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Environmental Security in Latin America and the Caribbean: Evolution and Challenges for the 21st Century

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Executive summary

Environmental security is a concept that has been gaining relevance in recent decades due to the overwhelming effects that climate change and the harmful actions of man have generated on ecosystems and the well-being and subsistence of human societies around the world. One of the most vulnerable regions to the effects and impacts of climate change is Latin America, due to its great climate variability and the poverty of millions of people who, with the slightest change in their forms of subsistence, find themselves in imminent danger. Therefore, this policy paper aims, on the one hand, to show in general terms the evolution and importance of environmental security studies in the 21st century, and, on the other, to emphasise said concept in the region of Latin America and the Caribbean (LAC). To do this, we begin with an outline of the evolution of the concept of security, and then inquire into the concept of environmental security, its antecedents, origins, and challenges. Subsequently, we undertake a synthetic description of the environmental security situation in LAC and the main problems that arise in each of its subregions, identified based on the political boundaries created by existing regionalisation processes and the networks of shared interdependencies created by the environmental problems and challenges they face. Then, the environmental policies of both the region and the multiple subregions will be addressed, in order to formulate policy recommendations related to environmental security, directed at decision-makers from both the public and private sectors, as well as to other social actors.

Environmental Security in Latin America and the Caribbean: Evolution and Challenges for the 21st Century

Eduardo Pastrana Buelvas¹ and Miguel Burgos Giraldo²

The evolution of the concept of security

To begin, the origin and evolution of the concept of security must be considered in order to understand how we have reached the point where we are today, and to be able to propose possible alternatives for the future. In this sense, the word *securitas* was coined by Roman philosophers Cicero and Lucretius in the 1st century to refer to a mental and philosophical state in which there were no conflicts. In this way, the term would become a key political concept of the Pax Romana and the consolidation of the empire, as obtaining peace and security would be achieved in exchange for the loss of freedom (Gunter, 2008).

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A second important moment in the development of the concept is the political theory of Thomas Hobbes developed in *The Leviathan*, his key work published in 1651. Hobbes defines security as a condition that is obtained through different means in order to be free from the oppression, physical harm or death that can be committed by other men. Hence, the state arises as a strategy to find security in the state of nature, given that individuals grant their coercive capacity to a higher entity, or *Leviathan*, which preserves order and reduces the possibility of violence prevailing among individuals (Arbeláez, 2009).

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Thus, since the 17th century, the concept of security has been associated with the preponderance of the role of the state as the actor that has the monopoly of violence within a society to maintain peace within its borders and to prevent attacks from neighbouring states. In this way, security has been framed in military terms as the responsibility of the state, to guarantee its survival by protecting the individuals within a specific territory (Gunter, 2008).

Later, at the beginning of the 20th century, Woodrow Wilson made an important contribution to the notion of security in his famous “Fourteen Points” speech, in which he stated that it was necessary to consolidate collective security as a pillar of the international community to avoid a new confrontation of the dimensions of World War I. Therefore, Wilson tried to make the notion of collective security revolve around the nature and preservation of humanity and its morality, beyond the statist and militarist policies that had dominated spheres of power in the previous four centuries. However, his innovative ideas and desire for change did not prosper in the United States Senate, ultimately dooming the League of Nations and permitting the outbreak of World War II (Landry, 2012).

Later, the National Security Doctrine emerged as a fundamental pillar of international relations in the Cold War period (1945-1989). This was characterised by the militarisation of international relations and strong interventionism by the great powers in developing countries to ensure their survival against external threats. In this historical moment, the greatest threat to the countries allied with the United States was communism, meaning that security was measured not only in terms of arms, but the ideological factor also played a fundamental role in what both blocs considered security through strategies

of containment and deterrence (Tenorio, 2009).

However, in the 1990s, after the end of the Cold War, Barry Buzan deepened the concept of multidimensional security, combining five notions of security: military security, which represents the armed capacity of the state for its defence; political security, that is, an interest in maintaining the state’s organisational order and system of government stable and free from pressures; economic security, which aims to guarantee financial resources that ensure freedom of action to achieve economic well-being and national power; societal security, understood as the ability of societies to integrate their national language, culture, traditions and aspirations in a national identity that leads to the search for the common good; and finally, environmental security, as the mechanism to strengthen the stability of the biosphere and thus secure the space in which life develops (Buzan, 1991).

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sphere, and suggests the integration of other concepts that allow the establishment of a comprehensive, holistic model that encompasses several dimensions, to face the post-Cold War world, marked by the growth of internal armed conflicts, the rise of non-state actors, the end of the state monopoly on the administration of force, the economisation of international relations, and the emergence of new threats.

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In the same vein, Baldwin suggests in *The Concept of Security* (1997), that multidimensional security, as well as the study of security at levels other than the nation state, are not new discoveries. One of his main arguments is based on the ideas of Wolfers, who in 1952 argued that security is specified with respect to the values to be protected, from which type of threats, the capabilities and cost that this would represent, as well as recognising that security could also be discussed at levels higher or lower than the nation state, despite the fact that his approach in his article "*National Security*" as an *Ambiguous Symbol* (1952), focused on national security. Ultimately, most new ideas about security can be adapted to the conceptual framework elaborated by

Wolfers, as can the basic structural tools to rethink it, as they have been available since at least the publication of his article in 1952.

As a final argument, it is important to review the analysis of the article *Redefining Security*, written by Richard H. Ullman (1983), the purpose of which is to reflect on the assumption that defining security exclusively in military terms leaves a deeply distorted image that is wrong in reality. This false image is doubly misleading and therefore doubly dangerous. First, it makes states focus on military threats and ignore other dangers, thus reducing its overall security. And second, it contributes to a generalised militarisation of international relations which, in the long term, can only increase global insecurity (p. 129).

Securitisation processes and Regional Security Complexes (RSC)

The logic of securitisation operates predominantly within the space of state authority, meaning it can be surmised that, in the international context of a region, there is increased heterogeneity in threat perceptions and, therefore, difficulties in cooperation, and that competition, cooperation or conflict between units may occur when defining and prioritising threats -both regional and external- to a

collective agenda. Therefore, securitisation processes can define global threats, but the referent objects of security (that which is to be protected) can be located at both the global level (international regimes, the global ecosystem, etc.) and at other levels (the specific community, the state, the region, etc.) (Buzan & Waever, 2003). The important question to be resolved empirically is at which level (domestic, regional, or systemic) each threat is located (Buzan & Waever, 2003). For Buzan (2007), the concept of security integrates different levels (individual, group, state, interstate, transnational, regional, interregional and systemic-global) and fields (military, political, societal, economic and environmental) that must be dealt with using a comprehensive perspective. Thus, one can speak of “securities” but a full understanding of security is only reached when some types are related to others (Buzan, 2007).

Regarding RSCs, these regional spaces can be defined as a security “cluster” or linkage of generally negative interdependencies that lead several adjacent actors to simultaneously securitise flows, objects, decisions, or effects (domestic, interstate, transnational) that derive from the security positions of others. In other words, they are the intertwining of securitisations with limited geographical range (region or subregion) and frequent potentialities for conflict. The authors define them as an arrangement or ordering of units where the main processes of securitisation or

desecuritisation, or both, are so interrelated that their security problems cannot be analysed or resolved individually or in isolation (Buzan & Waever, 2003). Although these regional security clusters may be related to global clusters, they must be distinguished from them with precision (Buzan & Waever, 2003). Likewise, this concept allows us to think, or leave open the possibility, that regions or geographical spaces eventually become the referent objects of security and not only states (Buzan & Waever, 2003).

For Buzan and Waever (2003), a “standard” RSC follows much of the Westphalian logic, with two or more powers and a predominantly political-military security agenda. Its structure is anarchic (without a supranational or higher power). Its polarity or power distribution is entirely defined by the existence of regional powers, for example, three in the Persian Gulf (Iran, Iraq and Saudi Arabia), two in South Asia (India and Pakistan), or oscillating between unipolar (with one regional power, as is the case of Africa with South Africa, and perhaps the case of South America with Brazil, although the authors link it

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closely with Argentina), bipolar (two regional powers) or multipolar. Standard RSCs are not centred, because there is no regional (unipolar) functional pole that determines the security dynamics in the area and because they never contain a global (systemic) power. Within the framework of standard RSCs, one of three forms of collective identification can be presented: conflictive, security regime, or security community (Buzan & Waever, 2003).

The concept of security community has been invoked to try to explain the political convergence processes that have characterised, for example, the European Union and the Association of South-east Asian Nations, in terms of how to delimit their regions (inside-outside, one's own and the "other"), to clarify the fundamental principles of coexistence, to identify common problems and threats, and to socialise the extent to which the idea of national sovereignty can be limited without renouncing it. Unlike the dynamics of a national approach or bilateral cooperation, the implicit multilateralism in a security community offers a greater range of resources and cooperation options for intervention in the face of a problem.

In Latin America, the component of international cooperation that is most emphasised is that of citizen security. This takes shape repeatedly in the fight against transnational threats associated with

the drug trafficking chain, although to a lesser extent criminal gangs, illegal arms trafficking, human trafficking, money laundering and cybercrime are also dealt with. The US is present in the most common bilateral instruments with additional assistance provided by SOUTHCOM, but activities in regional organisations have included the creation of the Ameripol police commission, the organisation of facilities to collect and transmit information, and agreements on extradition and chemical precursors, among which the exchange between the Organisation of American States (OAS) and Central American Integration System (SICA) stands out, and to a lesser extent, in the Andean Community (CAN), Mercosur and, before its paralysis, UNASUR (Muggah & Szabo de Carvalho, 2014).

The environment and the effects of climate change take centre stage in LAC as a threat that, like drug trafficking, ignores state borders in the region and threatens the stability of Latin American regimes. However, the difference with this new threat is the inability to clearly identify an "enemy" actor and the impossibility of predicting the duration and impact that climate change will have on societies in this geographical area. In this way, the RSC concept proposed by Buzan (2003), can be applied to the Latin American context in the face of the environmental threats shared by the countries of the region that require shared policies to mitigate the impact of events

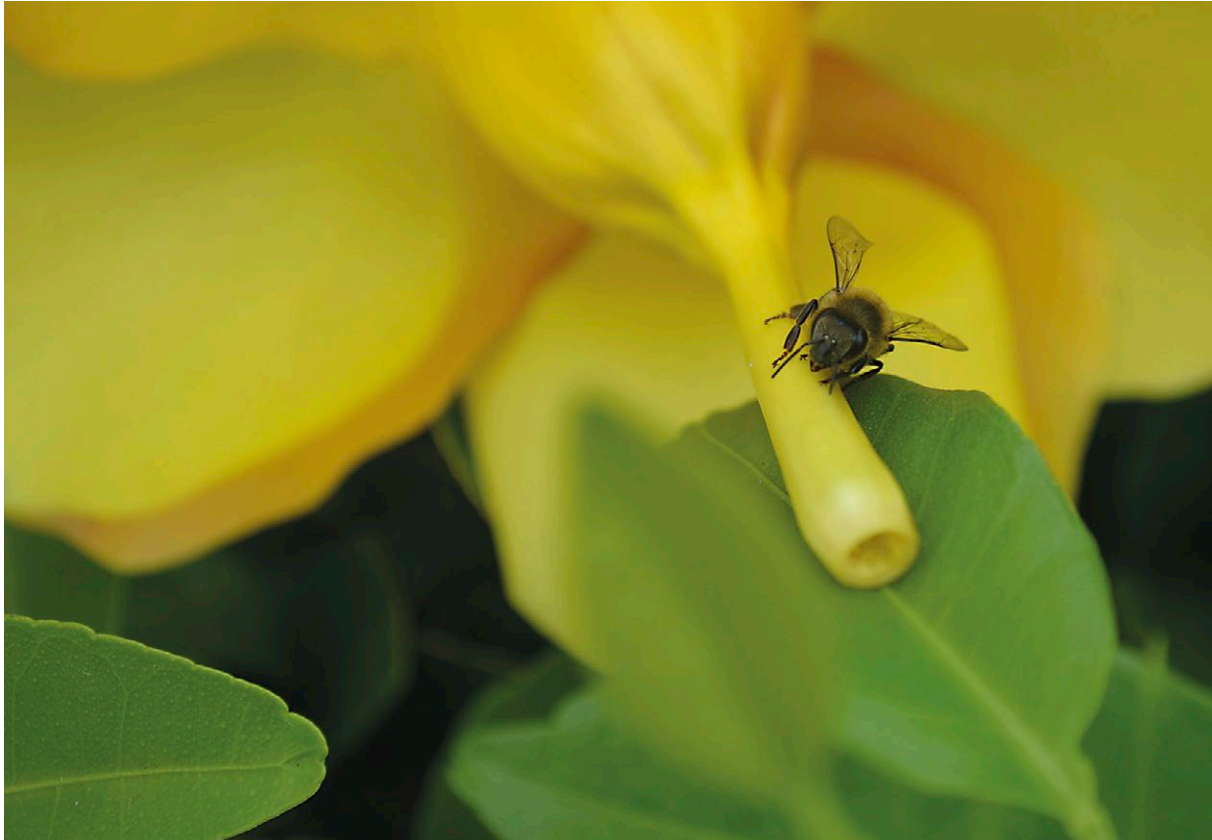


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such as annual temperature increases and extreme changes in the water cycle. In that vein, it is valid to explore the existence of RSCs in environmental matters in LAC as a feasible case study for future research.

The concept of security from different theoretical approaches of International Relations

Neorealism

In the case of neorealism, it is argued that, unlike military capabilities, intentions

cannot be empirically tested because the “inner world” of decision-makers is difficult to discern and they always have the possibility of lying about or hiding said intentions (Mearsheimer, 2007). In this way, states prepare for or anticipate each other because they can never be sure that a state that accepts the status quo (its current position in the power hierarchy) is not, in reality, undertaking revisionist plans (attacking or affecting others to promote or alter their positions) or will do so in the future, thus assuming “the worst” about the intentions of others to avoid being surprised (Mearsheimer, 2007). Therefore, in this perspective, equipping oneself in defence or introducing substantial economic improvements

that can translate to military power produce alarm signals, regardless of their justifications.

One reason to explain why military or defence rationality predominates in the background of security policies in doctrines such as that of the US appears in realist literature as well as a philosophical position, and as a strategy to mitigate a practical problem: the absence of a political-military, legal and moral authority superior to the state in the international system. As there is no permanent and obligatory regulatory condition for the use of violence in the extra-societal environment, states reserve the possibility or “right” to defend themselves in situations of potential or real (external) aggression (Diez, Costa & Bode, 2011). As a philosophical position transversal to all types of realism, the Hobbesian vision of the world prevails in military rationality. In the “state of nature”, or prior to the existence of statehood (superior authority), Hobbes affirms that all men are driven by the “desire for power” and the “desire to fight”. The international system is therefore, from this image, equivalent to a “state of nature” or a clash between states that seek power (primarily individually and instrumentally, and temporarily collectively) to defend themselves, or to compete for resources, prestige and control, without exogenous moral restrictions in the absence of a Leviathan above the wills and power of those units (Hobbes, 1651).

As a strategy to face a practical problem, “self-help” appears in some theories as faster and less costly to implement than the development of regional or global collective instruments (depending on the sense of urgency invoked in the face of threat or risk) and regardless of whether the states or their leaders are driven by fear or the desire for power. In this sense, for Waltz (1990), the explanation of the potential for conflict lies not in the natural and universal condition of men or in the individual characteristics (fears, ambitions) of leaders, but rather in the absence of a constrictive external structure added to a determined distribution of capacities between states, changes in which put them on alert to the extent that if they consider that they are “too weak”, compared to the others, they can tempt other states to attack them, while if they become “too strong” they can induce others to increase their arsenals and/or join forces against them.

To illustrate this, it is argued that sovereign states can be seen as rational actors (utility maximisers) in search of their individual ends and that they are also mainly concerned with changes and relative advantages (facing others), because they are forced to operate in an anarchic environment in which their safety and well-being ultimately depend on their ability to mobilise their own resources and strategies against external threats, that is, by constituting a system

of “self-help” (Krasner, 1992). For structural realism, or neorealism, this image of conflictive competition takes place when three additional assumptions are brought together with those of the “rationality” of the state and the anarchic environment: that all states have the capacity to harm others, even if they are weak; that there is never absolute certainty about the intentions of others; and that, above all other state objectives, it is survival in terms of ensuring territorial integrity and internal political autonomy that prevails (Mearsheimer, 2007).

This military-competitive reasoning is the basis of the concept of the “security dilemma”, which describes the situation in which, if a state does not increase its means of defence to achieve a higher degree of security it becomes more prone to an attack, but if it does, this is interpreted by another state (or its decision-makers) as an act of aggression, which is in turn contested by additional security measures that can involve both (or more units) in an arms race (Diez, Costa & Bode, 2011), or an ascending cycle of simultaneous military equipping and strengthening policies. The more destructive the weapons acquired in the competition, the greater the potential insecurity they receive instead of greater security (Diez, Costa & Bode, 2011). In sum, this stream of thought is highly sceptical of the willingness of states to cooperate in matters of security and defence, although they do not exclude

it when they see the need to forge military alliances to face common threats (Scheweller, 1994).

For its part, neoclassical realism recognises that states can define and pursue different interests in the international system (not necessarily hegemonic or imperialist) and, although they care about improving their individual capacities to better position themselves in the structure of international power distribution, they also define their foreign policy based on domestic constraints and the perceptions of the elites that share national power regarding the possibilities and risks of international politics (Tali-ferro, Lobell & Ripsman, 2009). Hence, those peripheral or developing states that do not have the resources or material capacities to face both the internal and external threats that affect their security are advocated to seek external help from a great power, which ultimately affects their autonomy in matters of foreign policy (Ayoob, 1991). As a consequence, such states tend to display a bandwagoning approach, in the sense of a dragging or trailing effect, in their interactions with the hegemonic power (Waltz, 1979; Schweller 1994).

Institutional neoliberalism

For neoliberals, security is a public good and, therefore, an output dependent on the capacity for collective action of

those who seek its production. According to Olson (1992), the problem arises because individuals (here, governments or states) want others to be obliged to comply with certain commitments or quotas for the production of this collective good, but they all try to avoid payment of these costs as far as they can. Unlike governments, backed by mandatory taxes and the “uncontested” use of force, organisations (in this case international) must create negative incentives (sanctions, penalties, threats) or positive incentives (discounts, tax or trade benefits, etc.) to “recruit” participants and reinforce the sense of commitment to the production of this collective good, and these incentives can be material or social (Olson, 1992).

However, within organisations and groups, collective action becomes more complex as the players are not uniform in terms of their dominant strategies, so that some choose to be pioneers or promoters (they pay more, but have more control), others militants (willing to lose or sacrifice), others veto or block (veto-players), and others recur to so-called “free-riding” (benefit without paying or leaving). For Keohane, answering why international institutions function or not, be it in the commercial, financial

or military fields, depends on examining three elements: the existence, or not, of mutual interests; the common expectations, or not, of the future; and, the number of players involved (Keohane, 1985).

On the other hand, despite the importance given to international institutions and organisations, neoliberalism abstains from the conventional institutionalist vision in several respects. First, growing interdependence (economic or otherwise) does not necessarily lead to higher levels of cooperation. In fact, new opportunities for conflict present themselves to the extent that the benefits of globalisation for some may be to the detriment of others, above all in those areas where governance is scarce (Keohane, 2001).

Second, introducing institutions does not immediately and/or efficiently correct market failures (in this case, of security) because this depends on their design and implementation, so that these arrangements can even accentuate asymmetries, exploitation, and oppression for some (Keohane, 2001). Empirically, it is thus recommended to study what degrees and forms of governance occur before and after the creation of institutions and organisations, and what costs and benefits are produced before and after, so as not to assume they are automatically beneficial (Keohane, 2001).

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In particular, these authors, along with neorealists, prefer to refer to these normative frameworks of international collective action as “regimes” and not as laws because, unlike institutions within the state, the enforcement of compliance is not external or superior to the associates, but depends on the mechanisms that they themselves create (Martin, 2007). Thus, Krasner, Keohane, Nye, Ruggie, Wendt, and others, agree that international regimes are formal (positive) or informal, defining them as “principles, rules, norms and procedures around which the expectations of cooperation in a given area of international relations converge” (Keohane & Nye; 1987, Krasner, 1983). Their essential virtues appear to be the reduction of transaction costs or of implementing agreements (they clarify coordination parameters reinforced by monitoring and introduce selective incentives) and the reduction of the costs of accessing information about what others do, which can contribute to the development of cooperation processes between participants (Diez, Costa & Bode, 2011). The bottom line is that (multilateral) organisations are promoters of governance regimes, but also, and more abundantly, bilateral (or trilateral) agreements. This is partly because states are little inclined to accept or promote rules that imply major changes in behaviour (Martin, 2007) and because international organisations are not always successful in overcoming

their two essential problems: facilitating environments for negotiation and agreement, and introducing and enforcing compliance mechanisms (Martin, 2007).

Constructivism

For constructivists, security is a historically contingent and culturally conditioned relationship rather than a result of the balance between material and/or military capabilities (Klotz & Lynch, 2007). In this regard, it is essential to express the identities or roles, cultural positions, and the internalisation of values and norms at play, in order to explain the decisions of the state in military and/or security matters, a spectrum of relationships that includes mutual expectations regarding the identity and political decisions of the other (Klotz & Lynch, 2007). In this way, the rationality of actors in foreign policy or in security and defence issues is not uniform, and just as some may be guided by a profit-maximisation calculation and use instrumentalisation strategies, others may adhere to international norms, appealing to the affirmation of a historical identity or guided by values like solidarity and trust (Klotz & Lynch, 2007).

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Hence, security and defence policies are not analysed in and of themselves (objectives vs results), but rather are approached as products that reflect specific notions of security (Klotz & Lynch, 2007) and which compete with or complement each other. Similarly, international systems (regional or global) cannot themselves be seen as secure or insecure, despite how “anarchic” or lacking definitive authority they may be, or their type of distribution of capabilities and prevailing polarities; these may be necessary causes but are not enough to explain conflicts. Instead, these would be unstable or uncertain depending on whether the regional or international culture for dealing with problems associated with “(in) security” reinforces, or not, the feeling of mistrust among the actors. Specifically, Wendt (1992) refers to three “model” international cultures derived from three ways of philosophically conceiving and dealing with this “anarchy”: Hobbesian (conflictive); Lockean (competitive); and, Kantian (cooperative).

However, various authors recognise that the existence, or absence, of knowledge and shared norms (about security) is not enough to explain the existence of cooperative or conflictive environments, as material factors and resources that facilitate or prevent collective action are also required, along with a stock of threats stimulating enough to provoke or justify it (Väyrynen, 2000). If the intention is to build cooperative environments

or “security communities”, said threats must be interpreted as “common” -that is, they are of interest or concern to everyone involved and lead to permanent communities of values and practices-, or at least as “shared” -one or more actors experience them, and they simply lead to instruments to coordinate efforts in specific cases. Last but not least, decision-makers in developing countries who lack sufficient material capabilities to fully extract from their own societies the resources they require to guarantee domestic security or to act beyond their borders in order to confront transnational threats, tend to request and accept the cooperation of more powerful states with whom they share a certain identity of political, economic, and social values (Wendt, 1999).

Conceptualisation of environmental security

Background and origin

The relationship between the environment and the evolution of communities has been a subject that has, historically, generated a large amount of literature, as this interaction has conditioned the socioeconomic development of states. This is because the possession and exploitation of natural resources are essential for the survival and expansion of societies. In this way, the economist Thomas Robert

Malthus made a great contribution in his work *An Essay on the Principle of Population*, published in 1798, in which he stated that population growth would increase at a much faster rate than the means of subsistence. Therefore, resources limit population growth and their insufficiency can lead to the exacerbation of social conflicts and an increase in diseases, death, and misery (Collantes, 2003).

However, the environment was not taken into account as one of the priorities of the state, as evidenced in the historical overview of the previous section, until the 1990s and the end of the Cold War. This is because the ideological confrontation between the US and the Soviet Union allowed the nuclear confrontation to cease to be the focus of attention and it was possible to identify the new threats that both states and their societies would face in a planetary context in the coming decades. In this vein, the environment began to acquire relevance for state development within the framework of the Brundtland Report, which affirmed that growth at the cost of the unlimited exploitation of nature would mark a point of no return in its process of destruction, which would, in turn, generate an exponential increase in poverty and the vulnerability of millions of people (Sánchez, 1998).

Facing this new threat to the survival of present and future nations, as well as

to life on the planet, the securitisation of environmental deterioration began. Environmental stress can affect elements of national power, understanding the latter as the aggregation of multiple variables like the size of the economy, the resources possessed by a country, social cohesion, military capacity, and geography. Consequently, abrupt environmental changes would affect all the capacities of national power and, thus, put in jeopardy the survival of the state. As an example, the military have to operate in terrains with increasingly extreme and challenging climates such as floods, heat waves, or even storms and hurricanes, which would generate lower effectiveness in the projection and exercise of power (Floyd & Matthew, 2013).

Therefore, resources limit population growth and their insufficiency can lead to the exacerbation of social conflicts and an increase in diseases, death, and misery (Collantes, 2003).

According to a World-watch Institute report published in 1998, the environment played an important role in the intra-state wars that were occurring at that time and, likewise, that it would acquire an increasingly greater role in future social conflicts. This is due to phenomena such as desertification which, by that time, had already converted 30 billion hectares of arable land into desert, as well as the accumulation

of land, wealth, and power by large landowners in regions such as Latin America, factors that force millions of campesinos to migrate to marginal and unproductive lands. In this way, as demographic pressures mount and local resources collapse, people turn to ethnic, religious, or political identities in search of a sense of protection and this can lead to conflicts or clashes. Thus, the most vulnerable are the more than 400 million people who live in developing countries where the ecology is highly vulnerable and who barely have what is necessary to survive (Thompson, 1998).

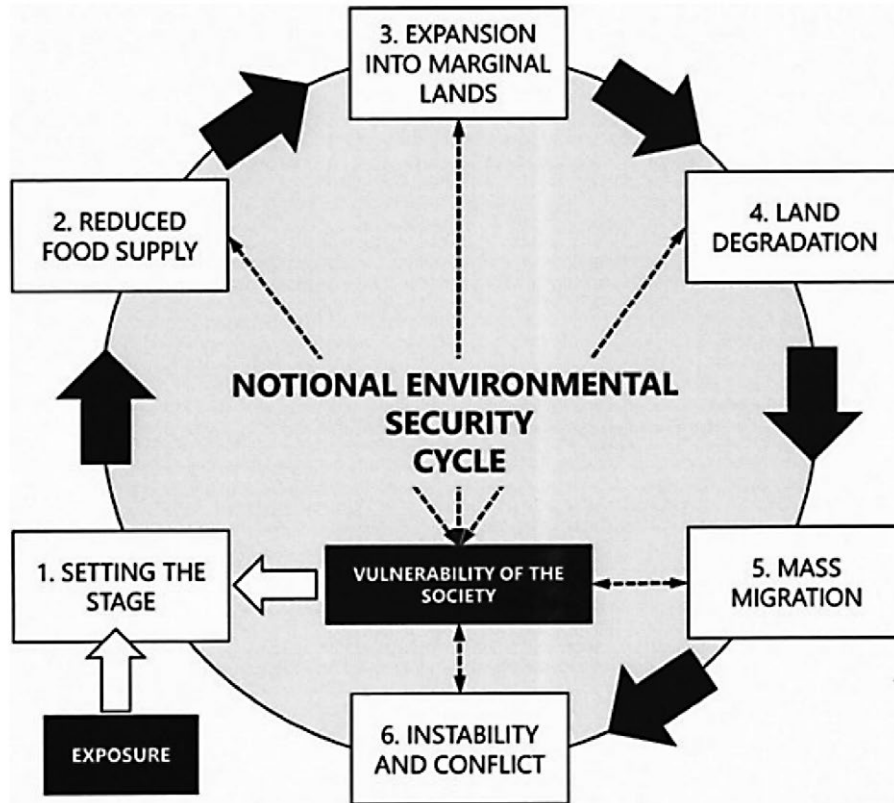
Taking this into account, in 1994, Canadian professor Thomas Homer-Dixon led the Project on Environmental Change and Acute Conflict research group at the University of Toronto, which would become the starting point for multiple approaches to environ-

mental security. The project theorised three scenarios in which resource scarcity occurs. First, due to a decrease in supply, such as the deforestation of a forest. Second, an increase in demand due to population growth or changes in consumption patterns. And third, as a result of structural factors like the privatisation of resources, including gas or water. From this research, it was concluded that, under certain social conditions, resource scarcity could contribute to a violent civil conflict as shown in **Figure 1**. Therefore, a first useful definition to understand environmental security is the causal relationship that the environment and climate change have in social changes that can lead to conflict. Thus, the project began to investigate and discuss whether climatic pressure could cause violent conflicts between, and within, states (O'Toole, 2017).



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Figure 1. Generic environmental security model.



Source: Galgano (2019).

Challenges of environmental security

It should be noted that the concept of environmental security has been much debated, since there is no consensus on its definition nor a single category that encompasses these problems (environmental security? Ecological security? Climate security?). Even more important is the fact that this forces us to rethink the classic definition of security associated with protecting a territory and population from armed threats through the use of the military forces. In effect,

traditional security policies and strategies lag behind the transformations that stem from the replacement of a classical international system with determined territorial borders by a globalised system characterised by transnational economic and environmental challenges that escape the jurisdiction of national sovereignty due to the cross-border nature of their scope of action and impacts (Grasa, 1998).

On the other hand, the terrorist attacks of 11th September 2001 in the US undermined the sense of security in the country, meaning that the concept of environmental

Securitising the environment implies the absence of an “other” that can be clearly identified, the creation of a threat that for the first time does not possess rifles or nuclear warheads, and finally, an “enemy” that attacks in a slow but constant way, whose strategy consists of a war that does not have a concise resolution and, therefore, states are obliged to invest in an endless war.

security was prioritised within its security policies. However, the term was used under a very different connotation from that linked to the definition of the 1990s, since US decision-makers understood environmental security as the relative safety from

environmental hazards caused by natural or human processes that originate within or outside national borders. Likewise, this concept was used to refer to the risks of biological, chemical, and nuclear materials that could be used by individuals or groups as environmental weapons of mass destruction, or Weapons of Green Destruction, through the conversion of the forces of nature into a hostile purpose, such as the contamination of water resources or using the environment as a means to generate human and material losses, such as the destruction of a dam (Penders & Thomas, 2002). This connotation

conflicts with the trends that had been studied in the 1990s, as it once again emphasises specific human actors and delegitimises undefined actors such as climate change, floods, and desertification.

Facing this situation, in 2010 there were a series of incidents and events related to environmental security and ecoterrorism which led to the holding of an Advanced Research Workshop by the North Atlantic Treaty Organisation (NATO) in Moscow to discuss these issues among academics, politicians and military representatives from around the world. One of the main challenges highlighted when theorising environmental security was that classical security presupposes an “other” that represents a danger and, therefore, requires the national cohesion, resources and efforts of a state to fight against this threat in a specified timeframe. However, securitising the environment implies the absence of an “other” that can be clearly identified, the creation of a threat that for the first time does not possess rifles or nuclear warheads, and finally, an “enemy” that attacks in a slow but constant way, whose strategy consists of a war that does not have a concise resolution and, therefore, states are obliged to invest in an endless war (Shearer & Liotta, 2010).

Furthermore, environmental degradation has been called the ultimate security issue because it permeates all aspects of society, and its effects will have consequences for all members of the communities without distinguishing social class, race, or nationality. Nevertheless, as it provides an ecological context to all human activities, it can overwhelm the thematic focus of security studies that are used to real violence between defined actors. This is

Foto: ©Flickr- Pablo Vicente Munuera



added to the fact that increasing security towards a particular route can decrease it in other areas that also require protection, and providing security for some may mean that other groups are left vulnerable. Hence, questions arise such as: 1. Who is in charge of establishing the objectives of environmental security at the national, regional, and global levels? 2. Should environmental phenomena that affect societies in the short, medium, or long term be prioritised? 3. Which actors should defend us against environmental threats and what room to manoeuvre do they have? (Shearer & Liotta, 2010).

In this vein, the challenge faced by nation states arises from threats that know no borders, threats that question the national perspective of an approach to security based on statist, militarist, and competitive criteria. Consequently, warding off and managing this new type of threats requires both interstate cooperation and the inclusion of non-governmental and intergovernmental organisations, as well as other key actors to face environmental problems that affect the entire planet, but

disproportionately and unevenly across many regions (Sánchez, 1998).

Environmental security in Latin America and the Caribbean

LAC is among the geographical areas most at risk from climate change. It is not the region that pollutes the most, or that which produces the most greenhouse gas emissions, but it will be greatly affected. This is due to three factors that exacerbate LAC's vulnerability. First, its climate variability since any change in temperature would be catastrophic for the stability of ecosystems in the region. Second, the extreme dependence of the states of the region on their internal development model and their international trade strategy, which are based on the extraction of natural resources and their export as raw materials. And third, the high levels of poverty and inequality that increase the risks of millions of people in the face of any environmental event that generates natural catastrophes (Cárdenas, Bonilla & Brusa, 2021).

Agriculture will become increasingly difficult and unpredictable in the region, increasing the pressures for the survival of rural communities and which, in turn, will generate an increase in pests and diseases, and intensify environmental pressures.

A first critical point of environmental problems that represents a challenge for environmental security is land exploitation, as the agricultural frontier is being expanded in many countries through the deforestation of native forests and tropical rainforests in order to gain land for crops that can meet the constantly growing demand of large Latin American cities and established and emerging powers, especially China. However, as a result of climate change, agriculture will become increasingly difficult and unpredictable in the region, increasing the pressures for the survival of rural communities and which, in turn, will generate an increase in pests and diseases, and intensify environmental pressures. Additionally, mining and deforestation are considered essential economic activities for the development of Latin American economies. However, these are activities that generate a great loss of biodiversity and impact local resources, and have become a source of social conflict in countries like Peru, Bolivia, and Colombia (Cárdenas, Bonilla & Brusa, 2021).

Second, the availability of fresh and marine water resources will represent a great problem for the security and development of these countries due to climate change, as this will increase

the number and strength of droughts and floods, thus reducing the amount of water available and intensifying competition for this vital resource, especially in rural areas. Among the most notable consequences are, on the one hand, the growth of inequality in access to clean and safe water, due to the fact that a significant part of the available water resources will be used for agriculture and livestock, industry, power generation and mines. On the other hand, rising sea levels threaten coastal cities and small Caribbean island states, representing an unprecedented threat to the region, given that more than 60% of the population of LAC live in coastal urban centres (Fernández, 2009).

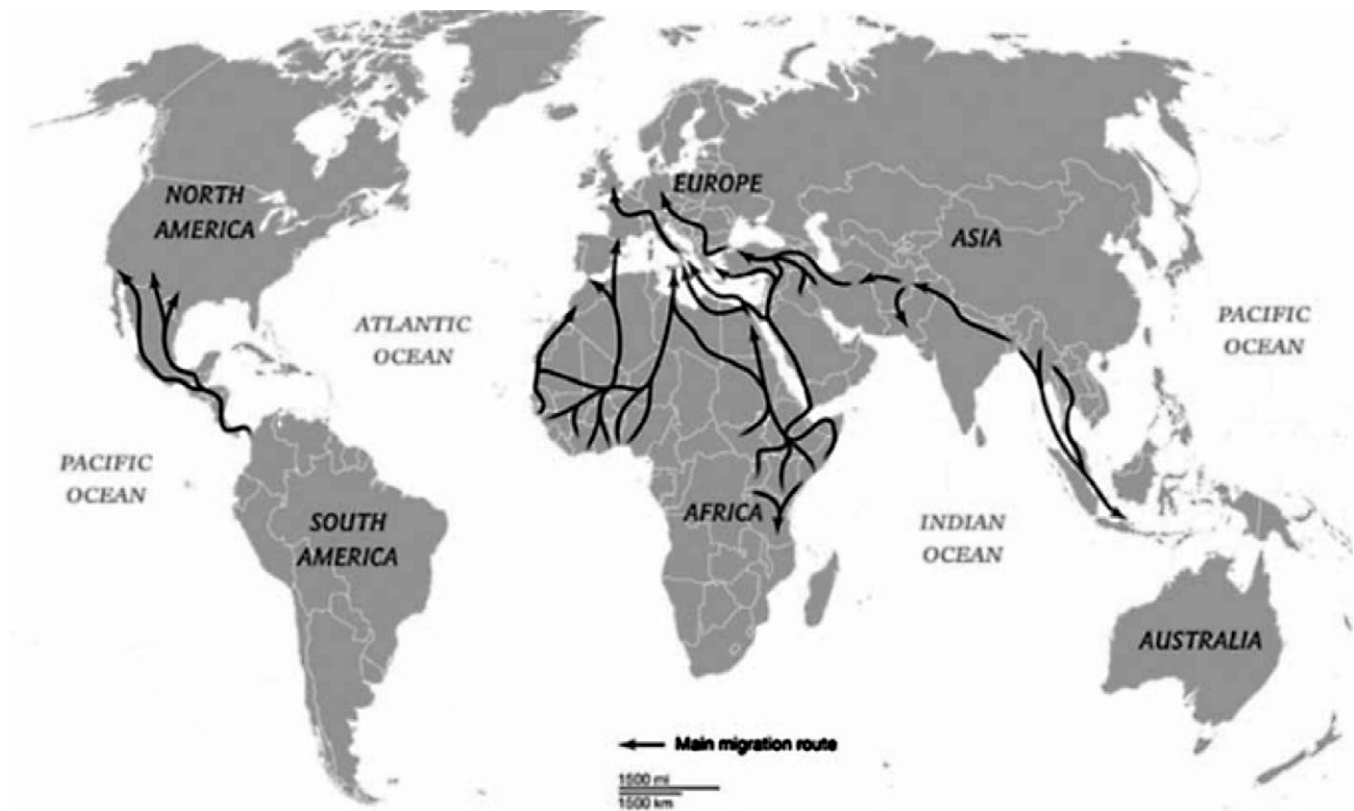
Finally, urban centres will not be left out of the dynamics of climate change since cities are increasingly overcrowded and have generated a decrease in available water in recent decades. This is in addition to the serious problems of air pollution and energy availability that, ultimately, will harm the quality of life of millions of Latin Americans living in urban areas (Cárdenas, Bonilla & Brusa, 2021). Similarly, one of the problems faced transversally by the entire region, and that will have the greatest repercussions on the exacerbation of social conflicts, will be environmental migrations, as is explained in the following section.

Environmental migrations in LAC

Environmental migrants are defined as people who leave their territory of habitual residence mainly, or very importantly, due to environmental impacts, either suddenly or gradually, and who move within a state or cross international borders (Castillo, 2011). This phenomenon is not new in either LAC or at the global level since climatic variations have been a constant in the history of humanity and have generated various migratory movements. However, there are two alarming elements of environmental migrations in the 21st century.

First, they are no longer just a few groups of migrants, but caravans of thousands of migrants around the world who are making their way to countries where they hope to find better opportunities. Second, the vast majority of people who are emigrating from developing countries leave behind their places of origin because life has become intolerable, and they do not consider returning. This is a problem for the country of origin because it decreases the number of economically active people and, for the receiving country, it becomes problematic to welcome them all since migrants use the same routes en masse, as shown in **Figure 2** (Oetzel & Ruiz, 2017).

Figure 2: Main migratory routes globally

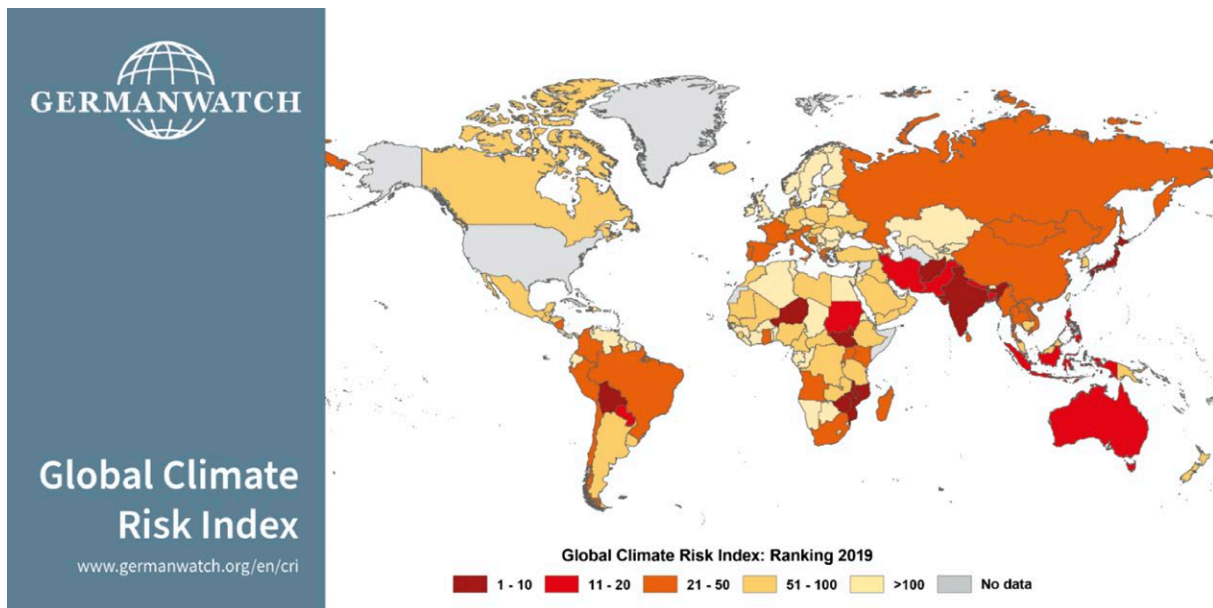


Source: Hidalgo & Mora (2016).

In the specific case of LAC, its geographic and climatic characteristics are synonymous with a greater probability that environmental migrations will increase, since the region contains some of the countries most vulnerable to climate change, including Haiti, Guyana, Bolivia, and Honduras, as shown in **Figure 3**. Therefore, in 2015, the International Organisation for Migration (IOM) estimated that 1.5 million people in Latin America migrated for environmental reasons and that

this number would increase dramatically throughout the century. It should be noted that contextualising a migratory phenomenon exclusively for environmental reasons is not easy, because displacements are usually multi-causal. Thus, it is necessary to take into account political, economic, demographic and social factors, plus the fact that it is complex to define the voluntary or forced nature of these displacements (Hidalgo & Mora, 2016).

Figure 3. Climate change risk index, 2019 ranking



Fuente: Germanwatch (2020).

Taking the above into account, environmental migrants represent a challenge for the states of LAC due to their lack of recognition under international law, making it difficult to establish measures to respond to this phenomenon jointly (Villena & Annoni, 2017). Accordingly, these mass migratory movements can generate conflicts

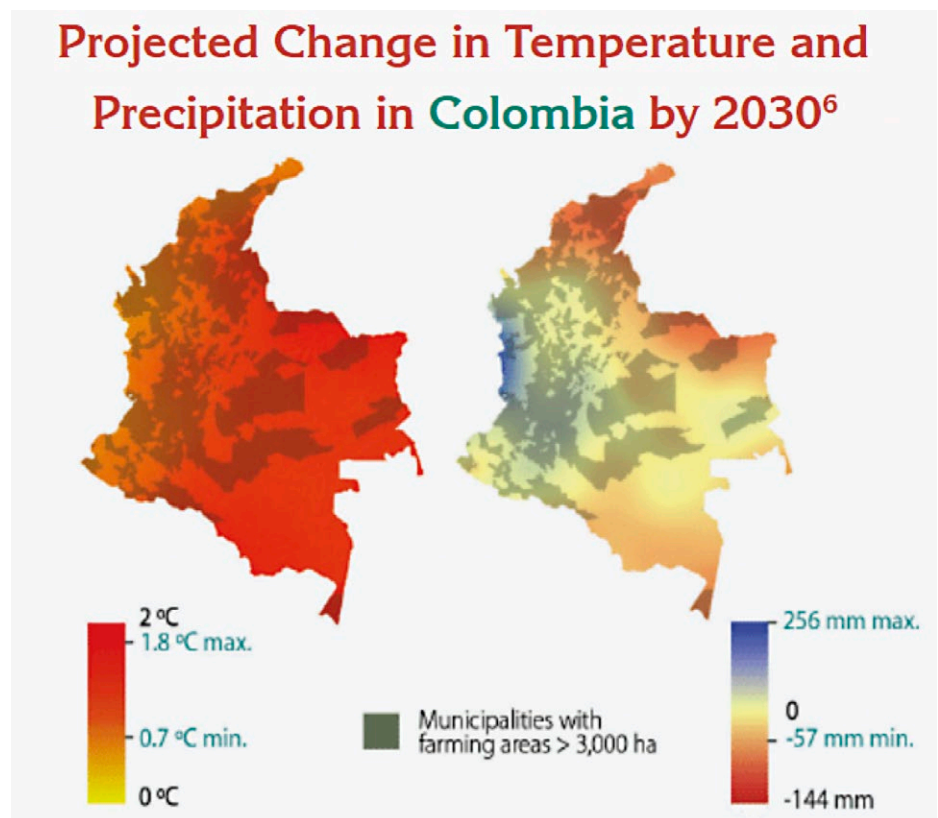
in the region since host communities can demonstrate resistance or apathy in the face of the arrival of said people who create a sense of threat due to the use of local resources, the appropriation of public and private land, labour disputes, and the burden on social and hospital systems with public funds (Hidalgo & Mora, 2016).

By way of example, the Central American economies are fundamentally based on the extraction of primary resources, almost all of their Gross Domestic Product (GDP) arises from primary activities and the vast majority of exports consist of goods without added value. For this reason, climate change has generated intra- and interstate migrations in these countries, characterised by their volume, the undocumented nature of the migrants, and its great social and gender diversification. This has created strong pressure for countries of passage, like Mexico, to receive thousands of starving Central American migrants without resources who are trying to reach the US, many of whom do not manage to enter their target destination and thus stay longer in Mexico while trying again to move north and, in some cases, end up being victims of human trafficking or instrumentalised by drug cartels (Casillas, 2020).

Another case in LAC is Colombia, a country that has been internationally recognised as one of the countries

with the most internally displaced persons due to the internal armed conflict of more than five decades. However, there is a growing number of Colombians who leave their place of origin due to gradual changes in the environment or extreme environmental disasters as a consequence of climate change. Likewise, human activities such as illegal mining and deforestation increase the vulnerability of thousands of communities affected by inclement weather in one of the countries most threatened by climate change, as evidenced in **Figure 4** (Sarmiento, 2018).

Figure 4: Projected changes of temperature and precipitation in Colombia by 2030



Source: World Bank Group (2014). Climate-Smart Agriculture in Colombia

Environmental problems in the subregions of LAC

This section presents some of the main environmental problems in each subregion of LAC, and at the same time explores the reasons and motives that constitute risks for the subsistence of communities, and thus, may lead to inter- or intrastate conflicts.

Environmental problems in the Mesoamerican subregion

Intensification of the ENSO phenomenon

This Mesoamerican phenomenon is divided into three stages: El Niño, which consists of an increase in temperature and a decrease in rainfall; La Niña, associated with a decrease in temperature and an increase in rainfall; and, finally, the neutral stage that does not have significant implications for climatic variation. Currently, strong anomalies have been observed in the ENSO phenomenon, which have resulted in greater intensity, duration, and frequency of the El Niño and La Niña stages (SICA, 2019).

In particular, the droughts in Mesoamerica have brought the region to a crisis situation, since it has led to losses in agriculture and livestock, contributing to the lack of food and financial resources in an area where half of the inhabitants are already in a condition of poverty and food

insecurity, and further increasing their vulnerability (Calvo et al., 2018).

On the other hand, extreme events related to La Niña have also wreaked havoc in the region. Since the 1970s, floods have increased dramatically, especially in northern Mesoamerica in countries like Belize, El Salvador and Guatemala, which are already vulnerable due to their low socioeconomic status and lack of preparation for this type of event. Additionally, the frequency of major storms and hurricanes has grown exponentially in the last two decades, triggering an increasing number of people affected by these events who are forced to emigrate due to the impossibility of continuing their lives in their place of origin (CEPAL, 2012).

Environmental problems in the Caribbean subregion

Marine pollution

The Caribbean states, mostly islands, depend on the ocean as their main source of income and subsistence. However, pollution from plastics, chemical waste, and organic waste have negatively impacted marine life and various ecological processes. As a consequence, this generates a decrease in the biodiversity of the Caribbean which impacts the region's food security and human well-being, and therefore, threatens the economic activity of multiple countries (Courtene-Jones et al., 2021).

Rising sea levels

This phenomenon undoubtedly puts at risk the very existence of the Caribbean states, as the increase in sea levels of a few cubic centimetres could leave the islands of this sub-region totally or partially submerged. At the moment, the effects of progressive sea level rises are already beginning to be seen, such as damages to coastal infrastructure and crops that have harmed the economy and boosted migratory flows (Monioudi et al., 2018).

Likewise, the vulnerability of these islands lies in the fact that their economies are based on activities like tourism, fishing, and agriculture. These activities are easily affected by changes such as sea level rise, changes in rainfall patterns, and increased temperatures. As such, climate change represents a threat to the existence of these islands and their inhabitants (Banco Interamericano de Desarrollo, n.d.). If these issues are not addressed seriously, we will find ourselves in an unprecedented crisis, on the one hand, economic, and on the other, humanitarian, given the large number of islanders who will flee their places of residence to seek opportunities in other parts of the continent.

Environmental problems in the Andean subregion

Changes in the water cycle

The hydrographic resources in the Andes are highly vulnerable to climate change, which

has generated strong changes in the patterns of precipitation and drought in the region. This situation has increased the water stress of the large Andean cities due to the uncertainties caused by climate change in the water cycle in the region. Similarly, this phenomenon has affected rural communities which have been affected by losses in their crops, either due to severe droughts or prolonged floods (Buytaert & De Bièvre, 2012).

Melting of the Andean glaciers

Related to the above, a dramatic increase in the melting of the largest glaciers has been observed and attributed to the high temperatures in the region in recent years, which, at the same time, decrease the water supply for the countries in the area. This problem has generated social and political conflicts over access to this limited resource among Andean campesinos, mining companies, the production of hydroelectric energy, and export agriculture (Vuille et al., 2018)

These two phenomena coincide with the fact that the most vulnerable social groups are those with the least economic resources and who do not have strategies to mitigate the effects of climate change in their communities. This is reflected in the risk of food vulnerability of the Andean countries which, according to the United States World Food Program (n.d.) is due to the effects of climate change in the vast majority of their territories. The fact that entire communities have difficulties accessing basic services such as water, energy, and

access to markets, results in the displacement of entire families who find no alternative to the inclement weather.

Environmental problems in the Amazon subregion

Deforestation

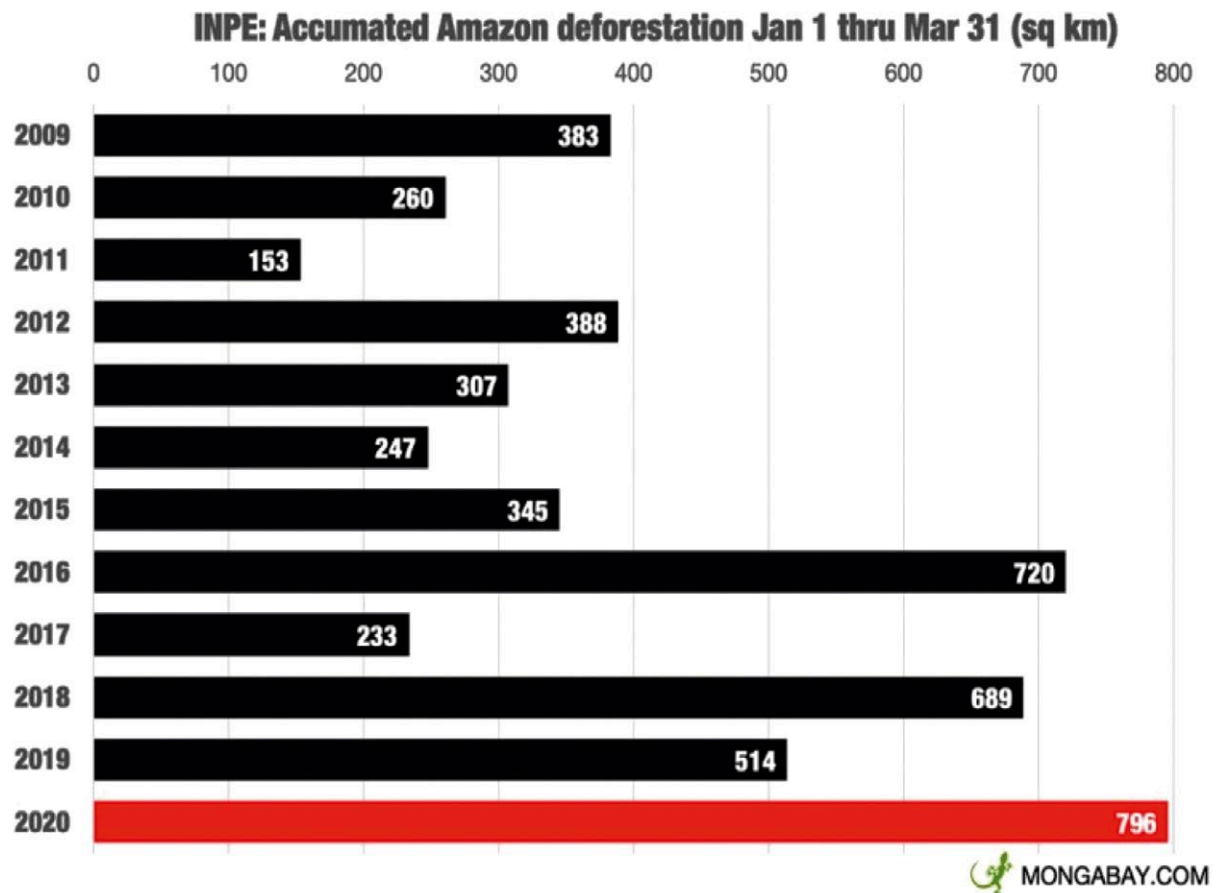
This man-made phenomenon has grown exponentially in recent decades, as intentionally started fires and selective logging continue to fragment the forest, putting entire areas of the Amazon rainforest at risk of commercial exploitation, agriculture, and invasive species. In addition, deforestation reduces the forest's capacity to store carbon and causes greenhouse gas emissions that represent a risk for the wider region and the entire world (Greenpeace, 2014).

However, this phenomenon has been rapidly increasing in recent years and the pandemic exacerbated this problem due to the lack of control in remote regions of the Amazonian countries. This is in addition to the fact that 60% of the Amazon is in Brazilian territory, and the current president, Jair Bolsonaro, considers environmental protection to entail only economic losses, a posture that has been reflected in the greatest number of kilometres deforested in recent decades, as shown in **Figure 5**. In this way, we are moving towards immeasurable risks, not only due to biodiversity loss, but also due to the increased vulnerability of the Amazonian countries and the increased risk of infectious diseases spread by animals, all of which represents a time bomb for the next pandemic (Ecoosfera, 2020).



Foto: Flickr - ©Peace Presence

Figure 5. Accumulated Amazon deforestation in the period 2009-2020 measured in square kilometres.



Source: Ecoosfera (2020)

Climate change

The Amazon is extremely vulnerable to rising temperatures, changes in precipitation patterns, and the proliferation of extreme events caused by climate change. This is already causing both biodiversity loss and species extinction and is projected to increase as the climate becomes more extreme and unpredictable. These problems represent a challenge to the Amazonian ecosystems and the regions that depend on their resources (Erthal et al., 2019).

Environmental problems in the Southern Cone subregion

Sojisation

In the countries of the Southern Cone one of the main environmental problems is the alarming rate of deforestation related to the expansion of monocultures and the large-scale production of biofuels such as soybeans, palm oil and maize. This has caused biodiversity loss, desertification and problems of marginalisation and social

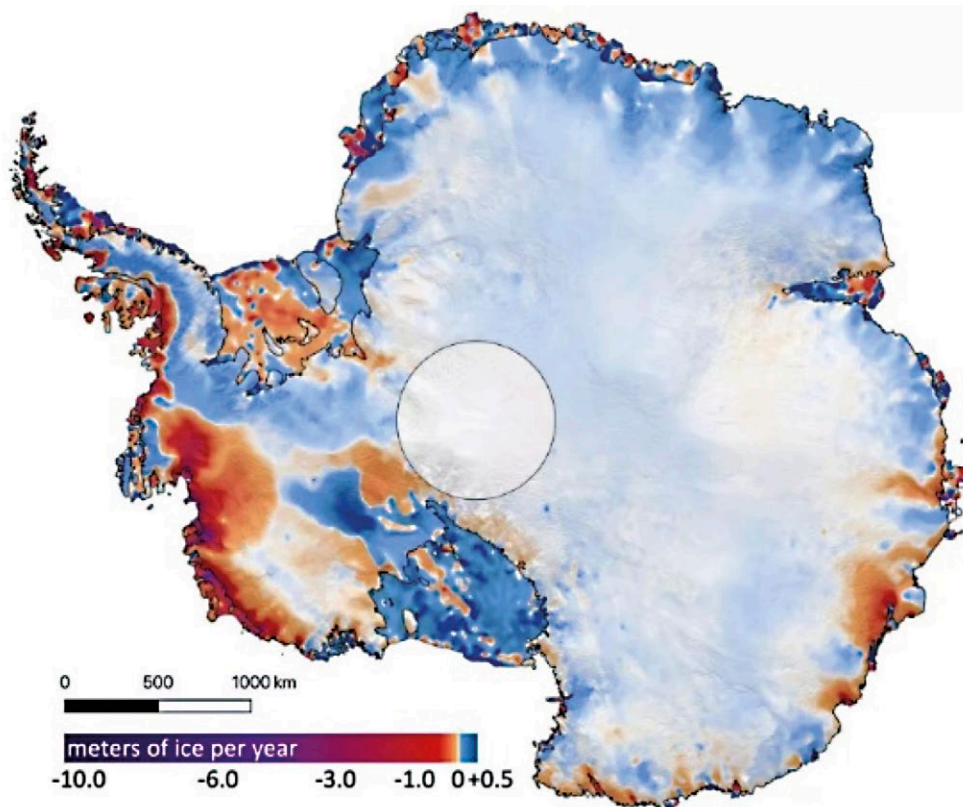
persecution between campesinos and the large companies that seek to export primary resources (Manzanal, 2017).

Melting glaciers and Antarctica

An environmental challenge facing the countries of the Southern Cone is the melting of glaciers, associated with climate change and increased temperatures in this region that exceed the predictions made by scientists before the turn of the century. Thus, the effects are already visible in Argentina and Chile, as riverbeds have been altered in areas where agriculture is the main economic activity, creating

extreme weather events throughout the year, droughts that end crops and floods that displace entire communities (De Vera, 2018). Additionally, these countries have a unique concern among the countries of LAC: the melting of Antarctica, which presented historic lows in January 2018 when its extension decreased at a rate of 253,000 km² per day, compared to an average from 1981 to 2010 of 214,000 km² per day (Iagua, 2019). These raw figures are shocking, as shown in **Figure 6**, and raise new questions for the future of this increasingly discovered landmass. Will it be utilised for the extraction of raw materials? Will it be settled in the future?

Figure 6. Metres lost per year due to melting in Antarctica



Source: Iagua (2019).

Current environmental policies in Latin America and the Caribbean and its subregions

At the regional level, environmental issues have been addressed in various settings and have allowed the creation of common treaties and goals. One example is the Decade on Ecosystem Restoration agreed at the XXII Meeting of the Forum of Ministers of the Environment of Latin America and the Caribbean in February 2021. Its main objective is to prevent pandemics in the future and accelerate sustainable recovery in the region through the conservation, restoration and sustainable use of biodiversity and ecosystems (PNUMA, 2021).

Likewise, the Economic Commission for Latin America and the Caribbean (ECLAC) has been a relevant setting for the consideration of the environment in Latin American public policies. Thanks to the fact it promotes environmental protection as the central axis of sustainable development policies, it proposes economic policies that integrate environmental considerations and favours those Latin American societies that are more informed and participatory regarding environmental issues (CEPAL, s.f.).

It is worth mentioning that the Escazú Agreement emerged within this organisation as a novel regional agreement

to guarantee the implementation of the rights of access to environmental information, public participation in environmental decision-making processes, and access to justice in environmental issues. It also seeks to strengthen capacities and environmental cooperation in the region to guarantee the right to a healthy environment for present and future generations (CEPAL, 2018). In sum, this agreement seeks to connect regional environmental mechanisms with people whose rights related to environmental protection are violated, such as indigenous peoples, environmental defenders and campesinos, who by and large are unable to reverse these injustices due to the lack of tools at their disposal.

However, the development of this, the first environmental treaty negotiated by and for the region is a clear reflection of the difficult situation for the coordination of green policies in LAC. It was classified as an unprecedented multilateral instrument that would mark a milestone in the fight against climate change, but of the 24 Latin American signatory states, only 11 have ratified it. Among the countries that have not ratified is Colombia, whose president, Iván Duque, uses international scenarios to make calls for environmental protection but, at the domestic level, has prevented the Escazú Agreement from moving forward. This is due to the fears in his political party, the Democratic Centre (Centro Democrático), and economic trade unions like that of cattle farmers, which

believe that the agreement represents an obstacle to economic growth and state sovereignty (Connectas, 2020).

In this vein, it is evident how Latin American leaders continue with the asynchronous vision of prioritising sovereignty and the economy over the environment. At the regional level, there are agreements to achieve a sustainable form of development and reduce the risks for environmental security in the 21st century. However, institutional and bureaucratic obstacles at the national level prevent the coordination necessary to reverse the bleak future towards which we are heading if we think that weapons and dollars will solve all our problems.

Taking this into account, the Latin American subregions are not far behind, as they have also developed their own environmental governance regimes to face the various environmental challenges and risks that the countries of the region face. First, the Mesoamerican subregion has the Central American Commission for Environment and Development (CCAD) to guarantee comprehensive cooperation between its members in environmental issues, as well as the Environmental Plan for the Central American Region (PARCA) to implement a clean development mechanism in the region through regional strategies to establish an institutional and financial framework that allows the application of green policies (Aguilar & Iza, 2009).

Second, the Caribbean countries enacted the Caribbean Sea Commission within the framework of the Association of Caribbean States (ACS) with the objective of promoting and contributing to the sustainable development of this water resource for present and future generations. Moreover, this organisation shows a great focus on sustainable tourism to mobilise its collective capacity to promote ecotourism while improving the quality of life of its inhabitants (AEC, 2021).

Third, the members of the Andean Community (CAN) created Environmental Information Systems to provide tools for member states to facilitate the implementation and monitoring of national environmental management policies that comply with regional and global agreements. The CAN also has a Comprehensive Biodiversity Information Management tool to regulate and ensure compliance with existing norms on the collection of this data (CAN, 2012).

Fourth, the Amazon Cooperation Treaty Organisation (ACTO) brings together all the states that share this biome. It was created with the objective of promoting the development of the Amazon and the incorporation of its territories into national economies, taking into account that the preservation of the environment is essential for the economic growth of these countries. Thus, ACTO constantly develops projects that address environmental problems, such as the ongoing Amazon Project,

which seeks technical integration and co-operation among member countries to improve the management of water resources in the Amazon basin (OTCA, s.f.).

Finally, the Southern Cone has also given great importance to environmental problems during the 21st century and has promoted greater cooperation between its countries. For example, this was the case of the II Conference on Oceans in Uruguay, in which the southern countries advocated uniting efforts for marine protection and the preservation of blue carbon ecosystems (Océanos sanos, 2020).

By way of reflection, it can be seen that there are many tools and regional and subregional regimes that fight together against climate change and the man-made impacts on the natural habitats of LAC. However, the reality of these countries is far from what is found on paper, since cooperation is not reflected in reality; ecosystems are in a process of immeasurable destruction and cities are on the brink of environmental crisis.

That said, it is clear to see that the increasingly extreme events and repeated calls from multiple actors in society, like NGOs and intergovernmental organisations, for greater attention to climate change have not been answered with significant progress in the region. This represents the greatest challenge for our generation, and future generations, where we will see the capacity to coordinate regional

environmental policies while, at the same time, the guidelines of state-level decisions persist in a new reaffirmation of national sovereignty (Serbin, 2010).

Recommendations

Environment ministries, defence ministries, and regional and local governments should give greater priority to environmental security in their security agendas, given that climate change related events will increase in quantity and intensity and threaten the communities and economies of LAC. Therefore, the very survival of the state will be threatened on a much greater scale than that produced by any military attack, and this reality must be reflected in Latin American public policies. Budgets for environmental protection and the prevention and mitigation of the effects of climate change on vulnerable communities must be increased. In this way, providing security is more than just crisis control, it also involves the development of strategies to avoid crises, such as controlling population growth, reducing social inequalities, taking care of water and land resources, and finally, slowing down global warming.

The governments of the regions should undertake more concrete actions to ensure compliance with the environmental protection mechanisms and protocols that have been created at the regional and global levels. The only way out of the current climate crisis is to work together, and

the means to achieve this have been established at various summits over the last 30 years. Thus, international cooperation will be essential for developing countries to have access to the resources necessary to carry out these measures. This will not only benefit the people who live in these countries but will also help developed countries that are currently overwhelmed by mass migrations, and which will be affected by the progressive increase in the number of environmental migrants.

Latin American ministries of education should promote educational plans in schools, colleges and universities that ensure environmental protection and the fight against climate change. This should include the following four pillars: promoting sustainable development; expanding knowledge and information on nature and the resources of each country, subregion, and region; conscientiously teaching the techniques of recycling, reducing, and re-using; and finally, training regarding the national and regional resources that Latin Americans have, in order to fight for a dignified and healthy environment.

NGOs like Greenpeace, World Wildlife Fund and Earth Action could identify alternatives to ensure the inclusion of diverse actors in the different Latin American contexts. The state-centric notion no longer responds to the reality of our countries and, for this reason, the on the ground needs and opportunities of communities and various organisations must be considered

to generate and implement viable alternatives for their economic development while taking into account environmental protection. Likewise, a greater commitment by civil society to environmental protection is urged, they must demand environmentally responsible policies from their political leaders and advocate the fight against climate change. Similarly, people must become aware of the impact that daily actions, like the consumption of fast fashion or single-use plastics, create in our environment. Changing these habits is essential to promote a renewal of our consumer mentality.

The governments of LAC states could reactivate and strengthen the institutional mechanisms of regional environmental organisations such as ACTO. This would facilitate the formulation and implementation of joint actions for the preservation and sustainable use of Latin American territories and resources. Likewise, the creation of little or non-institutionalised environmental mechanisms that duplicate the work of existing organisations should be avoided at all costs. Therefore, actions must be articulated based on the recognition of other, previously formed instruments for regional cooperation. Additionally, ensuring the prioritisation and compliance of regional and global environmental agreements like the Escazú Agreement is essential, as this is yet to be ratified by multiple countries in LAC including Colombia and Brazil.

Finally, the ministers of foreign affairs and delegates at environmental summits must increase the degree of articulation of proposals and strengthen their collective position to acquire better bargaining conditions when it comes to making agreements with great powers -who are collectively the biggest polluters in the

world but who comply with the fewest environmental commitments. In this way, a greater degree of co-responsibility is expected in the face of phenomena that affect the whole world and our common home, whose protection will be essential to guarantee our survival or ensure our extinction.

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POLICY PAPER

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Environmental Security in Latin America and the Caribbean: Evolution and Challenges for the 21st Century

Num. 1



Glyphosate and Environmental Security in Latin America and the Caribbean

Num. 2



Artemisa and its management of environmental crimes in the Colombian Amazon

Num. 3



Dysfunctionality of state actors in effective environmental protection of the Peruvian Amazon

Num. 4

Explanation of the network:

The Latin American Environmental Security Network aims to produce knowledge in the academic field and opinion pieces on the threats, risks and challenges facing environmental security in Latin America and the Caribbean through various case studies. To achieve the above, it has created spaces for dialogue with civil society organizations, academia, economic actors and decision makers from the public sector, to dialogue, raise awareness and seek consensus on the need to give relevance and priority to the threats it presents. the region in environmental matters. Thus, through the preparation of papers (policy and working) and books, it is proposed to collect the study work of the network on specific cases to make the main problems visible and propose recommendations to provide inputs to decision makers in both the public and private sectors. to respond and mitigate the threats that endanger environmental security in its different dimensions in Latin America and the Caribbean.

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