Abstract: This brief note discusses the articulation of Central American countries in the fight against the pandemic from a socio-environmental perspective. Central America is one of the most disaster-prone regions in the world; hurricanes, earthquakes, droughts, floods, and volcanic eruptions are the main threats to the nations. The emergence of SARS-CoV-2 exacerbated the socio-environmental risks, demanding the emergency action of joint management within the framework of the Central American Integration Scheme (CAIS). Thus, technical meetings of the Coordination Center for Disaster Prevention in Central America sought to maintain a synergy to reduce social vulnerability and the environmental impacts of the pandemic. The region adopted intersectorality as a mechanism of articulation among all CAIS-derived bodies, allowing for more comprehensive humanitarian assistance to groups at higher risk (involving all human life cycles). The joint negotiation between the countries sought to provide technical support for estimates and projections for the calculation of needs, as well as to adjust health measures in each country according to the following scenarios recommended by WHO: (i) no cases, (ii) sporadic cases, (iii) clusters of cases, and (iv) sustained transmission. Therefore, the countries promoted the participation of the population in the prevention and mitigation phases, which helped to mitigate the pent-up demand in the health sector and strengthened community-based interventions. Thus, the region managed to keep the case fatality rate below 3% and reinforce compliance with local sanitary measures in the first two pandemic years due to the multi-systemic approach to risk management. The role of the community led to the development of social groups more aware of socio-environmental and public health responsibilities, besides the benefits of working as a collective.

Keywords: Central American Integration Scheme; public health; community-based medicine; pandemics

1. Initial Notes on Central American Regional Integration and Environmental Profiles

Geographically speaking, continental Central America is conformned of seven countries, Belize, Costa Rica, El Salvador, Honduras, Guatemala, Nicaragua, and Panama [1]. These countries are located in the region bordering Mexico to the south and Colombia to the north, bordering the Pacific Ocean and the Caribbean Sea. The Spanish language is predominant, with Belize being the only English-speaking country. The countries share historical and cultural aspects that date back to the processes of emancipation from the Kingdom of Spain, which ruled the region for more than two hundred years [2]. Even with very close distances, the countries have divergent socioeconomic profiles (Table 1).
Central America is one of the most disaster-prone regions in the world; hurricanes, earthquakes, droughts, floods, and volcanic eruptions are the main threats to the nations. A recent study observed the number of disaster occurrences classified by extensive, intensive, and combined risks in Central American countries between 1960 and 2015. Of a total of 23,727, the majority were combined ($n = 20,683$; 87%), followed by extensive ($n = 1922$; 8%) and intense ($n = 1122$; 5%), respectively. Costa Rica was the country with the most disasters ($n = 11,750$; 49.5%) and Belize the least ($n = 113$; 0.5%) [3].

Historically, Central American countries have shown a sense of brotherhood and unity that, over the last hundred years, have helped forge the paths of regional integration, despite the ups and downs generated by some individual interests. In the socio-environmental field, the countries have more than thirty years of team experience (Figure 1), establishing solid frameworks for the protection of environmental wealth and addressing regional threats (Figure 2). A brief contextualization is given below.

With the creation in 1987 of the Coordination Center for the Prevention of Natural Disasters in Central America (CEPREDENAC, from the Spanish acronym), and the entry into force of its Constitutive Agreement in 2007, it contributes to the reduction of vulnerability and the impact of disasters, which have been causing severe human and material losses in the region, and to the pursuit of Sustainable Development in accordance with the Tegucigalpa Protocol, the Alliance for Sustainable Development (ALIDES, from the Spanish acronym), and the Sustainable Development Goals 2030. In line with the integral development process and in view of the need to address the constant threats of recurrent disasters in Central America, the Heads of State and Heads of State of the SICA region, at their XXV meeting on 29–30 June 2010, approved the Central American Policy on Comprehensive Disaster Risk Management, with the aim of providing the region with a guiding framework for comprehensive disaster risk management intertwined with economic management, social cohesion management, and environmental management through a systemic approach [4] (p. 6).

### Table 1. Socioeconomic parameters for Central American countries.

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<tbody>
<tr>
<td>Belize</td>
<td>4435.6</td>
<td>397,621</td>
<td>22,970</td>
<td>17</td>
<td>46</td>
<td>0.716</td>
<td>52</td>
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<tr>
<td>Costa Rica</td>
<td>12,076.8</td>
<td>5,094,114</td>
<td>51,000</td>
<td>100</td>
<td>81</td>
<td>0.810</td>
<td>30</td>
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<tr>
<td>El Salvador</td>
<td>3798.6</td>
<td>6,486,201</td>
<td>21,040</td>
<td>313</td>
<td>73</td>
<td>0.673</td>
<td>26</td>
</tr>
<tr>
<td>Guatemala</td>
<td>4603.3</td>
<td>16,858,333</td>
<td>108,890</td>
<td>157</td>
<td>52</td>
<td>0.664</td>
<td>59</td>
</tr>
<tr>
<td>Honduras</td>
<td>2405.7</td>
<td>9,904,608</td>
<td>112,490</td>
<td>89</td>
<td>58</td>
<td>0.634</td>
<td>48</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>1905.3</td>
<td>6,624,554</td>
<td>130,370</td>
<td>55</td>
<td>59</td>
<td>0.660</td>
<td>25</td>
</tr>
<tr>
<td>Panama</td>
<td>12,269</td>
<td>4,314,768</td>
<td>75,320</td>
<td>58</td>
<td>68</td>
<td>0.815</td>
<td>22</td>
</tr>
</tbody>
</table>

Source: Adapted with permission from Quesada-Román and Campos-Durán (p. 3) [3].
3. Central American Socio-Environmental Regional Approach during the Pandemic

The disproportionate and irresponsible management of ecosystems was reflected in the Millennium Ecosystem Assessment, 2005, indicating that, since the second half of the 20th century, humans have been causing changes (some irreparable) in their habitat [6]. In human health, the urgency of addressing social vulnerability was stressed, given that the populations or subgroups with the least adaptive capacity tend to be the most affected. It is a first-degree equation of simple interpretation but with a high degree of practicality.

Thus, the pandemic came at an iconic moment, as countries set out to launch the Sustainable Development Agenda for the new decade as early as 2020. Ironically, studies have shown that, during the months of social isolation and lockdown, the rates of environmental air and water pollution, especially in metropolitan cities, suffered drastic reductions [7,8]. Notwithstanding, the unprecedented production of medical and personal protective equipment (such as testing kits, disposable masks, eye protection items, and surgical gloves) brought up the challenge of providing responsible purposes for biomedical waste in hospital settings and the community [9,10].

Authors such as Salazar-Galán and colleagues [11] draw attention to the urban–rural relationship in contemporary societies since the current potential for transmission and expansion of “infectious diseases such as COVID-19 in crowded urban environments is due to causes such as high social connectivity, mobility patterns, and daily work and social routines that favor contagion by air, or through direct or indirect contact” (2). Thus, the effects seen during the pandemic invite us to think about health beyond hospital corridors. It becomes necessary to reinforce the understanding of planetary health, in which equally relevant roles are attributed to human, environmental, and animal health. Alterations in any of these domains generate inward changes in their peers [12].

2. The COVID-19 Pandemic and Its Socio-Environmental Implications

The emergence of SARS-CoV-2 exacerbated the socio-environmental risks, demanding the emergency action of joint management within the framework of the Central American Integration Scheme (CAIS). Thus, technical meetings between the Coordination Center for Disaster Prevention in Central America and the Council of Central American Ministers of Health (COMISCA, from the Spanish) sought to maintain a synergy to reduce socio-health vulnerability and the environmental impacts of the pandemic. It was necessary to activate alert mechanisms in areas with more difficult access that could be more affected by cuts in basic services such as electricity, drinking water, and the transfer of patients with aggravated clinical conditions. The countries used risk flags, a generic categorization already used on other occasions. During the red activation, special efforts were deployed among health professionals, firefighters, and police forces, and there was also a leading role for organized civilian groups.
The region adopted intersectorality as a mechanism of articulation among all CAIS-derived bodies, allowing for more comprehensive humanitarian assistance to groups at higher risk (involving all human life cycles). The joint negotiation between the countries sought to provide technical support for estimates and projections for the calculation of needs, as well as to adjust health measures in each country according to the following scenarios recommended by WHO: (i) no cases, (ii) sporadic cases, (iii) clusters of cases, and (iv) sustained transmission. The assignment of tasks to monitor compliance with health measures in border and conurbation areas made it possible to reduce the pressure on the demand for hospitalization, combat misinformation, strengthen national vaccination campaigns, and support community interventions to combat malnutrition and hunger during the most chaotic months. The “Regional Contingency Plan aimed oriented to implement national efforts for the prevention, containment and treatment of COVID-19” [13] structured the approach to the pandemic along five axes. Axis 1 corresponded to health and risk management, with the following components:

- Component 1.1. Prevention and Containment Measures;
- Component 1.2. Patient management measures in each case type;
- Component 1.3. Harmonization of informative, preventive, and educational messages;
- Component 1.4. Access to medicines, medical devices, and other goods of health interest through the COMISCA® Joint Negotiation;
- Component 1.5. Regional Mechanism for strengthening preparedness, mitigation, response, and humanitarian assistance capacity.

Overall, the countries promoted the participation of the population in the prevention and mitigation phases, which helped to mitigate the pent-up demand in the health sector and strengthened community-based interventions. Thus, the region managed to keep the case fatality rate below 3% and reinforce compliance with local sanitary measures in the first two pandemic years due to the multi-systemic approach to risk management [14].

The role of the community led to the development of social groups more aware of socio-environmental and public health responsibilities, besides the benefits of working as a collective, as the nations acted on vulnerabilities, their causes, and increasing capacities in order to build a safer and more resilient region.

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References