

## Right to adequate housing and climate change: input to the United Nations Special Rapporteur on the Right to Adequate Housing regarding Brazil

### Contact Details

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Can we attribute responses to this questionnaire publicly? Yes.

### Introduction

The United Nations Special Rapporteur on the Right to Adequate Housing will present a thematic report on housing and climate change to the 52nd session of the UN Human Rights Council in March 2023.

In preparation for such report, the UN Special Rapporteur [launched a process of gathering inputs](#) from States, local and regional governments, national human rights institutions, civil society organizations, academics, UN agencies and other stakeholders, according to a predefined Questionnaire.

The following is the relevant information about the country of Brazil, hereby presented by Facts and Norms Institute with the aim of contributing to the Special Rapporteur's important mission.

### The Institute's work

Facts and Norms Institute is an independent academic institution based in the Global South, with members present in all continents. The Institute's mission is straightforward: to promote a rational, human rights-based approach to social issues.

Since its establishment, the Institute also conducted research about varied human rights topics, including: the relations between human rights and infectious diseases, torture, religious intolerance, social participation, transitional justice and sustainable development, the role of non-state actors in transitional justice, rights of persons with albinism, criminalization of persons living in the street and in extreme poverty, the protection of lawyers, aspects related to the human rights of indigenous and poor rural peoples to water and sanitation, militarization of indigenous land; human rights and internet shutdowns; contemporary forms of slavery and the informal economy; mercury, artisanal and small-scale gold-mining and human rights; and the present submission on adequate housing and climate change.

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<sup>‡</sup> Disclaimer: researcher's views are exclusively on behalf of Facts and Norms Institute.

## Questionnaire (Answers regarding Brazil)

### *Impact of climate change on the right to adequate housing*

*In real life*

**1. In your country, what have been the main effects of the climate crisis, on the enjoyment of the right to adequate housing? Please specify whether there have been any climate-induced impacts on the security of tenure, availability, affordability, accessibility, habitability, location and cultural adequacy of housing, including climate crisis related displacement.**

Brazil has been hit by grave weather events in recent times, including intense rains and storms in Recife – Pernambuco (May 2022)<sup>1</sup>, the mountain region (“região serrana”) of Rio de Janeiro (February 2022)<sup>2</sup>, and different municipalities in Minas Gerais (January 2022)<sup>3</sup>, São Paulo (January 2022)<sup>4</sup> and the south of Bahia (December 2021)<sup>5</sup>.

These storms resulted in many deaths and displacements, mostly as a result of floods and landslides and their consequences vis-à-vis people living in poor settlements and under precarious housing conditions<sup>6</sup>:

Event	Reported deaths	Displaced / homeless
Pernambuco (May 2022)	106	4500
Rio de Janeiro (Feb. 2022)	100-300	7.000
Minas Gerais (Jan. 2022)	24	60.000
São Paulo (Jan. 2022)	24	660 families
South of Bahia (Nov., Dec. 2021)	20	62000

<sup>1</sup> Cf. Isadora Rupp. [A tragédia brasileira das chuvas, do clima à moradia de risco](#). Nexo Jornal, 29 May 2022; José Matheus Santos. [Número de mortos nas chuvas sobe para 106 em PE; 11 estão desaparecidos](#). Folha de São Paulo, 31 May 2022; UOL. [Chuvas deixam PE com 24 cidades em emergência e mais de 100 mortes](#). Notícias UOL, 31 May 2022.

<sup>2</sup> Isadora Rupp. [Por que as chuvas na região serrana do Rio são tão mortais](#). Nexo Jornal, 16 Feb. 2022; Beatriz Puente; Nathalie Hanna Alpaca. [Chuva no Rio de Janeiro deixa mais de 7 mil pessoas desalojadas e desabrigadas](#). CNN Brasil, 5 Abr. 2022.

<sup>3</sup> Gabriel Zanlorenssi; Lucas Gomes. [Chuvas deixam 374 municípios de MG em situação de emergência](#). Nexo Jornal, 13 Jan. 2022; Thaís Mota. [Minas tem mais de 60 mil pessoas desabrigadas ou desalojadas por conta de chuvas](#). O Tempo, 12 Feb. 2022.

<sup>4</sup> Nexo Jornal. [Após chuvas, SP tem 24 mortos e centenas de desalojados](#). 30 Jan. 2022; UOL. [Sobe para 21 o número de mortos após chuvas em SP; bebê está entre vítimas](#). Notícias UOL, 31 Jan. 2022.

<sup>5</sup> Mariana Vick. [Bahia sob água: as causas, os prejuízos e as urgências](#). Nexo Jornal, 27 Dec. 2021; BBC Redação. [Chuvas na Bahia: os fenômenos extremos que causam a tragédia no Estado](#). BBC News Brasil, 27 Dec. 2021

<sup>6</sup> See supra notes 67-73.

A causal link between each of the occurrences *supra* and climate change is to be accredited or investigated.<sup>7</sup> However, one of the effects of climate change is the increase in both the number and intensity of extreme weather events<sup>8</sup>; therefore, similar events are likely to occur again and the country needs to be adequately prepared to prevent deaths, injuries and displacements.

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Another topic of concern is drought. In 2021, Brazil suffered what was considered its worst recorded drought in 91 years. Mr. José Marengo, research coordinator of the National Centre for Natural Disaster Monitoring and Alert (“Centro Nacional de Monitoramento e Alertas de Desastres Naturais”, or “Cemaden”), warned that the regions of Pantanal, the south of the Amazon and part of the Paraná Basin, suffered a particularly severe, extreme or exceptional drought.<sup>9</sup>

Extended or more severe droughts commonly bring more destruction from fire and wildfire<sup>10</sup> which, in turn, further aggravate global warming. Worse droughts can also negatively impact urban and rural access to water, agricultural and livestock activities and energy production, especially hydroelectricity, with further negative impacts on the accessibility of basic goods such as food, energy, cooking gas etc. due to price spikes.<sup>11</sup>

Exacerbated events of droughts can also generate numerous and even massive displacements. One of the most dramatic historical examples of the latter is the Great Drought of 1876-1878, which caused hundreds of thousands of deaths – many of them by smallpox and hunger, which were aggravated by the drought –, as well as a massive migratory escape from the Brazilian North-East to other regions.<sup>12</sup> The country in general, and the North-East in particular, have both seen important institutional, social and economic improvements from that time to the present. However, significant portions of the Brazilian population are still poor and more vulnerable to the direct and indirect consequences of extreme weather

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<sup>7</sup> See, *v.g.*, Rafael Barifouse. [Tragédia em Petrópolis: chuvas de verão extremas são reflexo das mudanças climáticas?](#). BBC News Brasil, 16 Feb. 2022; Isadora Rupp. [A tragédia brasileira das chuvas, do clima à moradia de risco](#). Nexo Jornal, 29 May 2022.

<sup>8</sup> According to the Brazilian Panel of Climate Change (“Painel Brasileiro de Mudanças Climáticas”, or “PBMC”), a scientific consortium linked to the Federal University of Rio de Janeiro, “climate change intensifies and amplifies known problems, such as intense rains with floods and landslides”. Cf. Suzana Kahn Ribeiro; Andrea Souza Santos (eds.). [Mudanças climáticas e cidades: relatório especial do Painel Brasileiro de Mudanças Climáticas](#). Rio de Janeiro: PMBC, 2016, p. 23.

Additionally, *v.g.*, the Intergovernmental Panel on Climate Change (IPCC) recently indicated that the 1.5°C landmark can be enough to generate a 100-200% increase in the population affected by floods in Brazil. Cf. IPCC. [Technical Summary](#) [Sixth Assessment Report: Climate Change 2022: Impacts, Adaptation and Vulnerability]. 27 Feb. 2022, p. 31.

<sup>9</sup> Lucas Ninno; Kevin Damasio. [Por que o Brasil secou?](#) National Geographic Brasil, 21 Oct. 2021.

<sup>10</sup> Luis E. O. C. Aragão *et al.* [21st Century drought-related fires counteract the decline of Amazon deforestation carbon emissions](#). Nature Communications, v. 9, article number 536, 2018; Lucas Ninno; Kevin Damasio. [Por que o Brasil secou?](#) National Geographic Brasil, 21 Oct. 2021.

<sup>11</sup> *V.g.*, Lucas Ninno; Kevin Damasio. [Por que o Brasil secou?](#) National Geographic Brasil, 21 Oct. 2021; EBC. [Seca histórica no Pantanal provoca maior vazante em 121 anos](#). Agência Brasil, 7 Oct. 2022.

<sup>12</sup> See, *e.g.*, Mike Davis. *Late Victorian Holocausts: El Niño Famines and the Making of the Third World*. London: Verso, 2002, p. 79-90; Camilla Veras Mota, Camilla Costa e Cecília Tombesi. [500 mil mortos: a tragédia esquecida que dizimou brasileiros durante 3 anos no século 19](#). BBC News Brasil, 18 Jun. 2021.

events. The ability of the State to respond to such events, though better than in the 19<sup>th</sup> century, still has its limitations.

A 2021 Report from the IPCC refers to the Brazilian North-East, in particular, as “the most densely populated dryland globally” and a region that is “recurrently affected by climatic extremes” and interannual climate variability, particularly vis-à-vis precipitations.<sup>13</sup> There is also evidence of decreased annual rainfall over the North-East during the last decades.<sup>14</sup> Moreover, the IPCC indicated the possibility that the Brazilian North-East is warming faster than other regions of the continent, and that it might face increased drought severity.<sup>15</sup>

The IPCC also referred to other regions; *v.g.*, the Panel mentioned evidence of significant decreases of rainfall in both wet and dried seasons during the last decades in the Brazilian South-East<sup>16</sup> and lengthier dry-seasons over Southern Amazonia since 1979.<sup>17</sup> The IPCC quoted a projection that all Brazilian regions will experience more rainfall variability in the future, with drier dry periods and wetter wet periods on daily, weekly, monthly and seasonal time scales.<sup>18</sup>

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Trees store carbon within them. When they die, *v.g.*, by natural processes, fire or direct human action, they release this carbon into the atmosphere. The trees of the Amazon take in a quarter of all the carbon absorbed by the planet’s forests. In 2010, the Amazon suffered its second “hundred-year drought” in the space of five years. In 2017, one hundred thousand fires were found to be burning in the Amazon. In 2018, a group of scientists predicted that if the Brazilian government were to remove environmental protections and promote deforestation policies, the resulted emissions in a ten-year period would amount to between two and three times the annual carbon impact of the entire U.S. economy.<sup>19</sup>

According to the Institute for Environmental Research of the Amazon (“Instituto de Pesquisa Ambiental da Amazônia”, or “Ipam”) (a scientific nongovernmental organization), deforestation in the period between 2019 and 2021 exceeded an area of 10000 km<sup>2</sup> per year, which is 56.6% higher than the annual average of the

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<sup>13</sup> IPCC; Working Group 1. “Atlas”. In: *Sixth Assessment Report: Climate Change 2021: The Physical Science Basis*. 9 Aug. 2021, p. 1994.

<sup>14</sup> IPCC; Working Group 1. “Atlas”. In: *Sixth Assessment Report: Climate Change 2021: The Physical Science Basis*. 9 Aug. 2021, p. 1995.

<sup>15</sup> IPCC; Working Group 1. “Weather and Climate Extreme Events in a Changing Climate”. In: *Sixth Assessment Report: Climate Change 2021: The Physical Science Basis*. 9 Aug. 2021, p. 1549, 1579.

<sup>16</sup> IPCC; Working Group 1. “Atlas”. In: *Sixth Assessment Report: Climate Change 2021: The Physical Science Basis*. 9 Aug. 2021, p. 1995.

<sup>17</sup> IPCC; Working Group 1. “Atlas”. In: *Sixth Assessment Report: Climate Change 2021: The Physical Science Basis*. 9 Aug. 2021, p. 1995.

<sup>18</sup> IPCC; Working Group 1. “Atlas”. In: *Sixth Assessment Report: Climate Change 2021: The Physical Science Basis*. 9 Aug. 2021, p. 1997.

<sup>19</sup> David Wallace-Wells. *The uninhabitable earth: life after warming*. New York: Tim Duggan Books, 2019, p. 76-77, 256; Roel J. W. Birnen *et al.* Long-term decline of the Amazon carbon sink. *Nature*, March 2015 (on how Amazon forests have acted as a long-term net biomass sink); University of Leeds Press Office. [Two severe Amazon droughts in five years alarms scientists](#). 2 Feb. 2011 (on how the Amazon suffered its second “100-year” drought in five years); Aline C. Soterroni *et al.* [Fate of the Amazon is on the ballot in Brazil’s presidential election \(commentary\)](#). Mongabay, 17 October 2018 (estimating the impact of a radical change of policy regarding the Amazon).

previous period of 2016 to 2018.<sup>20</sup> In the period between January and May of 2022, Ipam identified 5172 hotspots in the Amazon biome (a measure of fires and wildfires in the forest). This is an increase of 23.9% compared to the same period of 2021, when 4,174 hotspots were identified.<sup>21</sup>

Deforestation in the Amazon can be catastrophic in environmental terms. There is also a public health impact to it, as every square kilometre of deforestation is estimated to produce twenty-seven more cases of malaria as a result of vector proliferation.<sup>22</sup>

One means to reduce deforestation is through the recognition and effectiveness of indigenous land rights which are a central aspect to the indigenous right to adequate housing. One insightful study on how indigenous land rights reduce deforestation was done by Baragwanath and Bayi. Using satellite data, the authors tested the effect of property rights on deforestation between 1982 and 2016 and found that territories with full property rights show a significant decrease in deforestation, while the effect does not exist in territories without full property rights. Their study also suggests that i) not only do indigenous territories serve a human rights role, but they are a cost-effective way for governments to preserve their forested areas; and that ii) the implementation of indigenous property rights could provide an important positive externality for Brazil and the rest of the world in terms of climate change mitigation.<sup>23</sup>

Indigenous communities are, on the whole, organized according to modes of living that are harmonious with the environment. For this reason, the findings of Baragwanath and Bayi vis-à-vis the Amazon can certainly be seen in other parts of the country and the world.

When it comes to the Brazilian indigenous, one important reminder must always be made: in addition to the Amerindian communities, the Quilombola communities also have similar modes of living that often include collective ownership of land and harmony with the environment.<sup>24</sup> In this sense, the effectiveness of quilombola land rights – again, a central aspect of the enjoyment of human right to housing – can also be a means to protect the environment that is both human rights-oriented and cost-effective.

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<sup>20</sup> Ipam; Ane Alencar; Rafaella Silvestrini; Jarlene Gomes; Gabriela Salvian. [Amazônia em chamas: o novo e alarmante patamar do desmatamento na Amazônia](#). Ipam – Nota Técnica n.º 9, fevereiro de 2022.

<sup>21</sup> Ipam. [Focos de calor na Amazônia têm alta de 23,9% nos cinco primeiros meses de 2022](#). 23 Jun. 2022.

<sup>22</sup> Leonardo Suveges Moreira Chaves *et al.* [Abundance of impacted forest patches less than 5 km<sup>2</sup> is a key driver of the incidence of malaria in Amazonian Brazil](#). Nature Scientific Reports, v. 8, article number 7077, May 2018 (finding that areas affected by 1 km<sup>2</sup> of deforestation produced 27 new malaria cases); David Wallace-Wells. *The uninhabitable earth: life after warming*. New York: Tim Duggan Books, 2019, p. 77, 256-257.

<sup>23</sup> Kathryn Baragwanatha; Ella Bayib. [Collective property rights reduce deforestation in the Brazilian Amazon](#). Proceedings of the National Academy of Sciences of the United States of America – PNAS, v. 117, n. 34, p. 20495–20502, 25 August 2020.

<sup>24</sup> Quilombola communities are culturally distinct communities generally formed by individuals of African and indigenous descent. They are mostly rural, though there are notable urban quilombos. Quilombolas are analogous to indigenous peoples. Their cultural distinctiveness allows for their juridical characterization as tribal peoples, according to the legal definition established by the International Labour Organization Convention No. 169. In this sense, see, *e.g.*: Comissão Interamericana de Direitos Humanos. [Nota de Envio do Caso 12.569 – Comunidades Quilombolas de Alcântara, Brasil – à Corte Interamericana de Direitos Humanos](#). 5 de janeiro de 2022, p. 5-6.

In practice, however, both indigenous and quilombola communities often face difficulties with the recognition of – and respect to – their land rights.<sup>25</sup> The federal government plays a central role in these issues. In recent times, however, federal policies have been criticized for i) the virtual suspension of land allocation and recognition on behalf of the landless (the rural poor), the indigenous or the quilombolas; ii) the expansion of agribusiness, mining and energy sectors, among other private interests, vis-à-vis indigenous lands; iii) the legalization of land grabbing (“grilagem”), especially in the Amazon.<sup>26</sup>

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Other Brazilian biomes have also suffered from fires. According to Ipam, between January and May 2022 there were 6630 hotspots in the Cerrado biome (which is the Brazilian tropical savanna), a 28.19% increase in comparison with the previous year; moreover, increases of hotspots were also observed in the Pantanal biome – the world's largest tropical wetland area and a region blessed with remarkable biodiversity.<sup>27</sup>

In 2020, Pantanal suffered its worst drought in 47 years. The same year, fires destroyed approximately 30% of the Pantanal region, according to non-governmental organizations operating in the region.<sup>28</sup> Reported consequences of the devastation included the loss of native vegetation and a striking imbalance in the region's biodiversity, as many animals died or came into dispute over other animals' territories. According to biologist Gustavo Figueroa, a member of the nongovernmental organization SOS Pantanal, communities of poor rural fishermen and indigenous and quilombola communities who had already lost income due to the Covid-19 pandemic found themselves in an even worse situation as they suffered from lack of water, burnt / dried farming areas and “[their] homes threatened by the flames”.<sup>29</sup>

Commissioned by the Offices of the Public Prosecution of Mato Grosso do Sul and Mato Grosso – two major Brazilian states that are crossed by the Pantanal biome –

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<sup>25</sup> See, e.g., Inter-American Commission on Human Rights. [Situation of Human Rights in Brazil](#). OEA/Ser.L/V/II. Doc. 9 February 12, 2021, paragraphs 39-53.

<sup>26</sup> See, e.g., Lara Prata Miranda. [Quilombolas: crise institucionalizada](#). Nexo Jornal, 4 November 2021. See, also: Educafro; Clínica UERJ Direitos. [Memorial Amicus Curiae – ADPF 742](#). 29 September 2020, paragraphs 29-30 (“[A]t the time of the electoral campaign, Jair Bolsonaro promised “not to demarcate 1 centimeter of land for an indigenous or quilombola reserve”, in addition to having compared these traditional peoples to animals, weighing them in arrobas and stating that they would be of no use.” “His [electoral campaign] promises took shape with the nomination of Sérgio Camargo for the presidency of Fundação Cultural Palmares[, which is t]he autarchy is responsible for issuing certificates of recognition of the remaining quilombo communities – a necessary step for INCRA [government agency dedicated to land] to proceed with the [formal, legal] titling of these lands. Since the new government took over, however, the number of issued certifications has dropped considerably. If in 2017 and 2018 Palmares issued 133 and 166 certificates, respectively, during the new government only 70 certificates were issued in 2019, and only 18 in 2020” – a historical low).

<sup>27</sup> Ipam. [Focos de calor na Amazônia têm alta de 23,9% nos cinco primeiros meses de 2022](#). 23 Jun. 2022.

<sup>28</sup> Erick Gimenes. [Se queimadas continuarem, Pantanal tende a virar um deserto, afirma biólogo](#). Brasil de Fato, 8 Jan. 2021; Natan Novelli Tu. [O estrago da onda de incêndios para os animais do Pantanal](#). Nexo Jornal, 11 Sept. 2020.

<sup>29</sup> Erick Gimenes. [Se queimadas continuarem, Pantanal tende a virar um deserto, afirma biólogo](#). Brasil de Fato, 8 Jan. 2021.

a report analysed data such as satellite images taken during 2020 in order to better understand the damages caused by the fires and how did they originate.<sup>30</sup> The study concluded that the fires damaged an area of 4.5 million acres in the cited states. According to the study, the available evidence strongly suggests that most of the fires were initiated by agribusinesses on purpose.<sup>31</sup>

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As mentioned *supra*, deforestation can also produce public health impacts, as illustrated by the estimation of new cases of malaria due to the proliferation of bugs provoked by deforestation in the Amazon. The latter is an illustration of a larger phenomenon: the connection between the prevention of infectious diseases and the protection of the environment, especially among underdeveloped areas and communities.

The prevention of infectious diseases goes hand in hand with the protection of the environment and the improvement of socioeconomic factors. In this sense, a recent study warned of the increased chances of zoonotic diseases to emerge in underdeveloped countries such as Brazil due to how ecological, socioeconomic, and demographic processes can trigger more contact between vulnerable human population and wildlife in areas undergoing environmental degradation and the rapid spread of infections across socially vulnerable regions.<sup>32</sup>

*“Brazil currently combines socioecological vulnerabilities and an ongoing economic and political crisis that make the country a potential incubator of the next pandemic. This current crisis is characterized by the disregard for scientific evidence and attacks on conservation organizations, the flexibilization of environmental laws, and the replacement of institutional mechanisms promoting biodiversity conservation by destructive environmental policies. A set of bills recently sent to the Brazilian Congress illustrate the destructive environmental policies that have been proposed: mining in Indigenous lands and protected areas, reduction of environmental licensing requirements, public forest concessions to private initiatives, legalization of illegal land claims, incentives to oil and gas extraction, changes in the implementation of Indigenous people’s constitutional rights, and weaker gun control laws, among others. In an ideological inversion, Brazilian environmental policies recently moved from a historical leadership position to a global environmental threat, as suggested by the upward trend in Amazon deforestation rates, 182% above the target in 2020. At the end of the same year, almost one-third of Pantanal, the world’s largest tropical wetland, burned down*

<sup>30</sup> Ministério Público do Mato Grosso do Sul; Ministério Público do Mato Grosso. [Estudos sobre os pontos de ignição dos incêndios no Pantanal 2020](#). MPMS / MPMT, 2021.

<sup>31</sup> Ministério Público do Mato Grosso do Sul; Ministério Público do Mato Grosso. [Estudos sobre os pontos de ignição dos incêndios no Pantanal 2020](#). MPMS / MPMT, 2021, p. 2-3, 16-31 (describing, inter alia, that most of the fire ignition spots “occurred far from roads, river banks and electricity grid, and primarily in [private] rural areas and native vegetation of rural properties,” and that this shows that the ignition points “are correlated with the agropastoral activities developed in the Pantanal”). The study found that a smaller part of the fire ignition spots came from indigenous lands, particularly the Kadiwéu Indigenous Land. The fires that derived from these spots, however, were almost entirely contained in the indigenous land. Cf. Ministério Público do Mato Grosso do Sul; Ministério Público do Mato Grosso. [Estudos sobre os pontos de ignição dos incêndios no Pantanal 2020](#). MPMS / MPMT, 2021, p. 2. The Kadiwéu land is reportedly under pressure and menace from agribusinesses, loggers and miners. Cf. Instituto Socioambiental. [Terra indígena Kadiwéu. Base de Dados Terras Indígenas do Brasil](#), 30 Jun. 2022.

<sup>32</sup> Gisele R. Winck; Rafael G. Raimundo; Hugo Fernandes-Ferreira *et al.* [Socioecological vulnerability and the risk of zoonotic disease emergence in Brazil](#). *Science Advances*, v. 8, n. 26, 29 Jun. 2022.

*because of an annual increase of 508% in fire occurrence compared to the 2012–2019 average. Meanwhile, the coronavirus disease 2019 (COVID-19) pandemic disproportionately affected Brazilian regions showing higher social deprivation. Increasing extreme poverty in COVID-19 times and the recent environmental setbacks may form a perfect storm in which ecological and socioeconomic vulnerabilities converge to drastically increase the risks of emerging infectious disease outbreaks. Several authors have already drawn attention to the risk of a deadly pathogen emerging from the Amazon rainforest. Changes in land-use patterns, which increase social vulnerability and disrupt ecosystem functioning, also affect pathogen transmission cycles, broadening the risk of contact between humans and previously isolated wildlife that represent pathogen reservoirs and vectors (8–10). The Brazilian terrestrial territory has a subcontinental scale and encompasses several biomes—Amazon and Atlantic rainforests, Pantanal (wetlands), Cerrado (savannah), Caatinga (tropical dry forest), and Pampa (grasslands)—that hold an extremely rich biota. The megadiversity of all Brazilian biomes extends to parasites and pathogens, which represents an enormous pool of potential emerging zoonotic diseases (ZDs). The need to predict the ZD emergence challenges us to understand how anthropogenic pressures on ecosystems and associated social vulnerability promote risks arising from contact between humans, domestic animals/livestock, and zoonotic pathogens that circulate in high-tolerating wild terrestrial mammals of human presence and that may become epidemic agents. These efforts are crucial as the ongoing large-scale habitat loss and fragmentation amplifies socioecological vulnerabilities and, hence, epidemic risks across the country.”*

– Gisele R. Winck; Rafael G. Raimundo; Hugo Fernandes-Ferreira *et al.* [Socioecological vulnerability and the risk of zoonotic disease emergence in Brazil](#). *Science Advances*, v. 8, n. 26, 29 Jun. 2022.

## **2. Are there differences on how the climate crisis affects the right to adequate housing in urban and rural areas? If yes, is there an interrelationship between the two?**

Extreme weather events such as intense rains and storms, floods, landslides, droughts, fires and wildfires are expected to occur more often due to the climate crisis. These events have specific impacts on cities, as they concentrate more people and are particularly dependent upon infrastructure that is sensible to climate events, such as energy, transportation, sanitation etc.<sup>33</sup> – which is not to say that such events do not harm rural areas as well: the illustrations of storms, floods, landslides, droughts, fires and wildfires in answer to question 1 supra show how the damages to houses and overall living conditions harmed the urban and rural poor and rural indigenous and quilombola communities and led to displacements and homelessness.

Traditional communities such as the indigenous and quilombolas tend to live harmoniously the environment. The effectiveness of their rights to land and housing are thus instrumental to avoiding the climate crisis. The attacks on their rights by agribusinessmen, lodgers, commercial hunters, miners, and the like lead to the opposite result and can produce catastrophic consequences.

There is, therefore, a relationship between the protection of rural housing and the prevention of displacements and homelessness in urban settlements. By protecting the rights of traditional communities in rural areas to land and housing, Brazil prevents further environmental destruction, thus potentially preventing increases

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<sup>33</sup> Mariana Vick. [Como as cidades tentam se adaptar à mudança climática](#). *Nexo Jornal*, 21 Mar. 2022.



of displacements and homelessness in urban areas as a result of extreme weather events.

**3. Are there groups distinctly affected in the enjoyment of their right to adequate housing as a result of the climate crisis? Please describe in what way.**

As shown by the cases of storms, floods, landslides, droughts, fires, and wildfires mentioned in answer to question 1 *supra*, extreme weather events are much more likely to harm the poor and indigenous and quilombola communities (who are often poor or extremely poor themselves). This harm can manifest itself in different ways, such as the partial or complete destruction of homes, damages to livelihoods and disproportionate economic impacts, such as price spikes of basic goods (basic food, electricity etc.). Given the characteristics of social inequality and poverty in Brazil, negative effects on the poor mean a disproportionate impact particularly vulnerable groups such as children and the elderly, as well as black people (Afro-Brazilians) and women.<sup>34</sup>

**4. How is the right to adequate housing ensured for persons that have been internally or internationally displaced by the climate crisis? How and under what conditions is their right to voluntarily return ensured?**

People affected by climate-induced events that lead to displacements and homelessness generally face many difficulties when it comes to returning to their places of origin.

In the case of the indigenous, quilombola and rural communities, their return can be hindered by the lack of formal titles of land property and by the threat and use of force by invaders or intruders.

In the case of the urban poor, social inequality, poverty and a chronic housing deficit<sup>35</sup> often lead to informal settlements at geographically vulnerable sites (slopes, valley bottoms etc.). Therefore, return is hindered by both social inequality and poverty, the lack of formal titles of land property and the physical difficulties of settling again in risky places.

**5. When housing has been damaged or lost due to climate-induced events, what has been the related impact on the lives, health and livelihoods of the affected populations?**

The damages and destruction of houses due to climate-induced events are often accompanied by: i) damages in basic infrastructure – power stations, roads, bridges, dams – and the interruption of basic services; ii) deaths and injuries (to

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<sup>34</sup> Instituto Brasileiro de Geografia e Estatística – IBGE. [Desigualdades sociais por cor ou raça no Brasil](#). *Estudos e Pesquisas – Informação Demográfica e Socioeconômica*, n. 41, Nov. 2019 (on how social inequality and poverty disproportionately affect black people in Brazil); Instituto Brasileiro de Geografia e Estatística – IBGE. [Síntese de Indicadores Sociais](#). *Agência IBGE Notícias*, 12 Nov. 2020 (on how poverty disproportionately affect black people, women, and black women).

<sup>35</sup> Brazil suffers from a chronic housing deficit. According to governmental research conducted by João Pinheiro Foundation, in 2019 the housing deficit in Brazil totalized 5.876 million houses. Fundação João Pinheiro. [Déficit Habitacional no Brasil: 2016-2019](#). Belo Horizonte: FJP, 2021, p. 113.

which children and the elderly are particularly vulnerable<sup>36</sup>); iii) the loss of furniture, appliances, clothing, memorabilia and other personal goods of inestimable sentimental value; iv) the relegation of living standards; v) homelessness and displacements; vi) the cut of social ties; vii) unemployment; viii) among others.



\* Houses destroyed by landslides in Petrópolis (2022). Source: Tânia Rêgo/Agência Brasil.

## **6. How have people been able to access redress and compensation for damages to or loss of their housing as a result of the climate crisis and extreme weather events? What are the main obstacles to accessing timely redress and compensation, and what could be effective solutions?**

According to Article 37, paragraph 6, of the Brazilian Constitution, “[p]ublic legal entities and private legal entities rendering public services shall be liable for damages that any of their agents, acting as such, cause to third parties, ensuring the right of recourse against the liable agent in cases of malice or fault.” This provision is the basis for claims of what is known as the “objective civil

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<sup>36</sup> Cf. Instituto Brasileiro de Geografia e Estatística – IBGE; Centro Nacional de Monitoramento e Alertas de Desastres Naturais – Cemaden. [População em áreas de risco no Brasil](#). Rio de Janeiro: IBGE, 2018, p. 52 (“Among the different age groups, children and the elderly are considered the most vulnerable to disasters, as they need special care, due to their greater dependence for locomotion and less ability to resist possible injuries. In addition, these age groups tend to stay longer in their homes and thus may be more exposed to disaster risk.”) (“Entre as diferentes faixas etárias, crianças e idosos são consideradas como aquelas mais vulneráveis a desastres, por necessitarem de cuidados especiais, em razão da maior dependência para locomoção autônoma e menor capacidade de resistir a possíveis ferimentos. Além disso, esses grupos etários tendem a permanecer mais tempo em seus domicílios e, assim, podem estar mais expostos ao risco de desastres.”). See, also: João Gabriel Silva. [A vida de crianças em Igarassu, campeã proporcional em áreas de risco](#). Nexo Jornal, 22 February 2022.

responsibility” of the State. In Brazilian Law, for such responsibility to be characterized, it is understood that there must be three elements: administrative conduct (action or omission); damage; and a causal link between the conduct and the damage.<sup>37</sup> In cases of damages or loss of housing as a result of the climate crisis and extreme weather events, it is possible to file a lawsuit against the State, *v.g.*, due to the failing of adequate and effective housing policies, the lack of risk mitigation and proper preparation etc.

When the search for redress and compensation depends on arguing State responsibility before the judicial system, the problem often is not one of legal basis, but the general length of lawsuits in Brazil, as well as the limited effectiveness of pecuniary condemnations against the State, despite the formation of a *res judicata* in favour of the victims. Regarding the latter, it is not uncommon for the State to postpone its compliance with the payment order derived from such condemnations for numerous years.

Fortunately, there are examples<sup>38</sup> of different measures of direct or indirect compensation (social rent, cash transfer, tax exemption etc.) granted by the government (be it federal, state, or local<sup>39</sup>) regardless of the judicial path. Whether these examples amount to adequate compensation or not is a merited question that should be carefully reviewed; when compared to the judicial path, these examples are, at least, more expedient.

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<sup>37</sup> See, *e.g.*, Supremo Tribunal Federal. [RE 841.526](#), rel. min. Luiz Fux, j. 30-3-2016, P, *DJE* de 1º-8-2016, Tema 592; [RE 481.110 AgR](#), rel. min. Celso de Mello, j. 6-2-2007, 2ª T, *DJ* de 9-3-2007.

<sup>38</sup> Maria Eduarda Andrade. [Petrópolis: Prefeitura promete aluguel social para famílias](#). Portal FDR, 28 Feb. 2022; Isadora Rupp. [Como se dividem as responsabilidades no desastre de Petrópolis](#). Nexo Jornal, 22 Feb. 2022; [Acontece em Petrópolis. Prédio alugado no bairro Floresta contra com 40 apartamentos para atender as vítimas da chuva](#). 3 Feb. 2022; Jaqueline Deister. [Trabalhadores rurais do Rio atingidos pelas chuvas de janeiro perdem 70% da renda](#). Brasil de Fato, 7 February 2022; Prefeitura de Belo Horizonte. [Donos de imóveis afetados pelas chuvas podem pedir perdão de débitos do IPTU](#). 3 Feb. 2020; Jonathan Hassen. [Pessoas afetadas por desastres causados pela chuva podem pedir perdão do IPTU em BH](#). Brasil de Fato, 19 Jan. 2022.

<sup>39</sup> “The main text dealing with assistance to victims of natural disasters is the National Civil Defense and Protection Policy [Política Nacional de Proteção e Defesa Civil], created by the federal government in 2012 [...]. Under the law, responsibility for victim assistance must be divided between different levels of government: municipal, state and federal. When an area is affected by a natural disaster, it receives priority from the civil defense of these governments. Protection for victims of natural disasters is also provided for in other laws, such as the Federal Constitution (which deals with the subject in its article 6) and the Organic Law of Social Assistance [...]. In addition, governments often propose actions for the recovery of infrastructure in places affected by disasters [...]. In cases of public calamity recognized by the federal government, decree n. 7,223 defines the advance payment of the BPC (Benefício de Prestação Continuada) for the local population. The payment lasts while the state of calamity lasts and then must be reimbursed in installments. [...] Through Civil Defense, the federal government also transfers resources to states and municipalities affected by disasters, with the objective of paying for relief and assistance actions for victims and restoring essential services, such as the supply of drinking water. [...] [The] federal government also transfers resources to states and municipalities for the temporary payment of social rent for low-income people whose housing was affected by a disaster or is in an area of risk. These people can also become a priority for housing programs, such as the former Minha Casa, Minha Vida (replaced by the Casa Verde e Amarela program). [...] [The] federal government can also pay, at the request of states and municipalities, food baskets composed of items such as rice, beans, manioc flour, oil, sugar, pasta and powdered milk. Drinking water is also distributed. [...] With funding from the federal government, cities affected by natural disasters can carry out infrastructure reconstruction works such as public roads, roads and bridges. Resources also serve to remove debris caused by these events.” Mariana Vick. [Qual a política de assistência a vítimas de desastres no Brasil](#). Nexo Jornal, 28 Dec. 2021.



\* Rescuers during an operation in Petrópolis (2022). Source: Tânia Rêgo/Agência Brasil.

**7. Please indicate any key rulings of national courts and tribunals protecting tenants and home owners from the impact of the climate crisis or on their right to adequate housing or related to climate induced displacement. Please also describe their outcome and impact.**

Article 6 of the Brazilian Constitution establishes housing as a fundamental right. In Brazilian law, the Federal Supreme Court (“Supremo Tribunal Federal”, or “STF”) operates as the country’s constitutional court, as well as one of the highest courts of appeal. In case [ARE 908.144-AgR](#) (decision in August 2018), STF’s Second Chamber (“Segunda Turma”) examined whether the administration had any obligation vis-à-vis the right to housing of the people affected by the demolition of family buildings erected on irregular land.

One objection was that, due to the separation of powers, it is not for the Judiciary to determine the adoption of housing policies by the Executive Power. The Court rejected this argument and ruled that the Judiciary may occasionally determine the implementation of public policies in defence of fundamental rights such as the right to housing. According to STF, the administration has some level of discretion to choose the means of implementation, but it cannot resort to administrative discretion as a justification for not adopting housing policies.<sup>40</sup>

A ruling such as this has, however, limited impact. As mentioned before (answer to question 6), the judicial process can take many years to reach a final decision and implement it. Additionally, in the case of weather-related events, the State can always dispute the causal link between the damages and the State action or omission. If the second-level court rules against the victims, resort to the highest

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<sup>40</sup> Supremo Tribunal Federal. [ARE 908.144-AgR](#), rel. min. Edson Fachin, j. 17-8-2018, 2ª T, DJE de 27-8-2018.

courts can be impeded by an admissibility criterion according to which it is not for these courts to re-examine factual aspects.<sup>41</sup>

*In measures*

**8. Please explain how energy efficiency, green urban planning, climate mitigation and adaptation policies and programmes take into account the right to adequate housing. What measures have been taken to ensure that they do not have any (unintended) discriminatory impact on particular population groups?**

The international norms and standards regarding non-discrimination and the right to adequate housing are yet to be consciously and widely adopted by those responsible for energy efficiency, green urban planning, climate mitigation and adaptation policies and programmes. The language of international human rights is still to be incorporated in the routines of policy.

**9. Please explain how natural disaster preparedness, response and recovery/reconstruction strategies and plans ensure non-discrimination?**

Even though the language of human rights and the international standards of non-discrimination are still to be incorporated in the routines of policy, there are signs of concerns with non-discrimination in natural disaster preparedness, response and recovery/reconstruction strategies and plans.

The Cemaden, for instance, has voiced concern over how children and the elderly are particularly vulnerable and need special care do to their greater dependence for locomotion and less ability to resist possible injuries.<sup>42</sup>

Cemaden's document on natural disasters and groups at risk also assesses urban and rural housings according to a cluster that includes, among its categories, the *ocas* or *malocas* – indigenous dwellings that are usually made with tree branches, leaves, tree trunks and similar materials.<sup>43</sup>

**10. What are the main barriers to addressing and mitigating the adverse impacts of climate change on the realization of the right to adequate housing?**

Despite being one of the largest economies in the world, Brazil's income per capita is still limited. It is yet far from becoming a developed country.<sup>44</sup> As a result, the available budget per capita has its constraints. This should not be understood as a

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<sup>41</sup> See, for instance, Supremo Tribunal Federal. [ARE 1245814 AgR/SP](#), rel. min. Dias Toffoli, Tribunal Pleno, j. 03-3-2020, *DJE* de 13-4-2020 (ruling an appeal to STF as inadmissible in a case of alleged damages derived caused by heavy rains and alleged State omission).

<sup>42</sup> Cf. Centro Nacional de Monitoramento e Alertas de Desastres Naturais – Cemaden. [População em áreas de risco no Brasil](#). Rio de Janeiro: IBGE, 2018, p. 52.

<sup>43</sup> Cf. Centro Nacional de Monitoramento e Alertas de Desastres Naturais – Cemaden. [População em áreas de risco no Brasil](#). Rio de Janeiro: IBGE, 2018, p. 21.

<sup>44</sup> Brazil ranks 10<sup>th</sup> in the list of countries by GDP (nominal), and 104<sup>th</sup> in the list of countries by GDP (nominal) per capita. Cf. Wikipedia contributors. [List of countries by GDP \(nominal\)](#). *Wikipedia, The Free Encyclopedia*. 28 Jul.2022; Wikipedia contributors. [List of countries by GDP \(nominal\) per capita](#). *Wikipedia, The Free Encyclopedia*. 15 Jul. 2022 (using data from the IMF, the UN and the World Bank).

justification for inaction, but as a reason for strong international cooperation on the part of rich, developed nations.

Though limited, the current Brazilian budget per capita could still be sufficient for major improvements in the effectiveness of the right to housing. Yet, this has not been the case due to political decisions. Brazil is a capitalist economy. Housing is part of the market. Access to housing is then facilitated or impeded by the wealth and income of persons and families.<sup>45</sup> Public policy could correct for the social exclusions generated by market dynamics, so that no one is obligated to live in the streets or in informal, undignified and risky settlements. In practice, however, public spending tends to be regressive<sup>46</sup> and dozens of millions are condemned to homelessness or inadequate dwellings. This social exclusion translates into increased risks of deaths, injuries, displacement etc. during more serious weather events (see, *v.g.*, answer to question 5 *supra*). The promotion of social inclusion through progressive revenue and spending is or can be, therefore, an integral part of the country's measures to address and mitigate the impacts of climate change. Another important barrier to the mitigation of adverse impacts of climate change on housing, and living standards as a whole, lies on the lack of scientific literacy and the antiscientific rhetoric among the country's leadership and throughout social media and society as a whole.<sup>47</sup> These factors favour climate change denial and lack of public support vis-à-vis costly mitigation policies. If the Covid-19 crisis

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<sup>45</sup> The country's regressive tax system negatively impacts the ability of people to access social rights through the market. This has been documented by the United Nations in the past vis-à-vis the right to adequate food (cf. United Nations. [Report of the Special Rapporteur on the right to food, Olivier De Schutter. Addendum: Mission to Brazil](#). UN Doc. A/HRC/13/33/Add.6, 19 February 2009). The same applies to housing.

<sup>46</sup> Cf., *v.g.*, Marcelo Medeiros; Pedro Souza. [Gasto público, tributos e desigualdade de renda no Brasil](#). IPEA – Textos para Discussão, n. 1844, Jun. 2013 (on how important aspects of public spending result in more social inequality); Bruno Carazza. *Dinheiro, eleições e poder: as engrenagens do sistema político brasileiro*. São Paulo: Companhia das Letras, 2018 (on how the super-rich finance political campaigns and are benefited by political decisions and allocations).

<sup>47</sup> The country has major challenges in terms of education and science education ahead. There are no known national statistics on science literacy. An approximation could be made using indexes related to the quality of instruction, such as the one from the Programme for International Student Assessment (PISA) – a study by the Organisation for Economic Co-operation and Development (OECD) in member and non-member nations intended to evaluate educational systems by measuring 15-year-old students' performance on mathematics, science, and reading. According to PISA 2018, Brazil ranks 71/78 in mathematics, 65/79 in science, and 58/78 in reading. Cf. Wikipedia contributors. [Programme for International Student Assessment](#). *Wikipedia, The Free Encyclopedia*. 28 Jul.2022. Another approximation could be made through general literacy and the number of public libraries per inhabitants. According to a 2007 Survey by UNESCO, Brazil presented a much lower number of public libraries per 100,000 inhabitants or adult literate in comparison with other Latin-American countries. Cf. Claude Akpabie. [The 2007 International Library Survey in Latin America and the Caribbean](#). In: Michael Heaney (ed.). *Library Statistics for the Twenty-First Century: Proceedings of the Conference Held in Montréal on 18-19 August 2008* Reporting on the Global Statistics Project. Munich: K. G. Saur, 2009, p. 35.

One sad manifestation of antiscientific rhetoric and conduct in the country is the decrease of vaccination among children. According to a recent warning by Unicef, "in just three years, vaccination coverage against measles, mumps and rubella (D1 Viral Triple) in Brazil dropped from 93.1% in 2019 to 71.49% in 2021. In addition to the MMR, vaccination coverage against poliomyelitis fell from 84.2% in 2019 to 67.7% in 2021. This means that three out of ten children in the country did not receive the vaccines necessary to protect them from potentially fatal diseases." Cf. Unicef. [3 em cada 10 crianças no Brasil não receberam vacinas que salvam vidas, alerta UNICEF](#). Unicef Brasil / Comunicado de Imprensa, 27 abr. 2022.

serves as an example<sup>48</sup>, the country is in danger of suffering serious preventable harm amidst the climate crisis.

Even when there is a certain degree of public consciousness about the need to mitigate climate change instead of climate denialism, evidence suggests the presence of a disbelief in relation to the ability of institutions to address the problem, as well as a lack of knowledge about how the people themselves can act to put pressure on public or private institutions on the topic.<sup>49</sup>

Prevention and mitigation measures to protect housing from climate change also meet the barrier of short-term, strategic, immoral electoral reasoning. There is a reported tendency or incentive for politicians to choose to handle emergencies

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<sup>48</sup> See, *v.g.*, Inter-American Commission on Human Rights. [IACHR and Its Special Rapporteurship on Economic, Social, Cultural and Environmental Rights Concerned about the Serious Public Health Situation Regarding COVID-19 in Brazil](#). IACHR Press Release No. 061/2021, 16 March 2021 (“[T]here has been an alarming increase in incidence and mortality rates involving COVID-19 in Brazil [...]. According to reports issued by Brazilian authorities and by civil society, this increase in the number of infections and deaths is due to several factors, including the following: [...] the lack of public policies aimed at mitigating the ongoing pandemic, and the lack of well-coordinated federal strategies to address the challenges posed by COVID-19; healthcare system saturation in most of the country’s states; and misinformation campaigns concerning measures to prevent infection. [...] The Commission and its Special Rapporteurship further call for the adoption of urgent, decisive measures to prevent the spread of the virus and contain the pandemic, based on the best available scientific evidence and in keeping with the recommendations of specialist international institutions. They also call for campaigns to guide people to scientifically proven risk-mitigation measures, efforts to improve transparency, and full access to public information and to measures to contain the pandemic. In the current circumstances, State authorities have an absolute duty to broadly inform the population, taking into consideration its diversity, and to address the issue, act with due diligence, and reasonably consider the available scientific evidence.”).

<sup>49</sup> “Mudanças Climáticas e Desenvolvimento Econômico: Percepções da População da Região Metropolitana do Rio de Janeiro”, a recent study by researchers linked to the Science and Culture Forum (“Fórum de Ciência e Cultura”) of the Federal University of Rio de Janeiro sought to investigate how the middle-class and the poor perceive the effects of global warming on a daily basis. Meetings with groups of eight to ten people, aged between 18 and 50, were held with residents of the metropolitan region of Rio de Janeiro. Respondents identified themselves as “politically neutral”, and could have a formal or informal occupation, be students, housewives, unemployed or discouraged. Ethnicity varied, as well as religion and place of residence (slum dwellers or not). Instead of having denialist views, the surveyed public showed an instinctive perception that we are experiencing a serious environmental crisis with consequences that could be devastating. However, few were able to address the full complexity of the topic (*e.g.* the relation between polluting gases and the greenhouse effect with climate change). Moreover, the study showed that, despite the perception of the seriousness of the climate crisis, most of the surveyed showed a lack of knowledge about how to pressure public and private institutions for more action. Common perceptions also included a focus on how the population deals with waste as a leading cause of environmental problems (*v.g.* the lack of care with urban cleaning and with taking care of the waste were seen as the main reasons for the occurrence of landslides and flooding). Moreover, the treatment of waste was commonly seen as a problem of individual behaviour rather than a collective problem to be addressed by institutions. According to research coordinator Tatiana Roque, the surveyed demonstrated “little hope that the government will solve the problem, and the solutions listed are most of the time individual”. And professor Fábio Scarano mentioned how the surveyed “feel powerless about transforming governments, private sector practices and even those who live in the same community”. The absence of a housing policy was another point highlighted in the survey, as well as problems related to basic sanitation. Respondents demonstrated a clear notion of the effects of socioeconomic inequality when rains cause catastrophes. For them, although the storm affects everyone, it is quite different how each family protects itself or preserves the goods acquired with effort. Cf. Sidney Rodrigues Coutinho. [Descrença e inércia frente às mudanças climáticas](#). *Conexão UFRJ*, 9 Jun. 2022.

rather than preventing them, as the former is sometimes seen as more electorally-profitable than the less visible planned, science-based governance.<sup>50</sup>

### ***Impact of housing on climate change***

**11. How does the housing sector in rural and urban areas contribute to climate change? It may be helpful to think in terms of:**

- **energy consumption for heating, cooling, cooking, lighting of housing;**
- **urban sprawl and related climate impacts (soil sealing, commuter traffic etc.);**
- **increase of average per capita living space;**
- **water use;**
- **emission of pollutants;**
- **climate impact of construction and used construction materials;**
- **deforestation, desertification, and loss of biodiversity caused by housing development projects.**

**Please provide as well any statistical information on the climate impact of the housing sector compared to other sectors in your country.**

Brazil is one of the most unequal countries in the world both in terms of income and wealth.<sup>51</sup> There is a corresponding carbon inequality: while the average per capita greenhouse gas footprint is equal to 4.6 tCO<sub>2</sub>e, the bottom 50%, middle 40% and top 10% are on average responsible for respectively around 2, 4.5 and 18 tCO<sub>2</sub>e/capita.<sup>52</sup>

The country thus has the major challenge of reducing both social and carbon inequality so that the socially excluded can achieve a dignified standard of living with proper, sustainable access to electricity, cleaner energy for cooking and living all together etc. In recent years, price spikes imposed a return to wood burning stoves for millions of families, as well as the use of firewood and alcohol for various living purposes. The burning of wood inside the dwellings is associated with many negative health impacts (*v.g.* cancer, cardiac problems, respiratory illnesses, as well as deaths and injuries caused by burns).<sup>53</sup>

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<sup>50</sup> See, *v.g.*, Roberta Jansenn. [Petrópolis: Governos falham em aplicar verba para evitar tragédia](#). UOL Notícias, 18 Feb.2022; Luiz Cesar de Queiroz Ribeiro. [Desastres Urbanos: razões e soluções](#). Brasil de Fato. 4 Mar. 2022. A tendency or incentive for illegal and immoral behaviour need not be an inescapable reality and there are examples of prevention measures being taken by elected representatives. In Belo Horizonte, the city government recently invested approximately 98 million reais from federal and municipal financial resources in constructions aimed at preventing floods at the Vilarinho Avenue and its surroundings (cf. Guilherme Pimenta. [Primeira etapa da obra que promete redução de enchentes na avenida Vilarinho é concluída, diz prefeitura de BH](#). G1 Minas Gerais, 11 abr. 2022). One hopes that this process will continue and be successful in its goal.

<sup>51</sup> In Brazil, the top 10% captures 59% of total national income while the bottom half of the population takes approximately 10%. In 2021, the bottom 50% in the country owned less than 1% of total national wealth, whereas the top 1% of the population owned about half of total wealth. Cf. Lucas Chancel; Thomas Piketty; Emmanuel Saez; Gabriel Zucman. [World Inequality Report 2022](#). Paris: World Inequality Lab, 2021, p. 185-186.

<sup>52</sup> Lucas Chancel; Thomas Piketty; Emmanuel Saez; Gabriel Zucman. [World Inequality Report 2022](#). Paris: World Inequality Lab, 2021, p. 186.

<sup>53</sup> Agência O Globo. [População pobre convive com o perigo de fogões a lenha improvisados](#). Exame, 19 Sept. 2021.



*To cook everyday food, Jane uses an improvised wood stove in the outdoor area, which she shares with neighbours who, like her, have no money for the cylinder. Sold at R\$105 in the neighbourhood, gas became a luxury item. In homes, it is only used on rainy days or in quick preparations, such as coffee. By Jane's calculations, to buy a cylinder, she needs to sell 50 kilos of PET plastic bottles, which takes at least 10 days to gather. Before, with the cheapest item, she spent half the time gathering the recyclable material that would guarantee her purchase of the item. Firewood is free. They are wood from fairground crates which are abandoned on the street. "When we have money, we buy bread, butter. The oil we get is used, and the fruits and vegetables we pick from the floor of Ceasa, which is close to here," says Jane. Mother of six, Grazielle Oliveira Porto, 34, is in a slightly better situation, but she also uses firewood for cooking. Her husband, who lost his job as a delivery boy in April last year, now works dragging empty crates at Ceasa, for an average daily rate of R\$60. The eldest son, 15, does the same and boosts the family's income. Even so, the gas only lasts for 22 days. In the house, where Grazielle's grandmother also lives, there are nine mouths to feed. Every end of the month, the solution is to stack two bricks and put an old grate on top of them so as to turn it all into a stove. Rayane Oliveira, 24, also cooks with gas intermittently. With four children, she complains that, without school lunch, the bills tightened: "My husband works odd jobs, and I do nails in the community. I earn R\$10 here, R\$20 there. We get together, pay the rent, buy food and sometimes gas. When there's no money left, I cook with firewood."*

*In Brazil, the percentage of households using firewood for cooking already exceeds that of those using gas. Data from the "Empresa de Pesquisa Energética" (EPE) show that the use of this energy source started to increase in 2014, but only surpassed LPG in 2018. In 2020, 26.1% of Brazilians used firewood against 24.4% who still had access to the gas cylinder. And the difference is likely to increase. [During the first months of 2021], the average price for gas cylinder consumers has risen by almost 30%, according to the National Petroleum Agency (ANP); this is equivalent to five times the inflation of the period. [...]*

*Adriana Goda, a professor in the Chemistry department at PUC Rio, who has been dedicated to the subject since 2016, explains that the use of firewood can cause various diseases, such as cancer, heart problems, asthma and bronchitis. It is estimated that deaths attributed to the burning of firewood or charcoal in the home represent an annual cost to the country of more than R\$ 3 billion. "People who are poor don't have a proper wood stove. They put together two or three stones, a grate on top. They are exposed to the smoke, and even burn themselves to death", she explains. Earlier this month, delivery man Israel Rosa, 46, from Anápolis, Goiás, suffered third-degree burns while cooking with alcohol. He spent 15 days in the ICU. "He cannot work and, as he was self-employed, he does not receive anything. We need help with the treatment," says his sister Loidionice Rosa Correa, 54 years old and unemployed.<sup>54</sup>*

<sup>54</sup> Agência O Globo. [População pobre convive com o perigo de fogões a lenha improvisados](#). Exame, 19 Sept. 2021 ("[Para preparar] a comida do dia a dia[, Jane] utiliza um fogão a lenha improvisado na área externa, que divide com vizinhos que, assim como ela, não têm dinheiro para o botijão. Vendido a R\$ 105 no bairro, o gás virou artigo de luxo. Nas casas, só é usado em dias de chuva ou em preparos rápidos, como um café. Pelos cálculos da Jane, para comprar um botijão, ela precisa vender 50 quilos de garrafas PET, o que leva pelo menos 10 dias para juntar. Antes, com o item mais barato, gastava a metade do tempo para reunir o material reciclável que lhe garantiria a compra do item. Já a lenha é de graça. São madeiras de caixotes de feira, abandonados na rua. — Quando tem dinheiro, compramos pão, manteiga. O óleo pegamos usado, e as frutas e legumes catamos do chão do Ceasa, que fica próximo daqui — conta Jane. Mãe de seis filhos, Grazielle Oliveira Porto, de 34 anos, tem uma situação um pouco melhor, mas também já usa lenha para cozinhar. O marido, que perdeu o emprego de entregador em abril do ano passado, hoje trabalha arrastando caixotes vazios no Ceasa, por uma diária média de R\$ 60. O filho mais velho, de 15 anos, faz o mesmo e reforça a renda da família. Mesmo assim, o gás só dura 22 dias. Na casa, onde também mora a avó de Grazielle, são nove bocas para alimentar. Todo fim de mês, a solução é empilhar dois tijolos que ganham uma grade velha por cima para virar um fogão. Rayane Oliveira, de 24 anos, também cozinha com gás de forma intermitente. Com quatro filhos, reclama que, sem a merenda escolar, as contas apertaram: — Meu marido trabalha de bico, e eu faço unha na comunidade. Aí, ganho R\$ 10 aqui, R\$ 20 ali. A gente junta, paga o aluguel, compra comida e, às vezes, gás. Quando não sobra dinheiro, cozinho com lenha. No Brasil, o percentual de residências usando lenha para cozinhar já supera o das que usam gás. Dados da Empresa de Pesquisa Energética (EPE) mostram que o uso dessa matriz de energia começou a aumentar em 2014, mas só ultrapassou o GLP em 2018. Em 2020, 26,1% dos brasileiros usavam lenha contra 24,4% que ainda

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In addition to concentrating most of the population (with 85.7% of Brazilians living in cities in 2015), medium and large cities are particularly vulnerable to climate change due to their urbanization processes. Many Brazilian cities grew in an accelerated and disorderly way, with settlements over risky areas, valley bottoms and rivers and drastic changes in the natural environment. Urban expansion resulted in neighbourhoods with high density and few green areas. Buildings often do not meet technical requirements. As a consequence, cities and the urban infrastructure are more vulnerable to events such as floods, landslides and erosion. Cities also particularly suffer from climate problems such as urban heat islands and air pollution. At the same time, cities are also responsible for considerable portions of greenhouse gases, especially as a consequence of industry, civil construction and transportation, among other sectors.<sup>55</sup>

A recent study by the “Observatório do Clima” (“OC”), a civil society coalition dedicated to monitoring the weather in the country, attempted to calculate the emissions of all 5,570 Brazilian cities and towns. The research covered a period from 2000 to 2018. The study identified the ten most polluting cities and towns in Brazil and listed the main causes of the emissions. In the case of São Paulo, for instance, a significant portion of the emissions came from the burning of fossil fuels carried out by vehicles (the city has the largest automobile fleet in the country, with approximately 6 million vehicles). In the case of Rio de Janeiro, one of the main sources of emissions comes from the city’s poor waste management and its difficulty in dissipating pollution as it is surrounded by hills. In the case of Serra, the pollution mainly comes from the industrial activity of the region.<sup>56</sup>

The majority of the ten most polluting cities and towns in Brazil, however, are located in the Amazon region and have most of their emissions associated with agribusiness and deforestation and fires (many of them intentionally caused as a means to convert forests into pasture). The most polluting municipality in the country, São Félix do Xingu, had a population of just over 130,000 inhabitants and released 29.7 million gross tons of CO<sub>2</sub> into the atmosphere in 2018. According to

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tinham acesso ao botijão. E a diferença pode aumentar. Desde o início do ano, o preço médio para os consumidores do botijão de gás subiu quase 30%, segundo a Agência Nacional do Petróleo (ANP), o equivalente a cinco vezes a inflação do período. [...] A professora do departamento de Química da PUC Rio, Adriana Gioda, que se dedica ao tema desde 2016, explica que o uso do insumo pode provocar diversas doenças, como câncer, problemas cardíacos, asma e bronquite. A estimativa é de que as mortes atribuídas à queima de lenha ou de carvão em ambiente domiciliar representem para o país um custo anual superior a R\$ 3 bilhões. — Quem é pobre não tem fogão a lenha adequado. Coloca duas ou três pedras, uma grade em cima, ficando muito exposto à fumaça, ou até se queimando e morrendo — explica. No início do mês, o entregador Israel Rosa, 46 anos, de Anápolis, Goiás, sofreu queimaduras de terceiro grau ao cozinhar com álcool. Ficou 15 dias internado na UTI. — Ele não pode trabalhar e, como era autônomo, não recebe nada. Precisamos de ajuda para o tratamento— conta a irmã Loidionice Rosa Correa, de 54 anos e desempregada.”)

<sup>55</sup> Mariana Vick. [Como as cidades tentam se adaptar à mudança climática](#). Nexo Jornal, 21 Mar. 2022. See, also: Suzana Kahn Ribeiro; Andrea Souza Santos (eds.). [Mudanças Climáticas e Cidades: Relatório Especial do Painel Brasileiro de Mudanças Climáticas](#). Rio de Janeiro: PMBC, 2016, p. 12-16; Painel Brasileiro de Mudanças Climáticas – PBMC. [“Aglomerados humanos, indústria e infraestrutura”](#). In: *Impactos, Vulnerabilidades e Adaptação: Volume 2: Primeiro Relatório de Avaliação Nacional*. Rio de Janeiro: PMBC, 2014, p. 202-213.

<sup>56</sup> Observatório do Clima. [Municípios da Amazônia dominam emissões de carbono](#). Press Release, 4 Mar. 2021.

OC, this municipality releases more greenhouse gases into the atmosphere than the whole of nations such as Uruguay, Panama, and Norway.<sup>57</sup>

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The “navy lands” (“terrenos de marinha”) were established in pre-Republican years to guarantee the safety of the country’s coast. They extend along the almost 7,500 kilometers of Brazilian coast and are under the ownership of the Union. Some of these areas are already occupied by enterprises and private actors. The legal order authorizes private actors, under certain circumstances, to use the areas and pay a corresponding fee to the government (with the latter maintaining land ownership). Others are areas of public interest, such as port and military areas; preserved areas; and areas occupied by traditional communities (quilombolas, indigenous, rural small-scale fishermen etc.). The legal order permits these communities to live in those areas without the need to pay the fees that are paid by private use.<sup>58</sup>

These lands are seen as of crucial importance for the country’s ability to preserve biodiversity and mitigate climate change, as they encompass, *v.g.*, vulnerable zones of mangroves, apicuns, sandbanks, dunes, rocky shores, islands and contours of islands, including blue carbon zones (especially mangroves and apicuns).<sup>59</sup>



\* Resex Renascer – Prainha, Pará. 2014. Source: Incra/Luís Gustavo.

<sup>57</sup> Observatório do Clima. [Municípios da Amazônia dominam emissões de carbono](#). Press Release, 4 Mar. 2021.

<sup>58</sup> Felipe Betim. [Senado pode autorizar a venda de milhões de km<sup>2</sup> de áreas na beira de rios, lagos e praias](#). Pública – Agência de Jornalismo Investigativo, 21 Jul. 2022.

<sup>59</sup> Felipe Betim. [Senado pode autorizar a venda de milhões de km<sup>2</sup> de áreas na beira de rios, lagos e praias](#). Pública – Agência de Jornalismo Investigativo, 21 Jul. 2022.

Some of these lands have been regulated and protected as “extractive reserves” (“reservas extrativistas”, or “Resex”) – areas which are allocated to local groups or communities under certain conditions to allow them to continue their livelihoods in a sustainable manner.<sup>60</sup> An inhabitant of the Resex of Canavieiras, in the South of Bahia, Carlos Alberto Pinto dos Santos lives off the artisanal fishing of ariocó, guaiuba, red snapper, dentão and other sea fish, just like his great-grandfather, grandfather and father. “Life on our reserve is based on small-scale fishing. A third of families in the municipality of Canavieiras [30,000 inhabitants] depend directly or indirectly on fishing,” he says.<sup>61</sup>

The Resex of Canavieiras was created in 2006. According to Mr. dos Santos, its creation gave legal security to fishermen and reduced conflicts in the territory, in addition to opening the door to more effective public policies aimed at the 14 communities that make up the reserve. The fact that the land belongs to the Union, he says, creates protection against real estate speculation and the implementation of large projects. According to Mr. dos Santos, the Resex gave legal security to fishermen and opened the door to more effective public policies aimed at the 14 communities that make up the reserve. The fishermen have dominion over the territories, they can build houses and enterprises and pass them on to their descendants. If they want to sell them, it is only possible to transfer them to another family of fishermen. Before the creation of the Resex, lack of public policies and the formal right to live off the land made different fishermen families accept money from private actors to leave their houses. As a result, they ended up in the city slums.<sup>62</sup>

A bill to amend the Constitution – PEC 39/11 – aims to modify the ownership of the navy lands, the contours of islands and the banks of rivers and lagoons that are influenced by the tides, in order to allow transferring such ownership to states, municipalities and private owners. PEC 39/11 has been criticized as a means of advancing the interests of real estate, tourism and gambling industries to the detriment of environmental protection, public access to beaches and the rights of traditional and rural communities. It has also been criticized as a possible means of legalizing land grabbing. The bill was recently approved by the Chamber of Deputies and is currently under the examination of the Senate.<sup>63</sup>

## **12. What measures are being implemented in rural and urban areas to reduce and eliminate the adverse impacts of the housing sector on the climate? How successful have been these programmes?**

Municipalities have a particularly important role when it comes to adaptation due to their legal and administrative roles in urban planning and local governance. A 2015 study suggested, however, that adaptation was not in the main agenda of the key Brazilian metropolitan regions.<sup>64</sup>

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<sup>60</sup> Wikipedia contributors. [Extractive reserve](#). *Wikipedia, The Free Encyclopedia*. 27 Mar. 2022.

<sup>61</sup> Felipe Betim. [Senado pode autorizar a venda de milhões de km<sup>2</sup> de áreas na beira de rios, lagos e praias](#). Pública – Agência de Jornalismo Investigativo, 21 Jul. 2022.

<sup>62</sup> Felipe Betim. [Senado pode autorizar a venda de milhões de km<sup>2</sup> de áreas na beira de rios, lagos e praias](#). Pública – Agência de Jornalismo Investigativo, 21 Jul. 2022.

<sup>63</sup> Felipe Betim. [Senado pode autorizar a venda de milhões de km<sup>2</sup> de áreas na beira de rios, lagos e praias](#). Pública – Agência de Jornalismo Investigativo, 21 Jul. 2022.

<sup>64</sup> Letícia Klug; Jose A. Marengo; Gustavo Luedemann. “[Mudanças climáticas e os desafios brasileiros para implementação da nova agenda urbana](#).” In: Marco Aurélio Costa (org.). *O Estatuto da Cidade e*

There had been different measures and initiatives taken by the federal government in relation to assessing impacts of, and adapting to, climate change<sup>65</sup>:

– In 2011, Cemaden was created with a mission to develop, test and implement a system for predicting the occurrence of – and alerting about – natural disasters. Cemaden’s work, *inter alia*, points out to the vulnerabilities in land use and occupation.<sup>66</sup>

– During the years that followed, the National Institute for Space Research (“Instituto Nacional de Pesquisas Espaciais”, or “Inpe”) dedicated itself to building future climate change scenarios related to Brazil and South America.<sup>67</sup>

– In 2015, the then Secretariat of Strategic Affairs of the Presidency of the Republic coordinated a study on scenarios and alternatives for adapting to climate change.<sup>68</sup>

– In 2016, the Ministry of the Environment launched the National Plan for Adaptation to Climate Change (“Plano Nacional de Adaptação à Mudança do Clima”).<sup>69</sup>

Overall, the National Plan is a well-designed document. It was developed by the federal government in collaboration with civil society, the private sector and state governments. In the context of the National Plan, different guidelines included the following<sup>70</sup>:

- *Consider adaptation to climate change in promoting the rehabilitation of consolidated, degraded urban areas with installed infrastructure, promoting urban diversity and contributing to the reduction of urban sprawl and the population's exposure to risks arising from the occupation of susceptible areas.*
- *Consider adaptation to climate change in promoting the urbanization of precarious settlements, with a view to raising the habitability condition of the settlements and improving the population's living conditions.*
- *Consider adaptation to climate change in the production of social housing at scale, guaranteeing low-income families in vulnerable situations access to well-located housing, with quality and resilient infrastructure, provided with urban, social and cultural goods and services and leisure opportunities.*
- *Strengthen urban expansion planning processes with the perspective of preventing the occurrence of natural disasters and the emergence of risks, through specific urban expansion projects, guiding processes of subdivision, use and occupation of urban land within adequate and adapted standards risks related to climate change.*

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*a Habitat III: um balanço de quinze anos da política urbana no Brasil e a nova agenda urbana.* Brasília: Ipea, 2016, p. 304 (referring to a 2015 study by Reis, Silva and Brant).

<sup>65</sup> Letícia Klug; Jose A. Marengo; Gustavo Luedemann. “[Mudanças climáticas e os desafios brasileiros para implementação da nova agenda urbana.](#)” In: Marco Aurélio Costa (org.). *O Estatuto da Cidade e a Habitat III: um balanço de quinze anos da política urbana no Brasil e a nova agenda urbana.* Brasília: Ipea, 2016, p. 304-305.

<sup>66</sup> Cf., *e.g.*, Centro Nacional de Monitoramento e Alertas de Desastres Naturais – Cemaden. [População em áreas de risco no Brasil.](#) Rio de Janeiro: IBGE, 2018.

<sup>67</sup> Instituto Nacional de Pesquisas Espaciais – Inpe. [Cenários de Mudanças Climáticas Futuras: Brasil e América do Sul.](#) S.n.d.

<sup>68</sup> Cf. Brasil; Presidência da República; Secretaria de Assuntos Estratégicos. [Brasil 2040: Resumo Executivo.](#) Brasília, 2015.

<sup>69</sup> Brasil; Ministério do Meio Ambiente. [Plano Nacional de Adaptação à Mudança do Clima.](#) Volume I: Estratégia Geral. Brasília, 2016.

<sup>70</sup> Brasil; Ministério do Meio Ambiente. [Plano Nacional de Adaptação à Mudança do Clima: Relatório de Monitoramento 2016-2017: Anexo.](#) S.d., p. 43-57.

- *Strengthen actions related to slope containment works and preparation of a Municipal Risk Reduction Plan, increasing the number of municipalities benefited, especially among those included in the National Register of Municipalities with Areas Susceptible to Landslides, Floods or Processes Related Geological or Hydrological, provided for in Law No. 12,608, of April 10, 2012.*
- *Consider adaptation to climate change in the implementation of the National Basic Sanitation Plan.*
- *Strengthen Sustainable Urban Drainage actions aimed at reducing floods and inundations, considering works and services aimed at the implementation of flood dampening reservoirs, etc.*
- *Support the implementation and improvements of water supply and sewage systems that consider the economic-social, public health, ecological and infrastructural effects of the measures adopted, in order to enhance the beneficial effects on health and the environment directly associated with these systems, seeking, in particular, the decontamination of water bodies, to facilitate the multiple uses of water, stimulating efficiency in the use of energy, with the use of biogas resulting from the treatment of sewage and urban solid waste, and other renewable energies.*
- *Support actions to improve urban cleaning and solid waste management systems, aiming at expanding selective collection in municipalities, adequate disposal of tailings and eradication of dumps, since the increase in intense rainfall resulting from climate change causes greater transport of leachate from dumps to water bodies and potentiates the effects of improper disposal of urban waste, done in a disorderly manner, along water courses, both in dumps and in dense urban areas, aggravating the problem of flooding.*
- *Support the management and dissemination of information related to climate change, which can support the preparation of diagnosis and the development of adaptation strategies in synergy with urban planning.*
- *Support the development of studies on the impacts of climate change in different cities, which can support the development of methodologies for adapting urban infrastructure, to be incorporated into urban development policies.*
- *Consider adaptation to climate change in the improvement of urban planning models, seeking to improve the management of land use and occupation correlated with environmental preservation associated, in particular, with the prevention of risk in natural disasters.*
- *Support the coordination of initiatives for the review of technical standards and regulation of building and urban parameters so that they can foster resilient solutions in the construction of buildings and urban infrastructure.*

There had been two reports from the government which were dedicated to monitoring the implementation of the Plan in the years 2016-2020. None of them expressly adopted the language of international human rights law or the standards related to the human right to adequate housing. The cited reports indicate a range of guidelines and goals which, according to a self-assessment by the federal government, were only partially met.<sup>71</sup>

The Senate's Environment Commission assessed the National Plan for Adaptation to Climate Change as containing all the essential elements to promote due

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<sup>71</sup> Brasil; Ministério do Meio Ambiente. [Plano Nacional de Adaptação à Mudança do Clima: Relatório Final de Monitoramento e Avaliação: Ciclo 2016-2020](#). Brasília, Nov. 2021; Brasil; Ministério do Meio Ambiente. [Plano Nacional de Adaptação à Mudança do Clima: Relatório de Monitoramento 2016-2017: Anexo](#). S.d.

adaptation. According to the Commission, however, the National Plan's implementation was virtually stagnated. The Commission thus recommended the federal government to restart the implementation of the National Plan with the necessary coordination with states and municipalities, establishing goals and budget allocation for each entity of the federation; reinforce the Civil Defence budget for actions associated with the implementation of the Plan; and carry out an analysis of costs and opportunities for adaptation.<sup>72</sup>

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According to Cemaden's Director, in 2021 Cemaden had its lowest budget since its creation. The Centre's budget was reported to be higher in 2022.<sup>73</sup>

### **13. What are the main barriers to reducing and eliminating the adverse impacts of the housing sector on the climate?**

The main barriers are the ones jeopardizing consciousness and effective action about climate change. As mentioned in answer to question 10 supra, these barriers include:

- i) the need of the existence of room for more international cooperation, as the country is not a developed economy;
- ii) a limited budget per capita that could still be sufficient for impactful, positive public policies, were it not for how budget tends to favour private interests (short-term private interests among them);
- iii) high levels of social inequality and poverty – fuelled by a regressive taxation – which prevents the most vulnerable from taking action to protect themselves;
- iv) limited scientific literacy and an increasing antiscientific rhetoric which favours climate denial;
- v) a reported tendency or incentive for politicians to choose to handle emergencies rather than preventing them as a result of short-term, strategic, immoral electoral reasoning;
- vi) a likely disbelief, among the population, that environmental concerns will be heard by public and private institutions, and / or the lack of knowledge about how the population can put pressure in institutions to bring about social change.

### ***Towards a just transition to a rights-compliant, climate-resilient and carbon-neutral housing***

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<sup>72</sup> Senado Federal; Comissão de Meio Ambiente. [Avaliação da Política Nacional sobre Mudança do Clima. Relatório Consolidado](#). Brasília, Dec. 2019, p. 152-153.

<sup>73</sup> Mariana Alvim. [Centro nacional que monitora desastres naturais teve menor orçamento da história em 2021, diz diretor](#). BBC News Brasil, 18 Feb. 2022; Sociedade Brasileira para o Progresso da Ciência – SBPC. [Trabalho do Cemaden reduziu em 80% número de mortes em desastres naturais no país](#). SBPC Notícias, 25 Feb. 2022.

#### **14. What specific legislation, policies, or programmes have been adopted to put in place and finance a just transition to a rights-compliant, climate-resilient, and carbon-neutral housing for all, without discrimination?**

In the context of the National Plan for Adaptation to Climate Change, the 2016-2020 Monitoring and Evaluation Report refers to varied guidelines which include “considering adaptation to climate change in the production of social housing at scale, guaranteeing low-income families in vulnerable situations access to well-located housing, with quality and resilient infrastructure, provided with urban, social and cultural goods and services and leisure opportunities.”<sup>74</sup>

The same report also mentions the following actions taken by the government<sup>75</sup>:

- *Review of the Minha Casa, Minha Vida Program, with the inclusion of urban specifications aimed at qualifying projects and housing units.*
- *Publication of Provisional Measure No. 759, of December 22, 2016, converted into Law No. 13,465, of July 11, 2017, which aims to reduce bureaucracy and simplify the process of land regularization in urban centres.*
- *Regulation of Law No. 13,456, of June 26, 2017, through Decree No. 9,310, of March 15, 2018, which establishes general rules and procedures applicable to urban land regularization and establishes the procedures for the evaluation and disposal of properties of the Union.*
- *Investment of R\$ 2.264 billion in 66 water supply projects, 59 sanitary sewage projects, 10 urban drainage projects in critical municipalities and eight solid waste management projects.*
- *Completion of Geotechnical Maps of Aptitude for Urbanization in seven municipalities.*
- *“Manual for Elaboration of Plans and Structural Measures against Breach of Slopes” and “Technical Manual for Reducing Disaster Risks Applied to Urban Planning” elaborated within the scope of actions to strengthen the National Strategy for the Integrated Management of Natural Disaster Risks.*
- *Local technicians and managers trained in Analysis and Approval of Slope Stability Projects.*
- *Brazilian Program for Productivity and Quality of Habitat – PBQP-H: instrument of the federal government to fulfil the commitments signed by Brazil when signing the Istanbul Charter, during the 2nd World Conference on Human Settlements – Habitat II/1996. After the Conference, Brazil assumed the goal of organizing the civil construction sector around two main issues: improving the quality of the habitat and modernizing production. To this end, the PBPQ-H was created within the scope of the MDR. In addition to housing quality objectives, there are also environmental objectives: better performance and efficiency in the use of natural resources, reduction of solid waste and liquid and gaseous effluents.*
- *Development of energy efficiency strategies in housing, with a focus on social housing and sustainable urban development.*

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<sup>74</sup> Brasil; Ministério do Meio Ambiente. [Plano Nacional de Adaptação à Mudança do Clima: Relatório Final de Monitoramento e Avaliação: Ciclo 2016-2020](#). Brasília, Nov. 2021, p. 40.

<sup>75</sup> Brasil; Ministério do Meio Ambiente. [Plano Nacional de Adaptação à Mudança do Clima: Relatório Final de Monitoramento e Avaliação: Ciclo 2016-2020](#). Brasília, Nov. 2021, p. 41-42.



- *Capacity strengthening. Strategies for energy efficiency in housing are being developed appropriate techniques, workshops, courses, training and practical application in prototypes in order to implement and disseminate a new culture of energy efficiency and reduction of environmental impacts.*
- *Review of the National Housing Plan – PlanHab for the time horizon from 2023 to 2040, in which the principles of bioclimatic adequacy, energy efficiency and sustainable urban development will be valued.*
- *Andus Project – development of Components: 1) Knowledge management and dissemination of innovative practices: i. Training Course for the elaboration of Municipal Master Plans; ii. Methodology and training course on the integration of ecosystem services in urban planning; and 2) Improvement and integration of national instruments for sustainable urban development. The development of the Project also resulted in the publication of the Guide for the elaboration and revision of Master Plans.*
- *Promotion of training courses on bioclimatic adaptation of housing and energy efficiency in housing of social interest.*
- *Implementation of the National Basic Sanitation Plan – Plansab, established through Decree No. 8,141, of November 20, 2013, including actions in the municipalities.*

**15. What measures have been taken to ensure that the costs of green transition in the housing sector are fairly shared between public authorities, taxpayers, homeowners, and tenants/renters or other affected interest groups, and to ensure the continued affordability of housing?**

One cost-effective measure to foster environmental-friendly housing guaranteeing the rights of Amerindian, quilombola, riverside and other traditional communities to property, land, and housing, as their dwellings are typically sustainable. Since the redemocratization in the late 1980s, the country has done that to a certain extent, but many communities are still without formal and / or *de facto* property. Additionally, the country is in a position of being able to increase social participation in the planning and execution of national housing plans. The ones who need housing policies the most know about their own needs. There are many knowledgeable builders among them, as well as capable workers. They can be organized to be the actors, and not only the beneficiaries, of environmental-friendly housing policies. There are numerous social movements with built-in knowledge in this area, as well as a remarkable university system that could work together with the poor to provide cheap, effective, and green housing solutions. In fact, there are concrete experiences in this sense that could be amplified and multiplied with the correct State support. In Belo Horizonte, for instance, the communities of Dandara and Eliana Silva were raised from the ground by the poor themselves with the assistance of social movements and universities. Both included environmental concerns from the beginning.<sup>76</sup>

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<sup>76</sup> Cf., *v.g.*, [Corporação de Ofício de Arquitetura e Urbanismo – COAU. Comunidade Eliana Silva. COAU – Projetos, s.d.](#); [Corporação de Ofício de Arquitetura e Urbanismo – COAU. Comunidade Dandara. COAU – Projetos, s.d.](#)

## 16. Which adaptation strategies are needed to ensure the continued habitability of housing in the face of the climate crisis? (protection from e.g. heat, flooding, extreme weather, etc.)

Most of the population lives in urban areas. As mentioned supra, social inequality, poverty, and a chronic housing deficit<sup>77</sup> often lead to informal settlements at geographically vulnerable sites (slopes, valley bottoms etc.).

The expansion of informal settlements is also historically linked with internal migrations to cities due to the lack of opportunities in smaller towns and rural areas. Brazil has an immense territory, with great productive capacity and social settlement. However, for historical reasons, the distribution of land ownership is extremely unbalanced. This creates favourable conditions for social confrontations and human rights violations. Many farmers and their families have suffered from precarious access to land, health, work and education problems, and confrontations with landowners and state agents.<sup>78</sup>

Distributive and development policies aimed at guaranteeing access to land and a proper livelihood in rural areas for the poor have therefore the potential of diminishing risky informal settlements in urban settings.

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The cited context of social inequality, poverty and chronic housing deficit also increases the importance, need and urgency of social housing policies. There is a major space for improvements in terms of incorporating adaptation strategies into the social housing sector. According to researchers associated with the Federal University of Santa Catarina and Oxford Brookes University, many residential projects in this sector perform medium or poorly in terms of energy efficiency and thermal comfort in the present and projects are normally conceived in light of the weather data from previous years, thus not taking into account the useful life of the construction, which tends to be of at least 50 years, and the existing climate change projections.<sup>79</sup> Another opportunity for action is related to the numerous empty buildings in central areas of large cities such as São Paulo. Their rehabilitation and use for social housing could be an effective way of implementing the right to

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<sup>77</sup> Brazil suffers from a chronic housing deficit. According to governmental research conducted by João Pinheiro Foundation, in 2019 the housing deficit in Brazil totaled 5.876 million houses. Fundação João Pinheiro. [Déficit Habitacional no Brasil: 2016-2019](#). Belo Horizonte: FJP, 2021, p. 113.

<sup>78</sup> Cf. CIDH. “[Capítulo VII: A propriedade de terras rurais e os direitos humanos dos trabalhadores rurais](#)”. In: Relatório sobre a Situação dos Direitos Humanos no Brasil. OEA/Ser.L/V/II.97, Doc. 29 rev.1, 29 de setembro de 1997; CIDH. [Relatório No. 159/19. Caso 12.675. Mérito. Gabriel Sales Pimenta](#). Brasil. 28 Sept. 2019, p. 2. See also: United Nations. [Report of the Special Rapporteur on adequate housing as a component of the right to an adequate standard of living, Miloon Kothari. Addendum. Mission to Brazil](#). Un Doc. E/CN.4/2005/48/Add.3. 18 Feb. 2004, paragraphs 37 *et seqs.* (on the country’s historical concentration of land ownership and violent repression against social movements in favour of an agrarian reform).

<sup>79</sup> Maria Andrea Triana; Roberto Lamberts; Paola Sassi. Should we consider climate change for Brazilian social housing? Assessment of energy efficiency adaptation measures. *Energy and Buildings*, v. 158, p. 1379-1392, Jan. 2018.

housing with perhaps lesser emissions than in the case of the construction of new units.<sup>80</sup>

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Some Brazilian coastal cities have adopted certain measures to prepare themselves for climate change. In 2016, the city of Santos adopted a municipal plan for the theme and implemented “geobags”, sandbags submerged in the sea that have reduced the impact of storm surges. In 2021, the city of Recife adopted an adaptation plan. The same year, the city of Niterói recognized the state of climate emergency and created a secretariat exclusively dedicated to weather issues. Moreover, Niterói’s City Council established a Parliamentary Climate Front.<sup>81</sup>

Other major cities in Brazil, such as São Paulo, Rio de Janeiro, Salvador and Curitiba, have also started to prepare local climate action plans aimed at how cities can adapt to disasters and implement new environmental-conscious policies in areas such as mobility and waste management.<sup>82</sup>

**17. How are different interest groups, including marginalized communities, homeowners, and tenants, being consulted, and able to participate in the design, implementation, monitoring and evaluation of:**

- **legislation, policies, or programmes been adopted that provide for specific measures to ensure the realization of the right to adequate housing in the face of the climate crisis;**
- **natural disaster preparedness, response, and reconstruction, as well as in mitigation and adaptation efforts;**
- **measures to reduce and eliminate the adverse impacts of the housing sector on climate.**

Since the restoration of democracy, Brazil has made significant progress with forging institution and public policies aimed at tacking structural inequalities and human rights violations. These included the promulgation of a new Constitution, the ratification of regional and universal human rights treaties, the modernization of domestic laws regarding several human rights-related areas, the consolidation of structures endowed with powers to promote and defend human rights, the realization of periodic elections and the creation and strengthening of institutions providing social participation and oversight of government actions. Despite all that, in its 2021 Report regarding the Situation of Human Rights in Brazil, the Inter-American Commission of Human Rights (IACHR) voiced its concern “about recent processes appearing to threaten and dismantle those institutions and

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<sup>80</sup> In this sense, see, *e.g.*, Bruno Avellar Alves de Lima; Silvia Helena Zanirato. [Habitação Social e Mudanças Climáticas em São Paulo: Potencialidades e limites da reabilitação de edifícios vazios no centro como medida de adaptação e mitigação](#). *Anais do XVIII ENANPUR*, p. 1-23, 2019.

<sup>81</sup> Mariana Vick. [Como as cidades tentam se adaptar à mudança climática](#). Nexo Jornal, 21 Mar. 2022; Prefeitura de Santos. [Bags na praia de Santos diminuem impactos de ressaca](#). 7 Jul. 2019; Prefeitura do Recife. [Planos de adaptação e monitoramento das ações e estratégias climáticas são apresentados na primeira reunião de 2022 do Geclima](#). 23 Feb. 2022.

<sup>82</sup> Mariana Vick. [Como as cidades tentam se adaptar à mudança climática](#). Nexo Jornal, 21 Mar. 2022.

policies constructed over a period of more than two decades”<sup>83</sup>, especially “the retraction of institutions that are vital for a participatory democracy, especially Councils, Committees, and Commissions in areas that matter for human rights that are being de-activated, weakened, and stigmatized by the State.” “Those bodies,” according to the Commission, “while mostly of a consultative nature, were of paramount importance for formulating public policies sensitive to the needs of historically excluded groups and for developing a more mature democracy in Brazil.”<sup>84</sup>

In another section of the same 2021 Report, the Commission similarly noted that, since the restoration of democracy and its culmination with the 1988 Constitution, Brazil has been a benchmark in terms of its juridical commitment to human rights, including as standards for its foreign policy. The IACHR observed, however, that there have been indications of significant backsliding with respect to implementation of programs and public policies and budget appropriations for key areas *and with respect to the institutions that allow for more social participation*.<sup>85</sup>

The IACHR defines the right to housing in terms that are analogous to the United Nations framework. In this sense, this right is understood as being equivalent to not only shelter, but also “adequate privacy, adequate space, adequate security, adequate lighting and ventilation, adequate basic infrastructure and adequate location with regard to work and basic facilities – all at a reasonable cost”.<sup>86</sup> While examining the current situation of this right in Brazil, the Commission asserted, *inter alia*, “the importance of addressing violations of the right to housing and its intersection with poverty and the vulnerability derived from other forms of exclusion”.<sup>87</sup> In this sense, the Commission emphasized the importance of intersectoral public policies aimed at social inclusion in both economic and participatory aspects<sup>88</sup>: “*In the Commission’s analysis of the situation, public policies for stepping up access to housing are an extremely important component of the fight against poverty and extreme poverty, as they open up opportunities for people in the economically most vulnerable segments of the population. Apart from that, the IACHR deems it essential to guarantee the participation in housing programs of social movements organized by the homeless, in order to ensure that their demands are met. Accordingly, the IACHR reiterates its recommendation regarding the duty of States to develop intersectoral coordinated strategies, combining the right to housing, democratic participation, and the empowerment of persons living in poverty and extreme poverty.*”

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<sup>83</sup> Inter-American Commission on Human Rights. [Situation of Human Rights in Brazil](#). OEA/Ser.L/V/II. Doc. 9. February 12, 2021, paragraph 518.

<sup>84</sup> Inter-American Commission on Human Rights. [Situation of Human Rights in Brazil](#). OEA/Ser.L/V/II. Doc. 9. February 12, 2021, paragraph 519.

<sup>85</sup> Inter-American Commission on Human Rights. [Situation of Human Rights in Brazil](#). OEA/Ser.L/V/II. Doc. 9. February 12, 2021, paragraph 429-430.

<sup>86</sup> Inter-American Commission on Human Rights. [Situation of Human Rights in Brazil](#). OEA/Ser.L/V/II. Doc. 9. February 12, 2021, paragraph 111.

<sup>87</sup> Inter-American Commission on Human Rights. [Situation of Human Rights in Brazil](#). OEA/Ser.L/V/II. Doc. 9. February 12, 2021, paragraph 120.

<sup>88</sup> Inter-American Commission on Human Rights. [Situation of Human Rights in Brazil](#). OEA/Ser.L/V/II. Doc. 9. February 12, 2021, paragraph 123.



\* Members of social movements during a demonstration inside a public office to defend adequate housing for the poor. Belo Horizonte, 2014. Source: Mídia Ninja.

### **18. What is the role of international cooperation, technology transfer and development assistance of States and multilateral agencies to ensure a just transition?**

As mentioned in answer to question 10 *supra*, despite having one of the world's largest economies, Brazil's income per capita is still limited and the country is, nonetheless, far from becoming a developed nation.<sup>89</sup> International cooperation, technology transfer and development assistance are thus important for the country to be able to accomplish the necessary mitigation and adaptation measures, including adaptation needed to fulfil the right to adequate housing. According to a 2021 Report by the UN Environment Programme, i) there is evidence indicating higher adaptation costs and financing needs of developing countries (although these can be lower if the goals of the Paris Agreement are met); ii) an important aspect of international cooperation for planning and implementation of adaptation, adaptation finance is likely to decline as a result of heightened costs and decreased government revenues in the context of the Covid-19 pandemic; iii) adaptation costs appear to be rising faster than adaptation finance, potentially leading to a widening of the adaptation finance gap.<sup>90</sup>

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One major concern regarding Brazil and climate change is with the tropical rainforest. Social inclusion and development are key to protect the Amazon. Most

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<sup>89</sup> See *supra* note 44.

<sup>90</sup> United Nations Environment Programme – UNEP. [The Gathering Storm: Adapting to climate change in a post-pandemic world](#). 1 Nov. 2021, p. XI, XV, XVIII, 12, 28-36.

of the work in illegal deforestation, logging, mining etc. in the Amazon is carried out by poor workers who would certainly prefer safer and better paid jobs if they had the chance.<sup>91</sup> Wood, gold and other extracted goods are often exported to developed nations. There can be more international cooperation aimed at social inclusion, development, and a fair and environmentally responsible trade.

\* \* \*

The concept of circular economy (CE) is central to debates about just transition. A recent study by Korsunova, Halme, Kourula, Levänen and Lima-Toivanen draws light on how low-income contexts are rarely linked to CE in academic literature, even though they are rich in CE-relevant practices. Many of such practices, *v.g.*, are erroneously labelled as “recycling”, obscuring the benefits of practices of refurbishing or repairing, repurposing, reusing etc. that actually retain the value of materials and goods better than recycling. Academic and policy discourses currently tend to omit these necessity-driven CE practices. Yet, teaching the full potential of CE globally calls for knowledge of necessity-driven CE.<sup>92</sup>

The study identified necessity-driven CE practices amongst the poor in Tanzania, India and Brazil; among them, *e.g.*, reusing pieces of old furniture, tree branches, tarps and other materials to make homes; using branches and tarps for roofing; assembling equipment for cooking and agriculture; the reuse of PET bottles at home (for instance, as plant pots); reusing plastic bags as storage solutions off the floor (hanging on the wall); reusing cardboard boxes as storage solutions at home; reusing newspaper for storing fruit, fish, etc.; reusing standard plastic “buckets” for collecting water, buying flour, cereals etc., and for storage at home, as table or chairs; making ovens out of barrels; making chairs out of car tires; making water containers from plastic containers by adding a nozzle; improvising “coolers” made out of plastic bag, cardboard and ice.<sup>93</sup>

These remarks should not be understood as an apology to poverty and extreme poverty. Rather, they testify to the intelligence and resourcefulness of common, hard-working people. It is important for their voices, knowledge, and practices to be heard in the just transition debate.

## 19. What are the main barriers to achieving such a just transition?

Please see answers to questions 10 and 13 *supra*.

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<sup>91</sup> See, *v.g.*, BBC. [Ouro de Sangue: para onde vai o ouro ilegal garimpado na Amazônia?](#). BBC News Brasil, 8 April 2022 (on how poor or extremely poor people are employed by illegal gold mining businesses in the Amazon); Ministério Público Federal. [Mineração Ilegal de Ouro na Amazônia: Marcos Jurídicos e Questões Controversas](#). Brasília: Ministério Público Federal, 2020, p. 218 (on how workers in the “garimpos”, particularly in the Amazon, are subject to contemporary forms of slavery).

<sup>92</sup> Angelina Korsunova; Minna Halme; Arno Kourula; Jarkko Levänen; Maria Lima-Toivanen. [Necessity-driven circular economy in low-income contexts: How informal sector practices retain value for circularity](#). *Global Environmental Change*, v. 76, p. 1-14, September 2022, *passim*.

<sup>93</sup> Angelina Korsunova; Minna Halme; Arno Kourula; Jarkko Levänen; Maria Lima-Toivanen. [Necessity-driven circular economy in low-income contexts: How informal sector practices retain value for circularity](#). *Global Environmental Change*, v. 76, p. 1-14, September 2022, p. 4-6.