It is the first universal threat that can only be solved universally». Quoted by *Ibidem*, GARCIA SÁNCHEZ, *Climate change: implications for security and defence*, p. 183

<sup>127</sup> *Ibidem*, COSPEDAL, «Easter Military Address 2017», p. 3.

<sup>128</sup> *Ibid*, US Department of Defence, «FY 2016 DoD annual performance report», p. 8

institution is already a fact in many cases, but will require a much deeper and wider cultural transformation in the future, as the phenomenon develops.

The doctrine, sense and purpose of the institution evolves constantly and even more when it has to face a global challenge that has precise characteristics and many areas of uncertainty. As a risk in itself and as a multiplier of threats, climate change appears in all national security strategies and is therefore transferred to the military doctrine communicating concepts, such as resilience, strategies, like operational energy, processes and plans, and the very culture of the institution. The confirmation session of the North American Secretary of Defence, General James Mattis, under the presidency of Donald Trump, attests to this<sup>129</sup>.

The organisation is also pressured by its most immediate effects. In addition to the creation of specific units in many cases, the need to deploy any of its units in any part of the world immediately to act autonomously implies a considerable effort in strategic, operational and tactical transport. The need for real-time information and robust command and control systems (C2ISR, for its acronym in English<sup>130</sup>), with the capacity to integrate into civilian nodes, is another of the areas of greatest influence.

The training of forces in extreme conditions and circumstances, as well as the assistance of specialised military units for psychological support to victims, is another area that sees how it progressively receives greater attention within the specific military training of their units.

The material, the weapons systems, the platforms, the facilities..., both in their use and design, while seeking the advantage in their operational characteristics, are informed by two collateral requirements: energy efficiency and their capacity for deployment and projection. In this line, logistics, in the field dominated by the phenomenon of climate change, would be above strategy and tactics, the three main branches of the art of war according to Baron Antoine Henri Jomini (1779-1869). The need to maintain a constant flow of basic necessities at the beginning to subsequently maintain adequate distribution of goods and re-establish the essential social services, become fundamental objectives. In addition, they receive all the focus and media attention, which analyses their effectiveness and execution in real time through the media and social networks around the world.

Leadership and personnel are the basic pillars of any institution and, therefore, of its transformation process. On their professionalism, spirit of service, discipline and empathy, the indexes of trust and support to the military institution will be structured. The adaptation of its principles and values to those of the society from which it arises will be the reference of its

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<sup>129</sup> [https://www.armed-services.senate.gov/hearings/17-01-12-confirmation-hearing\\_-mattis](https://www.armed-services.senate.gov/hearings/17-01-12-confirmation-hearing_-mattis).

<sup>130</sup> Command, Control, Intelligence, Surveillance and Recognition.

value as the basic organisation of the State; in addition to its transformation capacity to face a future in which the uncertainty of the impact of the phenomena associated with climate change will create continuous crisis situations<sup>131</sup>. In short, a process that must consolidate the institution in a position of centrality in the necessary social cohesion with which to face the future.

The infrastructures of Defence are threatened in a special way by the phenomena associated with climate change. Most of these facilities are located in very vulnerable areas due to their special functions and basic characteristics. The thaw, the rise in water levels, extreme weather events, high temperatures... In addition, an additional effort is required, as an exemplary institution, to achieve greater energy efficiency objectives and environmental sustainability criteria. Never forgetting its fundamental mission of supporting the forces that use them and civil society in emergency situations.

Finally interoperability; the ability to work in an international environment with military forces from other countries and together with civil society in a coherent, effective and efficient way to overcome the most desperate situations is increasingly a must. The planning of new operations will no longer be defined as a whole<sup>132</sup> or combined<sup>133</sup>; this is already an innate characteristic. It will be comprehensive, that is, together with civil organisations for humanitarian aid and reconstruction support, with emergency personnel, police forces and social assistance. All together on the same front line and never again will the civil elements be a delayed step. They will also, along with military personnel, have to put their safety at risk to help other people, anywhere in the world, under any circumstance.

## Conclusions and perspectives

«... «Is humanism really human?»..., introduces us, courtesy of Cary Wolfe (1959-), to the concept of «post humanism». The professor immediately points out that it does not mean either anti-humanism, or after-humanism, or anything that means that humanity loses its centrality in relation to the world around it. But it does transcend the traditional outline of discrete domains: of the human, the animal, the natural

<sup>131</sup> See AZNAR FERNÁNDEZ-MONTESINOS, Federico. «Civic military collaboration», and SALDAÑA GARCÍA, Juan. «Military unit of response to catastrophes», in Spanish Institute of Strategic Studies, Document of Work, *Relations and military civic collaboration*, in <http://www.ieee.es/publicaciones-new/documentos-de-trabajo/2016/DIEEET13-2016.html>. Visited 25 August 2017.

<sup>132</sup> Whole refers to the integration under a single command of forces of the Armies and the Navy of a country.

<sup>133</sup> Combined refers to the integration under a single command of forces of different countries.

or the mechanical, demanding a much more transversal, multidisciplinary and integrating thought of an increasingly complex and inseparable reality. A story in which «the properly human» is only part of the story; is integrated into a greater, and in many ways, non-human set of contexts and forces»<sup>134</sup>.

The State recognises itself before the challenge that the phenomenon of climate change represents as the fundamental actor, its main opponent. Despite the diffuse nature, the uncertainty in its development and consequences, its universal character and the heavy scientific basis that accompanies it, it does not seem that in the present century we are witnessing the birth of an international structure different from that inherited from the Westphalian peace and the philosophy of the State based on the social contract, to tackle the problem. And within that structure, one of the basic pillars of its sovereign authority, its Armed Forces.

In the judgement of history, when the State and its Armed Forces are heard in the dock of those accused of «ecocide»<sup>135</sup>, we will have to testify against ourselves and prepare the arguments in our defence with new bonds of political solidarity, a re-foundation of society through a «*post-humanist*» culture with original forms and different practices that reconcile us with the ecosystem, and a new sense of the institutional legitimacy of the military world that transcends the «three factors that support this claim: the first, the universality of the claim, which knows no geographical limits or historical differences; the second, the characteristic of the crime that is existential, on the very essence of the meaning of humanity; and the third, that the established legal order is questioned because the responsibility is shared and can not be imputed individually»<sup>136</sup>.

An existential, shared and universal responsibility that should not be an obstacle to recognising the social commitment of the military institution, a fundamental part in the historical development of the geopolitical framework on which the future must be shaped. The Armed Forces have to reinforce their role as guarantors of peace, the tolerant coexistence of society and the legal framework that makes it possible, as an integral part of the society it serves. The political reason that justifies its existence must be a «constant intellectual commitment» to face violence in all its forms, cultural, structural and direct, against the existence of life, «guided by the lessons and warnings of centuries of unnecessary devastation» as Hanna Arendt (1906-1975) defended<sup>137</sup>.

<sup>134</sup> GARCÍA SÁNCHEZ, Ignacio José. «Power and violence: the conflict of the second half of the 21st century», *Bulletin of the Spanish Institute of Strategic Studies (bie<sup>3</sup>)* no. 7 Ministry of Defence, Madrid, pending publication. It can currently be found at: <http://www.iecee.es/contenido/noticias/2017/08/DIEEEA43-2017.html>. Visited 26 August 2017.

<sup>135</sup> *Ibidem*, GARCÍA SÁNCHEZ. «Power and violence», pp. 5, 6.

<sup>136</sup> *Ibidem*, GARCÍA SÁNCHEZ, «Power and violence», p. 6.

<sup>137</sup> EVANS, Brad. «What does it mean to be human in the 21st century?», *The New York Times*, 28 February 2017.

An integral and permanent transformation of the military institution in all its areas, from doctrine to interoperability, becomes more necessary than ever, in which leadership and personal values and attitudes will be fundamental. And over which will the all powerful energy permanently overfly with its vertebral role in the execution of any mission, demanding and decisive. Without a new energy culture, transversal in all its areas, the transformation will become a change, an evolution, a mere adaptation.

Climate change, with all its dramatic responsibility, offers an opportunity for that change of culture, for that necessary transformation of this institution that will continue to make possible its most dramatic extremes, «the continuation of politics by other means», but in this case, not only to make war against the existential challenge of other social groups, but also and perhaps more frequently, to help them and support them in the face of natural disasters and humanitarian disasters.

An example of this attitude is the 13<sup>th</sup> exchange between the armed forces of China and the US in the management of humanitarian disasters. The 2017 exercise develops a flood scenario in which the two armies are required by a third state to form part of a Multinational Centre for Coordination of support operations for civil authorities in the management of the catastrophe. In the words of General Huang Taoyi of the 75th group of the People's Liberation Army: «We are ready to work together with our friends in the US to actively implement the consensus reached by our two national leaders and make concerted efforts to make this year's exercise more practical, more integrated and thus improve the capabilities of the two institutions in support operations in natural catastrophes and humanitarian disasters»<sup>138</sup>.

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<sup>138</sup> U.S. Department of Defence. News articles. U.S., Chinese troops attend disaster management exchange. 11/24/2017