Environmental Rule of Law: Pandemics Now and the Next Time in the Americas

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Introduction

The facts regarding the origin and mutation of the novel version of the corona virus (COVID-19) still seem murky. The most widely accepted theory is that it transited to humans via an intermediate host- perhaps the pangolin, the most wanted and trafficked animal in the world.[1] It seems though that the COVID-19 is a product of natural evolution.[2]

There are relevant factors to the natural evolution of the COVID 19 pandemic globally and in the Americas as well as underlying vulnerabilities. These include ecosystem and land use change, species endangerment or extinction, illegal and poorly regulated wildlife trade, climate change[3] and preexisting underlying vulnerabilities.

The spillover effect and the casualty of the COVID-19 pandemic extend to and go deep into the people and planet relationship.

A relationship that has been well discussed and recognized since the 1800's, but that has a lot of evolution and understanding ahead to land the right balance that integral ecology calls for.[4] Balance among species in ecological and human networks and systems, natural social and built environments. Everything is connected. The Berlin Principles, for "One Planet, One Health, One Future",[5] point to recognizing and maintaining this relationship. They refer to acting on conservation and protection of biodiversity, maintaining functional ecosystems and combating the current climate crisis as the key to preventing the next epidemic and developing solutions to communicable and non-communicable disease threats. These principles call for a vision capable of considering every aspect of the global crisis.

This is not a new panacea and should not be a novelty either. Decision makers have known for decades that acting on these is an enabling condition to keep the critical foundation of life on our planet. In fact, many warnings have been issued from Rachel Carson's Silent Spring[6] to the Millennium Ecosystem Assessment[7] and more recently the Intergovernmental Panel on Climate Change (IPCC)[8] and

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Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)[9] assessment reports, resulting in only more goals and targets, non-binding and binding commitments.

Despite all these warning signals, existing efforts and commitments, nature continues to follow a path of dangerous decline and species extinction rates keep accelerating.[10] Narrowing the focus to the Americas, the aggregate ecological footprint in the region remains unsustainable, it continues to grow placing its rich biodiversity under pressure. Threats and declines in the Americas reflect the ongoing reduction of nature's ability to contribute to human quality of life based in whole or in part on nature or nature's contributions to people, including food, water and energy security and health[11].

Figure 1:Source: Source:2012. International Livestock Research Institute (ILRI), the Institute of Zoology (U.K.) and the Hanoi School of Public Health in Vietnam with support from the United Kingdom's Department for International Development. Mapping of Poverty and Likely Zoonoses

Health benefits from biodiversity and access to nature are well documented. [12] Human health depends directly and indirectly on nature.

The statistics of zoonosis, without focusing too much on a causality nexus, point to the risk of disease outbreaks including pandemics increase, the more nature is destroyed. [13]

This paper will analyze the above mentioned relevant factors to the COVID-19 evolution, causality nexus and the junction between environmental change, security and law that society is at to inform ideas on necessary transformation based on holistic approaches encompassing the environmental rule of law, disaster risk and emergency management as well as social protection.

I-Relevant Factors to COVID-19 natural evolution

The following factors are relevant to the interfaces of the COVID-19 natural evolution and emergence. Ecosystem and land use change, species endangerment or extinction, illegal and poorly regulated wildlife trade, climate change[14] and pre existing underlying vulnerabilities.

a-Ecosystem and Land Use Change.

Land use and ecosystem change as well as the agribusiness model being implemented contribute to the climate crisis, as it relates to the interfaces of the COVID-19 emergence. 25% of global greenhouse gas emissions are caused by land clearing, crop production and fertilization, with animal-based food contributing 75% to that figure.[15] Simultaneously, a large percentage of climate change impacts in the Americas are being experienced in ecosystems and land that are transformed for agribusiness.[16]

This reference to the interlinkages, highlights how decisions regarding ecosystems (including maintaining or reducing protected areas), land use and agribusiness models continue to affect human wellbeing, pushing ecosystem borders and species and nature needs to continuously find new homes. Expansion of human population into undisturbed ecosystems, could be a contributing factor to the increased the

number of zoonoses in recent decades, via contact with wildlife. One must be cognizant that sharing space and time with creatures can also mean sharing diseases with them. Furthermore, wild food has been formalized as a sector and is increasingly branded as a luxury product beyond China, ignoring all sustainable use and livelihoods approaches. In fact, exotic consumerism: and Illegal trade in live animals has been identified as a latest frontier emerging environmental concern[17] contributing to ecosystem transformation.

In 2005, the Millennium Ecosystem Assessment[18] concluded that "over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period of time in human history, largely to meet rapidly growing demands for food, fresh water, timber, fiber and fuel. This has resulted in a substantial and largely irreversible loss in the diversity of life on Earth."[19] The bottom line of these findings was that human actions were depleting Earth's natural capital, putting such strain on the environment that the ability of the planet's ecosystems to sustain future generations could no longer be taken for granted.

In addition, the assessment highlighted that approximately 60% (15 out of 24) of the ecosystem services it examined were being degraded or used unsustainably, including fresh water, capture fisheries, air and water purification, and the regulation of regional and local climate, natural hazards, and pests. The IPBES assessment launched recently in Paris, proves that in the past fifteen years, the situation has not improved and is in fact more dire:

- 75% of the terrestrial environment has been "severely altered" to date by human actions (marine environments 66%)
- There is a 47% reduction in global indicators of ecosystem extent and condition against their estimated natural baselines, with many continuing to decline by at least 4% per decade[20].

In the Americas, habitat conversion, fragmentation and overexploitation and or overharvesting are resulting in a loss of biodiversity and ecosystem functions and a loss of or decrease in nature's contributions to people on local to regional scales in all biomes. 85%: of wetlands present in 1700 had been lost by 2000. The loss of wetlands is currently three times faster, in percentage terms, than forest loss. Wetlands are highly transformed in large tracts of the Americas, particularly by expansion of agriculture and ranching, urbanization and overall population growth.[21]

In the hemisphere, mangroves have disappeared at a rate of 2.1 per cent per year due to exploitation- including aquaculture- deteriorating water quality, coastal development and climate change.[22]

Facts underscored in the IPBES assessment also show that since 1970 there is a 300% increase in food crop production. The most recent scientific based statistics regarding land use change and agribusiness show a 100 million hectares of agricultural expansion in the tropics from 1980 to 2000. In Latin America mainly cattle ranching (approximately 42 million ha), half of it at the expense of intact forests, in particular tropical forest. 75% of freshwater resources in the region are also devoted to crop or livestock production.[23]

Since 1990, forest areas have continued to be lost in South America (9.5 per cent) and Mesoamerica (25 per cent), although there have been net gains in North America (0.4 per cent) and the Caribbean (43.4 per cent). Land devoted to agriculture in the Americas has increased by 13 per cent.[24]

In contrast, to the above statics only an approximate 25% of agricultural land, usually maintains rich agrobiodiversity.[25] Despite the Americas being highly biologically diverse and the first region to have a binding treaty with the obligation to legislate and establish protected areas[26] and despite the role these areas play in conservation and the guarantee of the right of a healthy environment, protected areas are at risk.

In the Americas, increases in the uses of nature have resulted in the region being the largest global exporter of food and one of the largest traders in bioenergy. The causes of habitat conversion and fragmentation within the region vary sub regionally and on more local scales, reflect expansion of both more extensive and intensive forms of agriculture, livestock husbandry and forestry, and increases in urbanized areas and space allocated to infrastructure, including transportation and energy corridors.

Intensification of agricultural production in many cases has caused habitat conversion, imbalances in soil nutrients and the introduction of pesticides and other agrochemicals into ecosystems. These elevated levels of nutrients and pollutants have negative consequences for ecosystem functioning and air, soil and water quality, with impacts on biodiversity, human health.[27]

b-Species endangerment or extinction, Environmental Crime and Illegal Wild Life Trade

The unprecedented and dangerous decline in nature experienced by society, is influenced by an accelerating and tens to hundreds of times higher rate of species extinction, compared to the average over the last 10 million years. The anthropogenic drivers and links to habitat transformation of the current extension threats faced by up to a million species, many within decades, make this a relevant factor to the COVID-19 interface. Close to a quarter of the 14,000-species in taxonomic groups comprehensively assessed by the International Union for Conservation of Nature (IUCN) in the Americas are evaluated as threatened,[28] with the highest proportion of assessed endemic species classified as at risk in the Caribbean. Aggregate extinction risk over a period of two decades showed generally heightened risk levels in the region, particularly in South America. Specially, high proportions of forest birds and mammals, most amphibian groups, and marine species (such as turtles and sharks) are assessed as facing high-risk levels.[29]

Overall, the number of populations or species threatened with loss or extinction is increasing in the Americas and the level of threat that they face is also increasing.[30] While the underlying causes of the increases are different among subregions, globally and regionally, this scenario is deeply influenced by a latest frontier environmental concern. Exotic consumerism and Illegal trade in live animals[31] as well as by the risk faced by protected areas and increasing rates of environmental crime and hotspots for illegal wildlife trade.

Despite not having pangolins in the Western Hemisphere, “every year, poachers take a whopping 38 million animals from the wilds of Brazil to meet the global demand for illegal wildlife. Most are birds, destined to become caged pets for owners in Rio de Janeiro or Sydney or Madrid or New York.”[32] A special recourse decided recently by Brazil’s High Court regarding a parrot kept in captivity for twenty-three years, confirms this heartbreaking reality.[33]

The National Court of Justice Ecuador recently ratified a lower Court decision in a case resulting from seizure in August 2017 of the coasts of the Galapagos Islands, of 600 tons of sylki and hammer shark fins from the Chinese vessel Fu Yuan Yu Leng 999, also seized by authorities. The unprecedented decision, ordered 4 years of prison for the vessels Captain, 3 years for the Captains Aides and 1 year for the rest of

the crew. All crew members were imposed indemnity for fines and penalties ranging from US$127,000.00 to 2 million dollars. [34]

Aggressive overfishing threatens to push some shark species to extinction.[35] Scientist estimate that at least 1.4 million tons and more than 100 million sharks are killed each year for their fins,[36] representing a range of between approximately 4% and 7.9% of the shark population killed per year. This exceeds the average rebound rate and for many shark populations. Particularly, given the range of possible death values rates ranges between 63 and 273 million sharks per year.

There are approximately 400 species of sharks. In 2003, two of these were included for the first time in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) appendix II. In March 2013 the 16 the Conference of the Parties (COP) adopted the inclusion in Appendix II of CITES, of five new shark species and two more at 17th meeting, in Johannesburg. There are currently twelve species of sharks included in Appendix II. Thus, the listing of silky shark, material to the Galapagos case, entered into force with a twelve-month delay only in October 2017. After the Galapagos shipment was seized. The purpose of inclusions in CITES, is not necessarily related to the threat to the species or its risk status. It is to control trade in the species to avoid utilization incompatible with their survival. In the Galapagos case both the status and risk to the species are relevant as the Silky Shark, is one of the three most traded shark species in the global shark fin trade.[37] Sharks maintain the balance of important marine life, such as key biodiversity hotspots and the six longest reefs of the world in the Americas and already under threat.[38]

The situation regarding sharks is like that of other species in the region and a parallel could be made in a context of rampant environmental crime. Several countries in the Americas have been reported as main hotspots for illegal logging. They include but are not limited to: Brazil, Paraguay, and Peru.[39] By way of example, it is estimated that Brazil supplied 25 percent of the total estimated illegal tropical timber in 2013.[40]

Wildlife trafficking puts whole ecosystems at risk. Environmental crime, costs the global economy up to $258 billion annually, is the fourth largest illicit market. The fourth most profitable illegal business after drugs, counterfeiting of products and currency, and human trafficking.[41] The amounts involved are greater than the GDP of some countries in the Americas.[42]

The forestry sector—particularly the pulp and paper industry—fisheries and mining are the largest areas of illegal activity. Together these illegal industries, have risen by 26 percent since an estimate was made in 2014, and growth is continuing at an annual rate of 5-7 percent.

This emerging phenomenon has been growing three times as fast as the global economy.

Transnational organized criminal networks are using environmental crime to launder drug money. High profits and low detection rates are driving a fast increase[43] coupled with the lack of capacity and willingness to treat it as a high-priority crime. Corruption also seems to be a key enabler[44]. Drug cartels in Latin America have entered the illegal logging and gold mining business in Latin America. Making the nexus of security threats and environmental change more relevant.

c-Climate Change.

The drivers of climate change and the impacts on ecosystems, extreme events and water security. evidenced in the region are material to the COVID-19 evolution. Climate Change will and is already amplifying existing risks shown.[45] Many countries of the Americas are already most vulnerable to the adverse effects of climate change, including Small Island Developing States in the Caribbean.[46] Many small island and low-lying coastal developing states face a grave threat to their survival and viability from climate change and sea-level rise.[47]There are disproportionately high risks to livelihoods and health from climate change,[48] as well as associated risks from threatened biodiversity and scarcity driven conflicts.

For example, a significant portion of the impacts of climate change in the Americas are evidenced in water security, with water quality and availability suffering significantly including from agriculture use and discharges.[49]

Climate change "will have devastating consequences for people in poverty. Even under the best-case scenario, hundreds of millions will face food insecurity, forced migration, disease, and death. Climate change threatens the future of human rights and risks undoing the last fifty years of progress in development, global health, and poverty reduction".[50] In his special report to the UN General Assembly the Special Rapporteur on poverty and human rights warned that the unequal distribution of climate change across the developing and developed regions puts the world at risk of "climate apartheid". The report also emphasizes that climate change is making it harder for countries to reduce poverty and countries will struggle to expand public services such as health and keep up with the people that need them. In parallel, the victims of the climate reality in many places of the world and in the Americas, increasingly ask for answers from the judiciaries regarding the impacts of climate change on their rights in a quest for tilting the scales of justice towards addressing climate vulnerabilities.

Examples in the Americas of the growing role of judges in climate justice, include the ongoing *Juliana v. United States* case[51], where plaintiffs argued on behalf of 21 kids that the U.S. government knowingly failed to protect them from climate change and a 2018 Colombian Supreme Court decision regarding the Amazon and Climate Change[52].

In the later case, plaintiffs alleged authorities had neglected to combat deforestation and climate change in Colombia's portion of the Amazon region—a failure that, in their view threatened their constitutional right to a healthy environment. A key part of the Colombian ruling establishes that "The fundamental *rights to life, health, the vital minimum,* liberty and human dignity are substantially connected and determined by the environment and the ecosystem. *Without a healthy environment* the subjects of rights and sentient beings in general will not be able *to survive*, much less protect those rights, for our children nor for future generations. Nor will we be able to guarantee the existence of the family, the society or the State itself.

The above examples illustrate how judges are becoming the first line of defense, and also the last resort of the vulnerable against environmental damage and defense of the emergent vulnerable subject of our times: nature.

II-Other Existing Underlying Vulnerabilities

After looking at the above statistics, examples and cases it seems that the current global and regional situation requires rethinking and a new order of priorities. The COVID-19 pandemic with already more than 75,000 confirmed cases of COVID-19 in Latin America and the Caribbean,[53] exists above underlying vulnerabilities. The physical, social, economic, and environmental factors and processes increase susceptibility of communities in the region to be impacted.

Pre- pandemic, the region was already was affected by the most inequality in the planet. ECLAC estimates that even that will increase with COVID-19. Potentially unemployment in the region could rise by 10 percentage points, the number of poor in the region rising from 185 million to 220 million people, out of 620 million inhabitants in total; and the quantity of people living in extreme poverty could increase from 67.4 million to 90 million[54].Gross Domestic Product(GDP) in the region is expected to be -4.6% in 2020.[55]

"The pandemic is having a deep, probably unparalleled, social and economic impact in our region. It will especially affect the poor, women, children, workers in the informal sector, indigenous peoples, migrants, refugees, and others"[56]. "Many households live from hand to mouth and do not have the resources to cope with the lockdowns and quarantines needed to contain the pandemic.[57]"

Air pollution is the largest environmental risk for public health in the Americas according to the Pan American Health Organization (PAHO). More than 150 million people in the region live in cities with levels of air pollution exceeding air quality guidelines. Outdoor air pollution has resulted in approximately 249 thousand premature deaths were attributable to outdoor air pollution and another 83 thousand premature deaths were attributable to indoor air pollution in the Americas.[58] Other impacts of air pollution include chronic respiratory illnesses, a leading cause death in the United States, asthma and acute illnesses faced by adults.

A recently published paper addresses the idea that the virus behind the COVID-19 pandemic, might be getting a helping hand from atmospheric pollution. A Harvard Study on air pollution is also linked to significantly higher rates of death in people with COVID-19.[59] "A small increase in exposure to particle pollution over 15-20 years was already known to increase the risk of death from all causes, but the new work shows this increase is 20 times higher for COVID-19 death."

Human-induced climate change has already caused increased mean and extreme temperatures and or, in some places, mean and extreme precipitation throughout the Americas, with adverse impacts on ecosystems and people.[60]

The COVID-19 pandemic-and any pandemic- adds pressure to the underlying existing vulnerabilities and threats to our economic, social and environmental wellbeing.

In this sense we are truly facing a disaster. A "serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts[61,] which exceeds the ability of the affected community or society to cope using its own resources.[62]

Climate Change and threatened biodiversity has effects on nature's contributions to people from urban land-cover change. It was expected that new risks-such as the COVID 19 pandemic- would be created for natural and human systems as it is. Risks are unevenly distributed and are generally greater for countries of increased vulnerability such as many in the region. Risk are also greater for disadvantaged people and communities in countries at all levels of development.[63] Resulting climate migration, loss and diminished livelihoods add pressure and create further vulnerability. These all further make the nexus of security threats and environmental change more relevant.

III-A deeper Look at Causality

The described factors linked to the emergence of pandemic, showcase that wildlife is not really the culprit. In fact, wildlife and natural capital has been sacrificed as a result of poor governance, lax enforcement and insufficient implementation of the Environmental rule of law.

In looking at the above statistics, examples, cases and scenarios, it is inevitable asking why is there a gap between the so many global goals that have been set and their implementation. Why such a great leap between the so well-crafted environmental laws and their compliance and enforcement?

The rule of law has been defined as a principle of governance in which all persons, institutions and entities, public and private, including the State itself, are accountable to laws that are publicly promulgated, equally enforced and independently adjudicated, and which are consistent with international human rights norms and standards.[64]

The balance in our ecosystemic relationships requires accountability to laws, that citizens and each branch of government-Executive, Legislative and Judiciary- does their part in equal enforcement and adjudication, respecting human rights.

Taking a close look at some of the most relevant global commitments that have been agreed upon globally and regionally, facts show that the response has been and continues to be insufficient.

In 2005, scientific predictions alerted that "The degradation of ecosystem services could grow significantly worse during the first half of this century and is a barrier to achieving the Millennium Development Goals"[65]. Upon reporting on the goals as part of the launch process of the Sustainable Development Goals, the UN Secretary General Ban Ki Moon said: "I am keenly aware that inequalities persist and that progress has been uneven".[66]

"Experiences and evidence from the efforts to achieve the MDGs demonstrate that we know what to do. But further progress will require an unswerving political will, and collective, long-term effort. We need to tackle root causes and do more to integrate the economic, social and environmental dimensions of sustainable development"[67].

The referenced scientific predictions also highlighted that with appropriate actions-in 2005-, it was possible to reverse the degradation of many ecosystem services over the next 50 years, but the changes in policy and practice required were substantial and not underway[68].

Today, these changes are more needed than ever. Scientific consensus once more goes to show that current global response is insufficient and that transformative changes are needed to restore and protect nature.[69]

State of Global Goals and Commitments

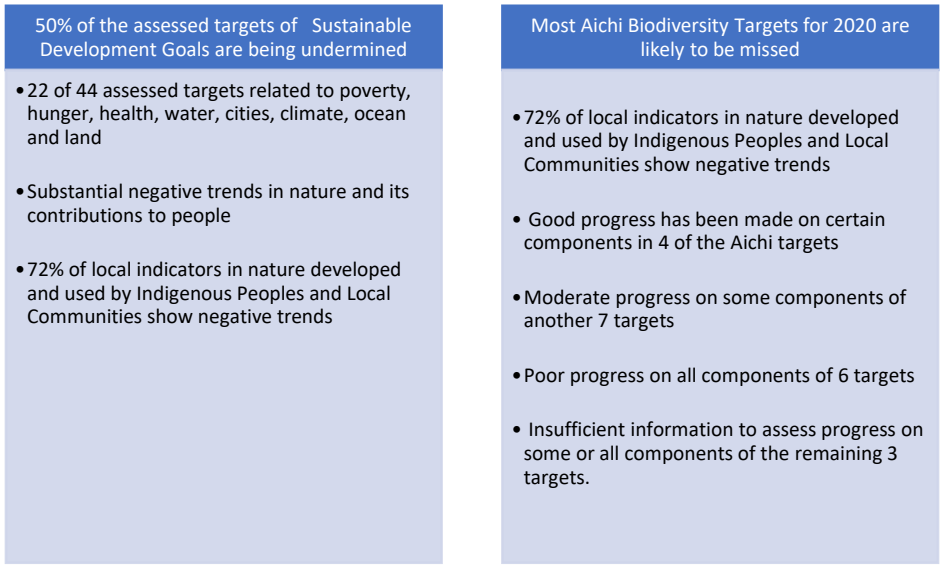

Figure 2. Source Supra note 8

Figure 3. Source Gaps in International Environmental Law and Environment-Related Instruments: Towards a Global Pact for the Environment' (A/73/419).

Figure 4. Source: UNDRR (2020). Monitoring the Implementation of Sendai Framework for Disaster Risk Reduction 2015-2030: A Snapshot of Reporting for 2018. Bonn, Germany. United Nations Office for Disaster Risk Reduction (UNDRR).

The implementation of international environmental law-including soft law- is challenging at both the national and international levels. At the international level, implementation is constrained by the lack of clarity of many environmental principles.[70]

National implementation is constrained in many countries by the lack of appropriate national legislation-meaning laws that are adequate and implementable-, financial resources, environmentally sound technologies among other institutional capacities.

Budgets for environmental authorities and for enforcement continue to be the lowest of the cabinets in many countries, despite a lot of the economies in the Americas deep reliance and root on ecosystems including through tourism. There are few indicators and non-truly reliable of policy implementation and law enforcement.[71] However overcomplication overlap and confusion in many laws may be contributing to lenient enforcement.

Environmental Impact Assessments (EIA) continue to be an Achilles heel in development. In particular with regards to development infrastructure and agribusiness expansion into natural spaces and protected areas. This is fueling conflict in the region regarding decisions related to nature and its capital. While "it needs to be born in mind that EIA process is intended to be an aid to efficient and inclusive decision making in special cases, not an obstacle-race[72]", a significant percentage of conflicts in the Americas are related to natural resources and EIA

The linkages between climate and water resources are affected by a variety of anthropogenic factors. Water stress already affects every continent.[73]

The region continues to face significant challenges in water security, some mainly related to climate change as highlighted above. These challenges seriously affect delivering on right to water. 40% of the global population lacks access to clean and safe drinking water while more than 80% of global wastewater continuous to be discharged untreated into the environment.[74] In the Americas since the 1960s, renewable fresh water available per person has decreased by 50 per cent. The water security challenges for over half the population of the Americas arise from unevenly distributed supply and access and decreasing water quality. [75] Water justice and implementation of the right to water beyond declaration and non-regression are imperatives.

The legal framework that could put retailers and traffickers behind bars is well in place. Many countries globally and in the Americas have begun to include environmental crime in their criminal codes. The only thing that is missing seems to be enforcement.

Wildlife law enforcement becomes more critical in the new scenario we live in, including criminal statutes and other laws the support CITES implementation.

Roughly 5,800 species of animals and 30,000 species of plants are protected by CITES against over-exploitation through international trade.

While matters regarding zoonotic diseases are outside of CITES's mandate, and the CITES Secretariat does not have the competence to make comments regarding the recent news on the possible links between human consumption of wild animals and COVID-19[76], the convention plays an important role in regulating trade of species. Efforts in the context of the conventions' working group on sustainable Livelihoods[77] in assessing the impacts of CITES decisions in poor communities, the conceptual framework and approaches take into account health factors. In particular as these approaches evolve, focusing increasingly on rights, different emphasis is placed on concepts such as empowerment, governance, security and the health of the poor.

Implementation of the sustainable livelihood approach has not been sufficiently pursued and is more relevant now in this time of pandemics and in relation to protected areas. These areas and reserves have been associated new jobs, mostly in tourism; stronger local governance; benefits to health; and benefits to women.[78] However, their enforcement and true protection beyond the books is in crisis given the invaluable resources that are available underneath them.

Despite the many laws on the books that focus on protecting natural places, prosecutors are underbudgeted, and guards and others who protect wildlife often become the victims of violence.

This means that there is regression in some countries and increased threats and risk to the lives of those that are their stewards, including park rangers. 8 of the 10 countries were most environmental defenders die are countries of the Americas.[79]

Weak enforcement of laws and poorly funded security forces are enabling international criminal networks and armed rebels to profit from illicit activity and trade that fuels conflicts, devastates ecosystems and is threatening species with extinction.[80]

IV-At the Intersection of Environmental Change, Security and Law

The above described challenges place the international community, right at the intersection of environmental change and security. Making the security and environmental change nexus more relevant than ever in facing from a multidimensional perspective, what countries of the Americas have denominated as non-traditional threats to their security.[81]

Disasters are often described as resulting from the combination of exposure to a hazard or risk, in this case a pandemic and its origin; the conditions of vulnerability that are present; and the insufficient capacity or measures to reduce or cope with the potential negative consequences.

The concept of environmental security is central in the so-called "risk society", in which all (society and individual) are exposed to threatening, mega-dangerous, or uncontrollable situations such as the COVID 19 and any future pandemics.[82]

The COVID-19 disaster is just another symptom of how humanity has not been able to change behavior that negatively affects human and nature systems. Our interactions-land use and ecosystem change, change, species endangerment and extinction, human induced climate change on top of underlying vulnerabilities- continue to shape our diseased ecology and we don't seem to have the capacity to absorb or cope with the negative effects and guarantee our fundamental rights.

Moreover, our future capacity to address the causality has been seriously diminished, including but not limited to by the additional pressure to governance that disaster response generates.[83] According to the World Bank Chief Economist for Latin America and the Caribbean "Governments of Latin America and the Caribbean face the enormous challenge of both protecting lives and limiting the impact of the economic fallout".[84]

The disaster policy community for years has tried to integrate environmental sustainability in their efforts in order to include prevention in emergency management to reduce pressures on governance. Success has been very limited.[85] The legal thinking in this area has only began to change towards a a holistic and integrated Multi risk integrated perspective following guidance of the Hyogo and Sendai Frameworks. Further work is required and to help the vulnerable incorporating insight from progressive legal scholars such as Vattel[86] and Wolff's[87], authored doctrine on international law principles. The principles of solidarity, of the form of social order are appropriate for securing the ends of self-defense and self-preservation. Solidarity among States in the context of disasters and prevention should be part of response in socializing pandemic losses.

The study of environmental law in principle is the study of society at risk of science's overwhelming facts and understanding of the limits and current environmental problems. Given these compelling facts or circumstances, the law reacts and generates new solutions to new and urgent social demands, making imperative a multidisciplinary approach. As the status quo is not the result of novel actions, the answers and what needs to be done is not novel either.

These are signals, that this is not a time for deregulation or to relax enforcement. This is a time to understand and address causality and the multiple and broad scope of attributions that are required. In a time to act and respond to an emergency while implementing prevention that considers development and future human wellbeing. It is time for holistic approaches and solidarity.

There will be a post-pandemic world. By then, at a minimum we need to have understood the causality of this crisis, to prevent the next one and integrate the transformational change that is needed into the necessary frameworks and support of the role of different stakeholders in enforcement and compliance.

It is time for environmental law to anticipate and react in a society at risk.

VI-Necessary transformation

Evidence shows that conservation of intact ecosystems and their characteristic biodiversity can reduce the emergence of infectious diseases.[88] There is no one recipe for the necessary post pandemic transformation in the Americas and beyond. However, what is certain is that some of these changes can

be small in nature and large in impact, while others will require more significant interventions. Examples of this small natured interventions include the policies on wildlife handling and public health issued by some of prosecutors of the region, permanency in wildlife consumption and trade bans such as the ones issued in China.

“Normalcy” post pandemic will not be the pre pandemic normalcy that people across the Americas were accustomed to. Economic and social activity will have to gradually be restarted. According to the World Bank, to overcome the crisis social protection and assistance must be scaled up and coverage extended. Coherent targeted policies on a scale rarely seen before will be required.[89]

These coherent policies must not be acted upon in isolation. They must reflect an overall shift towards science-based decision making, interdisciplinary, holistic, disaster risk management law approaches and a foundation on the environmental rule of law are imperatives.

All decisions are based on beliefs and values of who make them. The change that is needed to address the COVID-19 pandemic causality and prevent any future pandemic, requires a change of behavior for a different environmental and socio-economic outcome. Behavior is also affected by beliefs and values that can be shaped by science. Controversial beliefs as those surrounding environmental problems and emergency management can be reflected as uncertainties. Hence transformational changes should include shift towards science-based decision making, given the certainty scientific facts can provide. Meaning data sets indicators that can be reflected in innovation, sustainable land use planning, respect of protected areas and effective and efficient EIA systems.

Scientific evidence, previously referred to, has identified a link between pollution and pandemic related case increase and deaths. Quarantine and lockdowns all over the world, and strictly enforced in the Americas (with thousands incarcerated for violations) have had another unintended effect. Measures to contain the pandemic have shut down industrial and economic activity and temporarily slashed pollution levels around the world according to satellite imagery.[90] These facts cannot be ignored in decisions related to what the post COVID 19 pandemic world will look like.

Furthermore, there is foundation to assert as well that the necessary transformational changes should include budgets consistent with the responsibility placed on the stakeholders of the different branches of government. In particular environmental authorities and enforcement and compliance officials to ensure application of the polluter pays principle and reliability accountability to the laws within the principle of the rule of law. All pandemic country assistance deployed packages should reflect these notions.

Short and long term, basing policy changes in the environmental rule of law is essential given its role in peace, social and economic wellbeing. Moreover, the environmental rule of law is an enabler in ensuring just and sustainable development outcomes and in guaranteeing fundamental rights to a healthy environment.

In contrast to other disciplines of law, the interdisciplinary in nature, environmental law is closely linked to the hard sciences and corresponds to the light and liquid software based modernity, the technological and atomic age, bio and nano technology, the new remoteness and un-reachability of global systemic structure coupled with the unstructured and under-defined, fluid state of the immediate setting of life-politics and human togetherness. Living in a time of uncertainties such as this pandemic and the post

pandemic scenarios, call for the rethinking of the concepts and cognitive frames used to narrate human individual experience and joint history.[91]

Strengthening the rule of law[92] in this new era is really a matter of environmental security about managing natural resources, focusing and sustainability enforcing and complying the law for conflict prevention and the security of states, society and individuals. This requires a different approach of cooperation and solidarity in sync with disasters law, perhaps revisiting the Inter-American Convention to Facilitate Disaster Assistance.[93]

Globally and regionally the past decade has been characterized not only by liquid modernity, but by increased conflict and judicialization of social-environmental issues. In this context, the judiciaries been the first line of defense and last bastion increasingly basing decisions on science to address environmental destruction. Hence their role in governance and implementing the rule of law should not be underestimated. Specially in the current scenario in which the coronavirus is leading to lawsuits, imperiling more than lives and livelihoods.[94]

Judges can within the umbrella of the rule of law link disasters and environmental laws work in tandem to address causality, contribute to integrating disaster preparedness and management into sustainable development and enforcement at all levels, from local to global, from MEA's to national laws. The normative and institutional fragmentation of international and national environmental law and the sectoral approach to environmental regulation require enhancing coherence and coordination.

The application of modern environmental law has been shaped by principles, a fundamental element of strong environmental laws. These include environmental law principles but also principles drawn from other disciplines such as International law and Human Rights among other. Examples include the principles of generality, equality, public accessibility, clarity, stability, proportionality, the precautionary principle, progression etc. These are an essential aspect of the rule of law. Numerous general principles are either implicitly or explicitly included in the right to a healthy environment. Other specific principles have been agreed upon by Judges of the highest courts of the Americas as sources of law and the key principles for environmental sustainability for adjudication. [95] These agreed upon principles respond to the need for a common value set that supports that interpretation of statutory rules in a way that maximizes the effectiveness of environmental protection. Others that are complementary include the One Health one Planet Berlin principles.[96]

Conclusion

International environmental law and its effective implementation both at the national and international levels could be strengthened through such actions as the clarification and reinforcement of principles of international environmental law[97] and other disciplines.

Risk reduction, management, resilience, and rule of law are key concepts. To enable identifying, assessing and monitoring post pandemic risks and enhance early warning, disaster risk reduction should be a national and local priority with a strong legal institutional basis, building a culture of safety and resilience at all levels. Therefore, the principles and the elements of the environmental rule of law in a society at risk must be applied in tandem with disaster law.

Resilience at all levels calls for reducing underlying risk factors such as those addressed above and deliberately considering them in the appropriate frameworks from EIA planning to the post 2020

Biodiversity framework and National Determined Contributions (NDCs). This means a commitment to nature conservation, encouraging the sustainable management of ecosystems and enforcement of international commitments and national laws related to their sustainable management and use. It also means prioritizing climate justice based on the rule of law.

Enforcement and compliance-with budget- cannot be stressed enough, thus not exclusively command and control based, but based on principles,[98] because we are now in front of the ethical challenge of our time. A challenge that will shape what the next time looks like. Internalizing these values with the precautionary principle should be at the center of all efforts in this terrain.

Achieving success and effectiveness in the legal response to the pandemic of our time and preparing for the next time cannot be an option it must be a decision. Coherent from the national to the global level.

The nobel prize laureate, Wangari *Mathai, once said:* **"**In the course of history, there comes a time when humanity is called to shift to a new level of consciousness, to reach a higher moral ground. A time when we have to shed our fear and give hope to each other. That time is now."

The time of defining what happens next time is now. It is time of rethinking and paying attention to the human-ecology balance and to our common approach as a society. It's time to take better care of nature, protecting wildlife at source, and stopping the illegal taking, trade and consumption of wildlife. It is time to take care of each other.

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