

Stocktaking of security sector roles in climate and environmental security

Report on Brazil



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DCAF - Geneva Centre for Security Sector Governance

Maison de la Paix

Chemin Eugène-Rigot 2E

CH-1202 Geneva, Switzerland

Tel: +41 22 730 94 00

info@dcaf.ch

www.dcaf.ch

Twitter @DCAF_Geneva

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Acronyms

ACISO	Ações Cívico-sociais (civic-social actions)
ANA	Agência Nacional de Águas e Saneamento Básico (National Water and Sanitation Agency)
BLA	Brazil's Legal Amazon
CBMRR	Corpo de Bombeiros Militar de Roraima (Roraima Military Fire Brigade)
CCA	Climate change adaptation
CEMADEN	Centro Nacional de Monitoramento e Alertas de Desastres Naturais (National Centre for Natural Disaster Monitoring and Alerts)
CENAD	Centro Nacional de Gerenciamento de Riscos e Desastres (National Centre for Risk and Disaster Management)
CENSIPAM	Centro Gestor e Operacional do Sistema de Proteção da Amazônia (Management and Operational Center of the Amazon Protection System)
CIPA	Companhia Independente de Policiamento Ambiental (Independent Environmental Policing Company)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COMDEC	Coordenadoria Municipal de Defesa Civil (Municipal Civil Defence Coordination)

CONAMA	Conselho Nacional do Meio Ambiente (National Council for the Environment)
CONPDEC	Conselho Nacional de Proteção e Defesa Civil (National Council for Protection and Civil Defense)
DETER	Deforestation Detection in Real Time
DPIMA	Diretoria de Patrimônio Imobiliário e Meio Ambiente (Directorate of Real Estate and Environment)
DRR	Disaster risk reduction
FUNAI	Fundação Nacional dos Povos Indígenas (National Foundation of Indigenous People)
GPRA	Grupamento de Proteção Ambiental (Environmental Protection Group; part of the Federal District's Military Fire Brigade)
HRW	Human Rights Watch
IBAMA	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Brazilian Institute for the Environment and Renewable Natural Resources)
IBGE	Instituto Brasileiro de Geografia e Estatística (Brazilian Institute for Geography and Statistics)
ICMBio	Instituto Chico Mendes de Conservação da Biodiversidade (Chico Mendes Institute for Biodiversity Conservation)



INPE	Instituto Nacional de Pesquisas Espaciais (National Institute for Space Research)	PPCDAm	Plano de Ação para Prevenção e Controle do Desmatamento na Amazônia Legal (action plan for the prevention and control of deforestation in Brazil's Legal Amazon)
MIDR	Ministério da Integração e do Desenvolvimento Regional (Ministry of Integration and Regional Development)	PPCerrado	Plano de Ação para Prevenção e Controle do Desmatamento e das Queimadas no Cerrado (action plan for the prevention and control of deforestation and burning in the Cerrado)
MINUSTAH	United Nations Stabilization Mission in Haiti	SEDEC	Secretaria Nacional de Proteção e Defesa Civil (National Secretariat for Protection and Civil Defence)
NDC	Nationally determined contribution	SINAFLO	Sistema Nacional de Controle da Origem dos Produtos Florestais (national system controlling the origin of forest products)
NUDEC	Núcleos Comunitários de Defesa Civil (Community Centre for Civil Defence)	SINPDEC	Sistema Nacional de Proteção e Defesa Civil (National Civil Defense System)
PABC	Agricultura de Baixa Emissão de Carbono (plan for a low-carbon agriculture)	SISNAMA	Sistema Nacional de Meio Ambiente (National System of Conservation Units)
PMBC	Plano de Mineração de Baixa Emissão de Carbono (plan for low-carbon Mining)	SJMR	Serviço Jesuíta a Migrantes e Refugiados (Jesuit Service to Migrants and Refugees)
PMRR	Polícia Militar de Roraima (Roraima Military Police)	SSG/R	Security sector governance and reform
PNMA	Política Nacional do Meio Ambiente (National Policy for the Environment)	UNFCCC	United Nations Framework Convention on Climate Change
PNMC	Política Nacional de Mudanças Climáticas (National Policy on Climate Change)		
PNPDEC	Política Nacional de Proteção e Defesa Civil (National Policy on Protection and Civilian Defence)		



Executive Summary

Brazil, the most biodiverse country in the world, with roughly 60% of the Amazon rainforest within its territory, is especially vulnerable to the impacts of climate change and other environmental risks. Brazil has vast natural resources and is one of the major exporters of agricultural products, minerals, and oil. However, extreme temperatures, drought, water scarcity and flooding, coupled with human-led environmental degradation and environmental crimes, undermine human security, and threaten the country's socioeconomic development. Vulnerable groups including indigenous peoples and refugees are affected the most.

Although Brazilian civilian institutions are primarily responsible for disaster risk reduction (DRR) and environmental protection, in recent years the security sector has played an increasingly prominent role in addressing natural disasters and especially environmental crime. Recognizing that environmental risks are multifaceted and require inter-agency and cross-sectorial cooperation, this study explores the role of security actors in preparedness and protection, as well as the boundaries for its engagement in climate change adaptation (CCA), DRR and environmental protection.

The Brazilian government and Brazilian communities have invaluable experience protecting the environment and addressing environmental crime across a vast, complex, and biodiverse area. Approaches have evolved over time and offer important insights – for example related to data-driven and technology-enabled approaches to tackling environmental crime - which are applicable across a range of contexts.

The stocktaking study identified potential for security sector governance and reform (SSG/R) to enhance effective security provision related to climate and environmental risks through integrating human security approaches into preparedness and protection activities. This entails strengthening the capacities of security actors, coordination between federal, state, and municipal levels, and closer cross-sectorial cooperation, as well as an increased focus on the needs of vulnerable communities including migrants and refugees. This report includes practical recommendations for international donors and Brazilian government stakeholders.

Main Findings

- The **role of security institutions in environmental protection has increased** in recent years, in some cases replacing previous efforts on the part of environmental protection agencies to prevent

environmental crime. In Brazil's current political context, it is possible the balance between security and civilian environmental agencies will shift again. However, the stakes are high for exploiting natural resources in the Amazon and the critical importance of protecting this area, combined with the links between environmental and other forms of serious crime, make it likely the security sector will continue playing a prominent role in coming years.

- It is important to capitalize on recent lessons learned and to **ensure a human security orientation to future security operations** in this domain, to include creating more spaces for dialogue between security institutions and communities.

- Brazil has a **comprehensive legislative framework for environmental protection**, with specific provisions related to indigenous and traditional use of natural resources. The framework is also complex, particularly when it comes to the jurisdiction of federal, state and local authorities. While further research would be required to fully map where gaps and overlaps occur, it seems clear that the **complexity has the potential to affect the timeliness and efficacy of responses**, for instance when environmental crime crosses internal Brazilian state boundaries.
- DRR and environmental protection capacities are distributed across the national, subnational and municipal levels of governance and **capacities vary significantly across levels and security sector actors**.
 - Whereas **early warning systems** are more widespread and accessible at the national level and in large urban areas such as Rio de Janeiro, vulnerable communities including indigenous peoples and migrants and refugees in Boa Vista, Roraima (the area of focus for this study) have difficulties accessing such mechanisms.
 - The Federal Police requires accompaniment of the Military Police, Army, or Navy for operations due to differences in equipment and logistical capacity. Similarly, Municipal Guards and State Military Police and Fire Brigades often require support of the Army and Navy due to insufficient boats and/or vehicles. As with questions of jurisdiction noted above, the results are **complex coordination and differences in the effectiveness and quality of service delivery**.
- Security sector actors (especially at the municipal level) and local communities expressed that security sector organizations are understaffed and

under-resourced. **Satellite mapping and remote monitoring technologies** have been key to overcoming some of these resource limitations to counter deforestation and for DRR efforts. These tools allow monitoring of areas where permanent presence of the security sector is not feasible and contribute to enhancing DRR preparedness, response time and the ability of institutions to plan and prioritize interventions.

- **Cooperation and information sharing** – among government agencies and between these agencies and communities - are essential for addressing and preventing environmental crime. However, **substantial barriers to cooperation exist** due to both the reported involvement of government officials (as well as communities) in environmental crime; and to relatively low levels of community trust in the security sector, caused in part by perceptions of impunity for the increasing levels of violence associated with the extraction of natural resources.
- Experience has shown that **repressive approaches to tackling environmental crime are less effective over the longer term**. They may have a quick effect/impact as they result in the arrest of people involved in illegal activities. However, the effect is only temporary, and a new problem is created due to the loss of people's livelihoods. Those affected are often forced to migrate to find new job opportunities. Others get involved in other types of crimes, which creates a series of new issues.
 - Operations including affirmative, sustainable development actions require inter-agency and cross-sectoral cooperation, additional time and resources, but tend to better address the root causes of communities' involvement in illegal operations.
- As in many other contexts, **already vulnerable communities are particularly exposed to climate and environmental risks**, from landslides and flooding to a loss of access to food (fish) and clean water as illegal mining contaminates rivers. Government responses at the local level are not in all cases accessible to the most vulnerable members of society. As one example, migrants in temporary settlements are highly exposed to flooding, but without cell phones or network coverage they do not benefit from early warning systems.
- The relationship between communities and the environment has the potential to be a source of resilience, particularly in cases in which the local population has been living sustainably for generations. It also holds the **potential for tension and local conflict**.



Photo: CDI Brazil

- Police sometimes assign officers from outside the local area to address cases of environmental harm in order to shield local police officers from the serious resentment created by their actions to counter environmental crime, and to avoid damaging their relationship with communities.
- Within and among communities, decisions around whether or not to be involved in crimes which harm the local environment (for instance, illegal mining) have also created local tensions.
- Violence associated with the extraction of natural resources – for example, land grabs and killings of environmental defenders – has been increasing.

Entry points for SSG/R

- Operations targeting the **humanitarian, development and security nexus** in a holistic manner are more likely to be effective for disaster risk reduction and environmental protection. Coordination between environmental and security actors is fundamental for designing effective interventions that tackle environmental risks. Droughts and flooding, as well as illegal operations in logging, mining, and land use/ownership, can be approached by integrating **civil society participation in environmental education, early warning systems and alternative livelihood programs**.

- Law enforcement alone is insufficient to address incidents of environmental crime. It is clear some environmental crime, namely that perpetrated by organized criminal groups, requires a strong and effective law enforcement response. However, it is often the case that individuals and communities involved in environmental harm (whether through subsistence practices or through involvement in criminal activities) have few alternatives in terms of source of income. While more time and effort may be required up front, **integrated solutions which address the development of alternative livelihoods as well as enforcing environmental law** are more likely to succeed over the longer term.
- **Security responses to climate and environmental risks must be informed and guided by specialized technical expertise.** This implies carefully examining the respective roles and mandates of security and other government institutions and developing coordinated approaches which correspond to the strengths, expertise and access of each institution. Ideally, security institutions can work closely with environmental and disaster agencies/ministries in planning and conducting operations. Where this is not possible, security institutions must have the training, doctrine/procedures, and expertise required for them to play an effective and appropriate role.
- **Risk-informed planning** is indispensable to both disaster risk reduction and tackling environmental crime. This is particularly true when covering large geographic areas with limited resources. It may include the use of sampling to detect illegal practices, collection and analysis of surveillance data to target operations, or an emphasis on financial intelligence to better identify and target groups involved in enterprises including transnational trafficking. For DRR, the use of remote monitoring technology can facilitate the collection of risk data in inaccessible or remote areas, inform early warning systems and enhance preparedness by providing an early response.
 - Risk-informed planning goes beyond **technologically enabled aspects** of criminal investigations and includes a thorough analysis of **community needs**, for example to identify where at-risk communities may be particularly vulnerable to the economic opportunities offered by groups engaged in environmental crime or to specific disaster hazards.
- Governance of both security and natural resources takes place through a complex and interconnected set of relationships among individuals and institutions. It is important to examine these relationships, particularly where roles and responsibilities intersect (for instance, across national and subnational levels), to identify **gaps and areas where mismanagement or corruption are a risk**. It is equally important to critically examine **how human and financial resources are distributed across the system** and whether resource decisions are made at a level that enables effective responses.

Photo: Luiz Nistal



- **Communities are willing and able to play a role as key actors in climate security.** In some cases, traditional approaches to agriculture and natural resource management are important sources of resilience and can substantively complement what government institutions could offer when it comes to mitigating climate security risks. Security sector actors also emphasized the value of indigenous approaches for DRR and environmental conservation and the high level of preparedness of some local communities. In other cases, communities are eager to learn more about prohibited practices and sustainable alternatives, creating an opening for dialogue and awareness raising among communities, security institutions and civilian agencies.
- **Attention to the needs of vulnerable groups** is critical in the context of DRR and environmental protection.
 - Communities including migrants who live in remote areas or informal urban settlements are particularly vulnerable to natural disasters including flooding and landslides; and yet may not have access to early warning systems or reliable information on risks and mitigation measures.
 - Groups with limited economic opportunities may also be under pressure to participate in activities which harm the environment.
 - Individuals and communities which have had negative interactions with security institutions may also be less likely to report environmental crimes.
- Climate and environmental risks are not limited by national boundaries, and there is a need to **support increased cooperation among security sector actors of neighboring countries.** In Brazil, for example, the Amazon is a natural corridor for criminal organizations. Cooperation initiatives that allow for lesson-learned exchanges involving security sector actors from the federal, state, and municipal levels can strengthen the effectiveness of environmental protection operations. Experience with other regional law enforcement initiatives has also shown that it is important to identify and address practical barriers which may exist, for example to sharing sensitive information as part of cross-border efforts to strengthen investigations and close gaps in enforcement.



S&S/R needs to mainstream climate and environmental risks so security sectors can help protect people, planet and peace

1. Introduction

Background

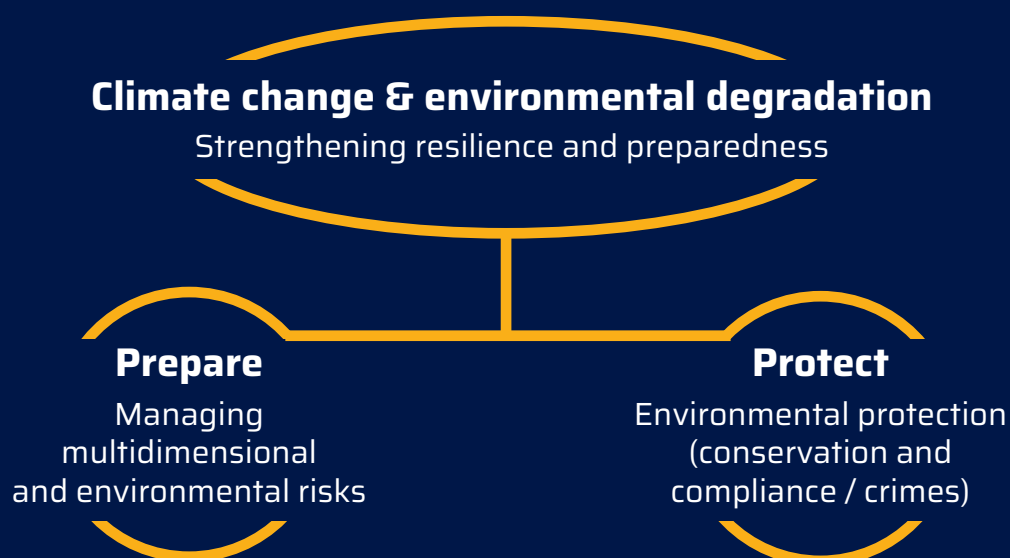
This report provides an overview of the potential role of the security sector in supporting communities in the areas of climate change adaptation (CCA), disaster risk reduction (DRR) and environmental protection in Roraima,¹ Brazil. Specifically, this study explores the areas of preparedness and protection, and the ways in which the security sector can take part in mitigating the impacts of climate change and contribute to preventing further environmental degradation.

Climate change is a threat-multiplier posing various challenges towards human security. Natural disasters and human-led environmental degradation can negatively impact communities' livelihoods, undermine food and health security, and exacerbate community tensions, conflict, gender-based violence, and migration and displacement. The findings of this study reaffirm the importance of addressing the various security risks and threats faced by states and populations from a human security perspective. This approach has implications for the roles of the security sector, public budgets², and cross-sectoral cooperation that should be considered to design efficient and effective interventions.

Security sector institutions are assigned with the responsibility to enforce the law and protect the communities they serve from security risks. Their mandates often entail participating in activities such as emergency response, natural disaster preparation and prevention, as well as environmental protection and conservation. Recognizing that security sector institutions' resources and capacities are not unlimited, it is important to obtain a better understanding about the roles, limitations and preconditions of the security sector in DRR and environmental protection.

This study explores the Brazilian capacities and experience to outline strengths, areas of opportunity and boundaries of the security sector in DRR and environmental protection. The research, analysis and findings consider both, security sector and community's perspective, with the hypothesis that ***a well-governed, legitimate, and accountable security sector can help to break cycles of environmental degradation as well as conflict***. The findings in this report are part of a larger stocktaking study conducted in Palestine, Philippines and Sierra Leone; funded by the Governments of Germany, the Netherlands, Sweden and Switzerland.

Figure 1: Two pillars of action for the Security Sector in relation to climate change and environmental degradation.



Methodology

The overarching question for this study aims to understand the potential and limitations of the security sector in (a) climate change adaptation - CCA, (b) disaster risk reduction - DRR, (c) and environmental protection (environmental crime and conservation) through SSG/R programming. The analysis focused on the areas of preparedness and protection from the institutional and the community perspectives in the following four dimensions:

Figure 2: The four dimensions of Prepare and Protect

Dimension	Prepare	Protect
1. Context	Local context and specific risk factors	
2. Coordination and integration	Who does what? To what extent together? How effective?	
3. Capacities	What capacities exist? Are they adequate? How effective?	
4. Social cohesion and peacebuilding	Impact on community perceptions and relationships	

The findings of the research are integrated into recommendations for influencing donor SSG/R assistance towards addressing challenges such as climate security and environmental crime. The data collection was conducted in two phases using different qualitative data collection methods such as desk

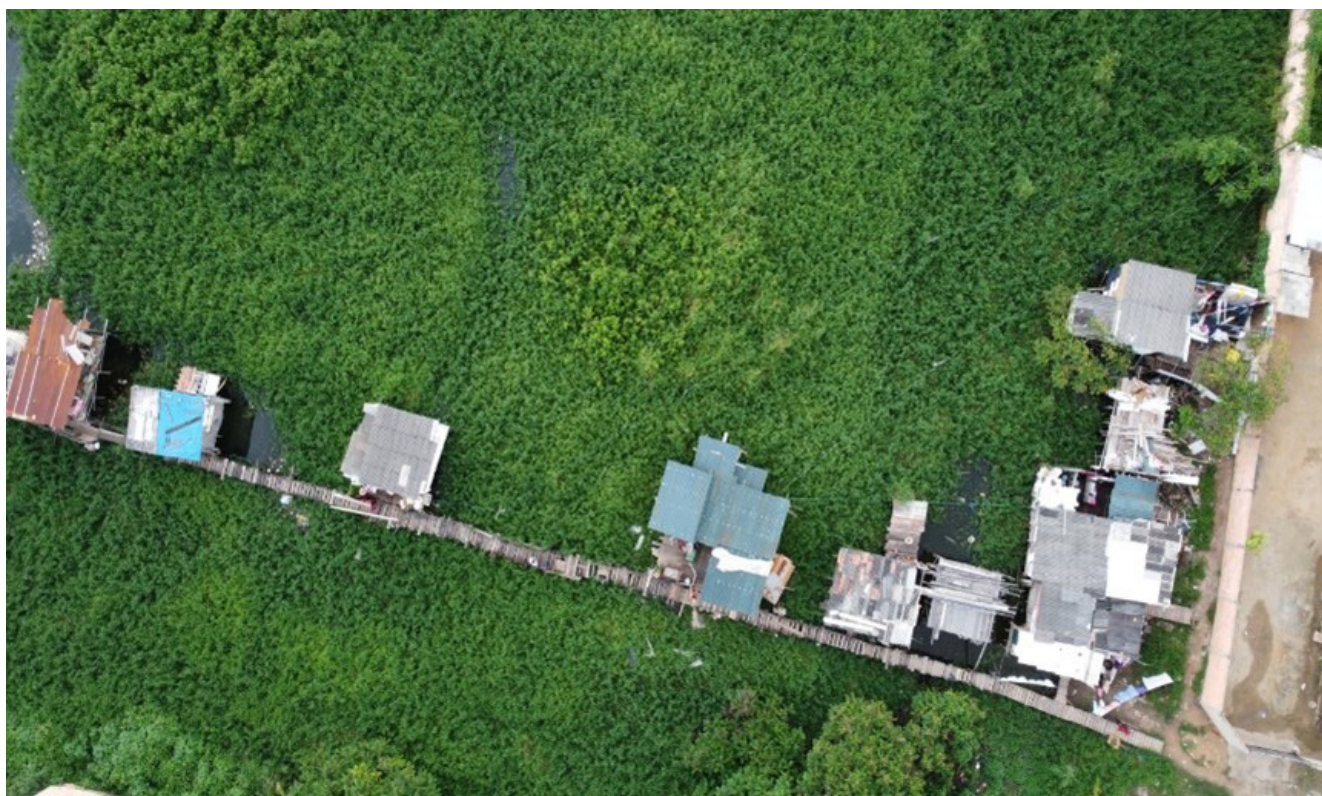
research (literature review, document analysis), semi-structured interviews and data collectively constructed during workshops. A gender perspective was integrated into the questions, data collection, workshop participant selection process, and overall sensibility for the implementation of the project.

In phase one, the team engaged in desk research to obtain a better understanding of the existing legal framework and mandates in CCA, DRR and environmental protection, as well as the environmental and socioeconomic context in Brazil. The literature review included relevant legal framework, government sources, as well as reports by international organizations, such as UN agencies, think tanks and academia. The desk research served to identify relevant security sector actors involved in CCA, DRR and environmental protection. Secondly, the team conducted 6 virtual semi-structured interviews with security sector actors³ to further explore the institutional perspective and validate the initial findings of the desk research.

Phase two consisted in the data collection at the field level. The project team conducted a 7-day mission to Brazil, where it conducted 8 semi-structured interviews to relevant stakeholders including local organizations and state actors. The interviews explored the roles and perspectives of security sector actors at the local level, as well as the perspectives and needs of local communities in Boa Vista, Roraima.

DCAF engaged the local partner Serviço Jesuíta a Migrantes e Refugiados (SJMR) to assist with field activities in Boa Vista, Roraima.⁴ SJMR validated the desk research; tailored the methodology⁵ to the local context; elaborated an actor mapping to identify

Photo: Luiz Nistal



relevant actors at the local level; facilitated logistics for the field mission; organized and implemented a 2-day workshop; and provided final recommendations for the engagement of the security sector in CCA/DRR and environmental protection. The workshop had participation of 13 individuals, between 18 and 55 years, mostly community leaders, residents of flood-affected areas from Indigenous and Venezuelan origin, who discussed and presented their life experiences in the face of extreme weather events environmental impacts.

In addition to the workshop, DCAF team visited the communities of Vila Vintem and Alvorada where the Warao refugees are settled, and two local security sector institutions: the Independent Environmental Policing Company of Roraima's Military Police (CIPA/PMRR), which is attached to the State Military Police, and the Roraima Military Fire Brigade (CBMRR). These two bodies are directly involved in DRR and environmental protection tasks.

It is important to note that desk and field research occurred at a particularly sensitive time, in the run up to Brazil's presidential elections. It was not possible to speak directly with representatives of civilian environmental agencies, which limited the ability of the team to analyse issues of coordination and cooperation between the security and other governmental sectors. Nonetheless, the perspectives shared by security institutions and communities already provided valuable insights into the opportunities and challenges which exist at the intersection of environmental and human security in Brazil.

Context: Understanding Brazil's environment and the legal framework

With roughly 60% of the Amazon basin within its territory and a 46.6% forest cover,⁶ Brazil holds a critical role in the fight against climate change. It is the fifth largest country in the world – both in territory and population – as well as the eighth largest economy. Brazil has vast natural resources, and it is one of the major exporters of agricultural products, minerals, and oil.

The Brazilian Amazon is the most biodiverse area in the world. It is considered one of the largest carbon sinks worldwide, as it is home to one-third of all the tropical trees, playing a crucial role in influencing rainfall patterns.⁷ However, factors such as rising temperatures, deforestation, and fires, have disrupted the Amazon's ability to balance carbon emissions.⁸ A recent study found that carbon emissions in the eastern Amazon are significantly higher compared to those in western areas due to deforestation caused by logging, extensive farming, and cattle ranches. Further, an even more distressing finding is that the Amazon south-eastern region rather than absorbing, is now releasing more carbon dioxide into the atmosphere.⁹

Brazil was the first country to sign the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. Apart from being a signatory of the UNFCCC, it is a party to the Kyoto Protocol and the Paris Agreement, enacted by Decrees 2.652/98, 5.445/2005 and 9.073/2017 respectively. In addition, Brazil is a party to various biodiversity-related conventions, including the Convention on Biological Diversity and its Nagoya Protocol, the Ramsar Convention on Wetlands, the Convention on Migratory Species and the Convention on

Photo: CIAT/NeilPalmer



International Trade in Endangered Species of Wild Fauna and Flora (CITES).

In 2009, Brazil established the National Policy on Climate Change - *Política Nacional de Mudanças Climáticas* (PNMC) to implement the Kyoto Protocol through Law N° 12.187/2009¹⁰ (regulated by Decree 7390/2010).¹¹ The Policy includes “sectoral plans of mitigation and adaptation” comprised by goals, indicators, actions and monitoring mechanisms. Some of the sectoral plans cover areas relevant to CCA, DRR and environmental protection such as deforestation prevention and control in the Amazon (PPCDAm) and Cerrado (PPCerrado); low carbon agriculture (PABC); and Mining (PMBC).

To execute and implement the accepted international and national norms, action plans are also in place along with other mechanisms. Some examples are the National Plan on Climate Change; the National Fund on Climate Change; Action Plans for the Prevention and Control of Deforestation in the biomes; the National Communication of Brazil to the United Nations Framework Convention on Climate Change, in accordance with the criteria established by this Convention and by its Conferences of the Parties; the resolutions of the Inter-ministerial Commission on Global Climate Change; fiscal and tax measures aimed at stimulating the reduction of emissions and removal of greenhouse gases, including differentiated rates, exemptions, compensation, and incentives, to be established in a specific law; specific lines of credit and financing for public and private financial agents; the development of lines of research by funding agencies; and others mechanisms in place and to be created in order to accomplish the goals.

Brazil’s environmental regulatory framework is constituted by several federal laws and decrees which aim to protect the environment - starting with article 225 of the Federal Constitution.¹² Climate change and environmental protection are reflected in national plans and frameworks such as the National Communication to the UNFCCC, National Plan on Climate Change, Nationally-Determined Contribution, and Biennial Update report.¹³ This framework provides policy goals and guidelines to determine priorities and efforts for adaptation and mitigation.

Brazil has committed to increasing efforts to improve water management, boost renewable energies, enhance public health provision, and implement ecosystem-based adaptation and mitigation strategies. However, despite Brazil pledged to eliminate illegal deforestation by 2030 in its 2015 Nationally Determined Contribution (NDC), it removed deforestation and sector-specific goals in the 2020 NDC.¹⁴

Roraima: local context

At the subnational level, the state of Roraima, located in the northern region of Brazil is at the forefront of the intersection of CCA, DRR, environmental risks and protection. Roraima is part of the Amazon basin, and it hosts the smallest absolute population in Brazil.¹⁵ Nonetheless, Roraima’s population increase has been the highest in the country for the fourth year in a row, with an increase of 3.41% in 2021.¹⁶ This is largely attributed to the arrival of Venezuelan migrants.¹⁷ Boa Vista, the capital of the state has the fifth-biggest indigenous population among Brazilian cities (around 6,000 people).¹⁸ According to the most recent Brazilian

Photo: CDI Brazil



census carried out by the Instituto Brasileiro de Geografia e Estatística (IBGE) in 2010, 49,637 people living in Roraima identify themselves as indigenous which makes Roraima the Brazilian state with the highest percentage of indigenous people (11%). The municipality of Uiramutã concentrates the highest percentage of indigenous peoples within the state.

Climate and Environmental Risks

Natural Hazards

Brazil is a large diverse country subject to different kinds of natural hazards. It is susceptible to floods, droughts, extreme temperatures, landslides, tropical cyclones, earthquakes, and infectious diseases.¹⁹ From these, drought, and excess rainfall, which often result in flooding and landslides, are the most common and disruptive hazard events.

Between 2010-2020, 66% of the deaths caused by natural disasters were caused by floods (45%) and landslides (21%); and roughly 93% of the economic damage from all natural disasters was caused by droughts. Further, in the last thirty years, Brazil's south and southeast regions have faced increased intensity and frequency of heavy rainfall, causing severe soil run-off, landslides, and flash flooding. Other visible impacts from rising temperatures and extreme events such as flooding are the outbreak of infectious diseases, including vector-borne and waterborne infections, and increased stress on sanitation challenges.

Man-made hazards

Activities including **illegal logging and mining**, besides having a negative environmental impact, are also classified as environmental crimes, causing significant environmental and socioeconomic damage and increasing violence and conflict over natural resources.²⁰ Additionally, these illegal activities disrupt the livelihoods of local and indigenous communities and feed up other **serious crimes such as human trafficking, arms smuggling, sexual exploitation, forced labour, corruption, and episodes of violence and murder**, as described in more detail in the Protect section of this report.

Another serious issue across Brazil, which is transversal across the different crimes is the **illegal invasion of public lands** for logging²¹, cattle ranching and agriculture. According to the testimonies of some interviewees, criminal organizations often 're-invest' their profits into acquiring land – often through forged titles and documents – which is later used for logging, agriculture and cattle ranching. Cattle ranching is also

frequently linked to local militias, often affiliated to non-state armed groups which are used to exert violence for expansion. These militias are also known to coerce and corrupt state officials, including security sector actors, for pursuing their activities, and in some cases.²²

Although **deforestation** rates in Brazil slowed significantly after 2004²³, they have increased starting 2019 as a result of policy and budget changes affecting environmental institutions.²⁴ Brazil's forestry sector has a high economic relevance, with 75% of tropical forests having a high timber potential. Of this, 70% are privately owned, and 30% are under the public domain comprised of national forests and parks, conservation areas, and indigenous peoples' lands. Eucalyptus and pine represent 59% and 37% of the forest plantations respectively.

Illegal logging in the Amazon region has been occurring at high rates since the 1990s.²⁵ Such operations are often undertaken in remote areas, outside of concession areas and invading protected and indigenous areas. In addition, the use of forged permits is widespread, with loggers cutting trees regardless of their protected status and often exceeding authorized quotas.²⁶ It is estimated that 90% of deforestation in Brazil is illegal, and it goes mostly unchecked partly because states don't feed precise data into SINAFLOR, the national system that controls the origin of forest products, active since 2014²⁷.

Illegal mining operations, which can lead to **water pollution**, have expanded²⁸ into indigenous territories in Brazil by nearly 500% between 2010 and 2020, according to a recent report from the research collective MapBiomass.²⁹ As a result, aquifers, rivers and lands have been poisoned with heavy metals employed in the extraction of ore, such as mercury. Local fish, the main source of protein within local communities, particularly indigenous, has been contaminated with unsafe high levels of mercury. This has generated health issues amongst the local communities (mainly children) and has led to a spike of violence between indigenous peoples and illegal miners, locally known as *garimpeiros*.³⁰

Forest Fires caused by human action are often the result of land clearing. In 2021, the Brazilian government approved a 24% cut in the budget of the Ministry of Environment from the 2020 allocation, resulting in the smallest budget in two decades.³¹ As a result, the Chico Mendes Institute of Biodiversity Conservation (ICMBio) almost had to suspend forest fighting efforts due to the lack of funding, despite an important increase on wild fires in 2021.³² This situation largely impacts indigenous peoples, who despite the Federal Brigades Program, still struggle with weak coordination and organization, as well as insufficient funding and support. ICMBio is

the administrative arm of the Brazilian Ministry of the Environment in charge of enforcing environmental protection laws for the conservation of protected areas.

Vulnerabilities

According to the 2020 ND-GAIN Index,³³ Brazil is vulnerable to the impacts of climate change, which pose a serious threat not only to its economic growth but also to its social development. It is estimated that the annual losses resulting from natural disasters reach up to USD 3.9 billion.³⁴ Factors such as rising temperatures, water scarcity, and heavy rainfall, put substantial pressure on ecosystems, vulnerable groups, and the country's economy. The most affected sectors are **agriculture, forestry, energy, water, and health**, which represent a significant proportion of the country's GDP.

Further, climate change has accelerated carbon emissions through moisture stress and increased dry periods.³⁵ In addition, human activity has considerably contributed to the degradation of the Amazon biome through illegal logging, mining, land clearing, cattle ranching and extensive agriculture. It is estimated that the agricultural industry is responsible for about 80% of the forest reduction in the Amazon in the last 50 years.³⁶

Brazil's precipitation patterns have been altered as a result of intense deforestation and forest fires – largely driven by the agricultural sector and cattle ranching – thereby impacting **water resources**. This is the case particularly in highly dense forest regions such as the Cerrado, which holds 43% of the country's freshwater outside of the Amazon.³⁷ Moreover, despite Brazil's

abundant water resources, the country has experienced crises affecting mostly the northeast, centre-west, and southeast regions.³⁸

One of the main challenges relies in that the sectors contributing the most to the Brazilian economy – such as agriculture and energy – are the most dependent on water. For instance, the National Water Agency (ANA) estimates that 72% of the water supply is consumed by irrigation; and 62% of energy is generated through large hydropower plants rather than smaller dams.³⁹ Further, since 70% of the freshwater supply is found in the Amazon region, inhabited by less than 7% of the population, urban populations face significant challenges in terms of access to and availability of water.⁴⁰

This water dependency and constraints on the availability and access to the water supply represent a risk to the productivity of different economic sectors and can exacerbate social tensions. For example, the creation of dams in some regions has led to compulsory displacement of population (about 40,000 people in the case of Itaparica dam) to bigger cities. As a result, there was a de-structuring of social relation networks, loss of arable land and various conflicts arose from the dispute over the availability of water and natural resources between the resettled population.⁴¹

The local context – Roraima

Roraima shares borders with Guyana and Venezuela, and it is affected by environmental hazards such as dry climate and drought; flooding; illegal deforestation; and human-caused fires (triggered by land clearing for cattle

Photo: CIAT/NeilPalmer



ranching and large-scale agribusiness).⁴² The region faces vulnerabilities such as high precipitation volume, unpaved or uneven terrain with low compaction, trees in poor environmental conditions, clogged manholes or with low water flow, and deficient sewage systems in building.⁴³ These vulnerabilities make the region prone to flooding and landslides.

The state has presence of gold mining operations, which threaten indigenous territories. Further, the impacts of climate change and human-led environmental degradation are already affecting indigenous communities, which describe how the rise of water temperature and mercury pollution have led to the disappearance of regional fish.⁴⁴ These features make Roraima a relevant area for conducting this study.

2. Prepare

I. Legal Framework

The Brazilian Constitution assigns legislative competence to different entities according to the applicable subject. As a Federal Republic, the Brazilian structure implies close cooperation among different actors at the national, state and municipal levels.⁴⁵ The majority of the public policies are drafted by the Union (federal level) and implemented with the overall support of the states. However, effective implementation at the local level heavily relies

on municipalities. This structure makes important to distinguish between the three governance levels for both preparedness and protection purposes.

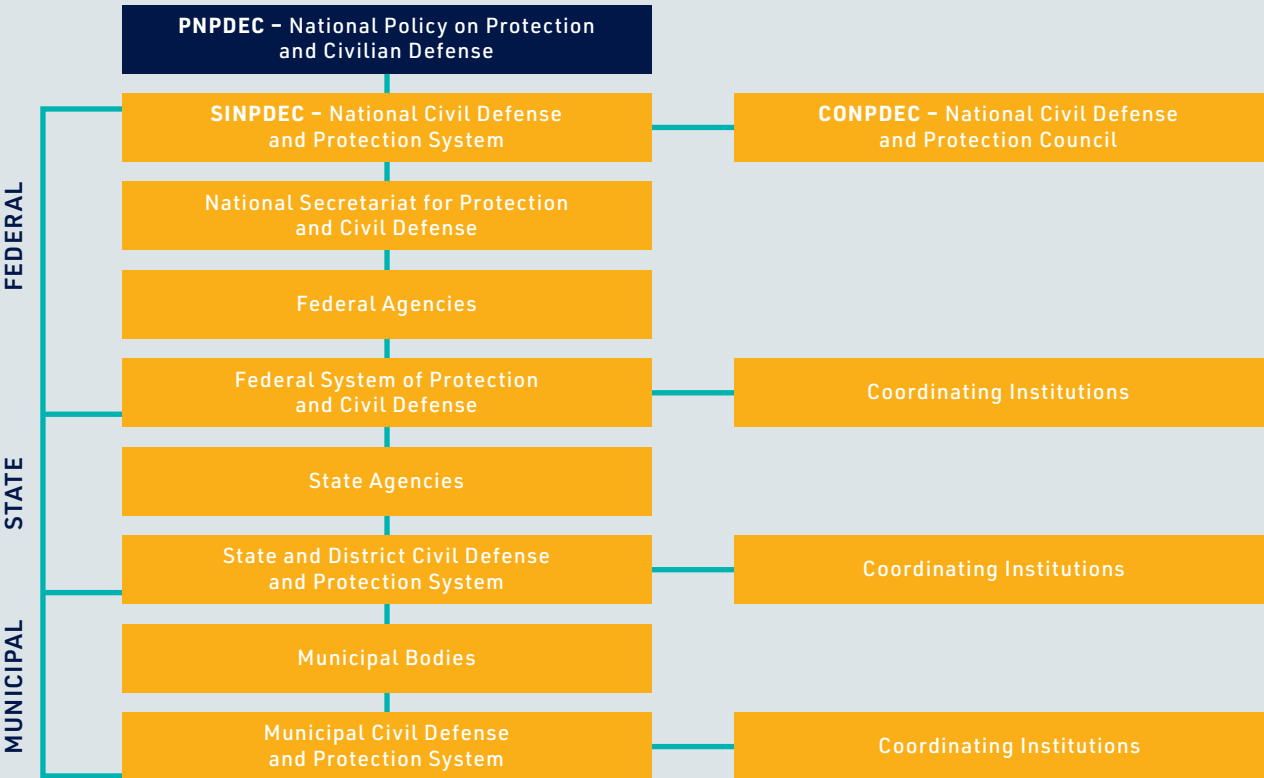
DRR is a collection of prevention, mitigation, emergency preparedness, response, and reconstruction actions. The main stakeholder in disaster risk reduction (DRR) in Brazil is the **Civilian Defense**.⁴⁶ DRR involves participation of state actors from diverse sectors; however, the bodies most widely associated are the Ministry of Integration and Regional Development (MIDR) through its National Secretariat for Protection and Civil Defence (SEDEC) which coordinates the National Civil Defense System (SINPDEC).

One of the main policies of this matter is Law N° 12.608 which institutes the National Policy on Protection and Civilian Defence (PNPDEC) and the SINPDEC, both responsible for coordinating and integrating all capacities in risk and disaster management.⁴⁷

Under certain scenarios, mechanisms such as the SINPDEC allow the engagement of the security sector in the execution of specific tasks beyond the (primary) scope of their mandate. For instance, the State Military Police and Fire Brigades (See 1988 Constitution, article 144, § 5), the Army and the Navy can participate the execution of some tasks in emergency response. In addition, the PNPDEC guides actions to reduce the risks of disasters and provides relief and assistance to populations affected by disasters.⁴⁸

II. DRR Structures and Stakeholders

Figure 3: National Structure DRR



PNPDEC – National Policy on Protection and Civilian Defence

Besides participating in the recovery of areas affected by disasters, the PNPDEC incorporates disaster risk reduction and civil defence and protection actions among the elements of territorial management and sectoral policy planning. Regarding prevention against natural disasters, it identifies, tracks and monitors threats, vulnerabilities, and produces early warnings as well as national awareness of disaster risks. It works on the planning of urban and rural land occupation prioritizing conservation and protection of natural resources; and guides communities to adopt adequate prevention and response behaviours in disaster situations and promote self-protection. PNPDEC integrates information into a system capable of supporting SINPDEC bodies in the prediction and control of the negative effects of adverse events on the population, goods and services, and the environment.

SINPDEC – National Civil Defence and Protection System

The SINPDEC has the duty to plan, liaison, and coordinate risk and disaster management in the national territory and it is composed of the National Council for Civil Defence and Protection (CONPDEC); the bodies and entities of the Federal Civil Defence and Protection System; the bodies and entities of the state and district civil defence and protection systems; the bodies and entities of the municipal civil defence and protection systems; private entities with relevant activities in the area of civil defence and protection; and civil society organizations.

CONPDEC – National Council for Civil Defence and Protection

The CONPDEC is a consultative board attached to the Regional Development Ministry that provides the federal guidelines for the Civil Defence and the monitoring of its implementation plans. It is comprised by stakeholders from diverse sectors with the purpose of providing multidisciplinary and comprehensive inputs for the plans. The CONPDEC structure is composed by representatives from the Ministries of Integration and Regional Development, Justice and Public Security, Defence, Citizenship, Health, Environment; the Government Secretariat of the Presidency of the Republic; and state and municipal civil defence and protection bodies, civil society organization with recognized performance in the area of civil defence and protection; and an educational and research institution with expertise in the area of risk and disaster management.

The coordination is divided into three levels of responsibility: the federal, state and municipal. At all levels, the main task is to protect citizens and organise the response to disasters; however, there are some specific functions. For instance, the Municipal Civil Defence is responsible for direct action with the population, sharing important information about risks and prevention, conducting inspections of buildings and risk areas, and distributing supplies to disaster victims. The State and Federal Civil Defence bodies are the only ones that can enact an emergency or state of public calamity or transfer resources to enable an operation.

Photo: CIAT/NeilPalmer



COMDEC – Municipal Civil Defence Coordination

The Municipal Civil Defence Coordination (COMDEC) was established to implement the civilian defence at the municipal level. This institution is responsible for analysing the risks in the region and elaborating the plans on what needs to be done, by whom, how, and when. During periods of normality, the two main tasks are prevention (reduce the incidence of disasters or minimise their impacts) and preparedness (prepare the SINPDEC in the region to guarantee an adequate response during disasters and lessen negative impacts). In some cases, it also implements Community Centres for Civil Defence (NUDEC) to support the COMDEC activities and response to disasters.

It is important to underscore that the institutions of the Civil Defence develop plans considering both, civilian and military assets (units/battalions/companies and resources such as vehicles, bulldozers, and others). In this context, military capacities are at the disposal of the Civil Defence in case of emergencies and/or disasters. Capacities vary significantly according to the location. In events when an asset is not available at the required location, the civilian defence structure has the faculty to request it from another municipality, state, or the federation, as needed.

CEMADEN - National Centre for Natural Disaster Monitoring and Alerts

The CEMADEN provides technical cooperation with intragovernmental institutions to encourage joint action to collect and share environmental data available in real time. In addition, it focuses on information sharing with the aim of providing monitoring actions and alerts of natural disasters in areas of risk, contributing to preventive actions at the federal, state and municipal levels. It works with the Civil Defence to minimize the number of victims and material damages resulting from natural disasters.

Local Government and DRR

At the subnational level, the Military Fire Brigades are responsible for executing the tasks of the Civilian Defence (1988 Constitution, article 144, § 5). According to the IBGE, 76% of the 5,570 cities have civil defence units. The commander of the unit will also hold the position of the State Secretary of Civilian Defence, a liaison role with other agencies and governmental institutions. The implementation of the PNPDEC starts with the Sub Secretary of the Civilian Defence, known as the P2MR2 (prevention, preparedness, mitigation, response, and recovery).⁴⁹

When a disaster occurs, the local Military Fire Brigade of the city have the primary responsibility of providing assistance. In case the situation is disproportional to the assets available for the unit, the Municipality Contingency Plan is triggered to call for backup for the other units in the same command. If additional assistance is required, it can be requested to other commands.⁵⁰ In case the Military Fire Brigade does not have the resources to respond adequately to the disaster, they can request assistance from the Armed Forces through the SINPDEC. For this, the situation must be classified as a 'state of calamity'. The Ministry of Defence will designate units from the Armed Forces to work jointly with the Fire Brigade. It is important to note that as stated by the "Instructions for the use of the armed forces in support of civil defence"⁵¹ the operational control will remain under the civilian defence. The role of the Armed Forces will be only to coordinate and assist in operations.

Figure 4: National Structure DRR



III. Service Delivery

National Multistakeholder Platform on DRR

As described in the previous section, there are several stakeholders involved in DRR in Brazil. Coordination efforts are led by the **SINPDEC**, which plans and liaises on risk and disaster management as well as prevention at the national level. The SINPDEC is comprised by different bodies at the Federal, State and Municipal level, all of which collaborate with public and private entities relevant to Civil Defence and protection, and civil society organizations. The **CONPDEC** serves as an advisory body at the federal level.

The **SEDEC** is the central body responsible for coordinating the **SINPDEC**, as well as for articulating with federal agencies and entities for the execution of risk and disaster management actions within the scope of the **Federal System of Protection and Civil Defense**. Similarly, **State and Federal District Defence bodies** are responsible for articulating and coordinating the **State and District Civil Defence and Protection System**. In the municipalities, the **Municipal Civil Defence and Protection** bodies are responsible for articulating and coordinating the **Municipal Civil Defence and Protection System**.

Under certain scenarios, mechanisms such as the **SINPDEC** through **CEMADEN** will request the engagement of the **Armed Forces**⁵² in the execution of specific tasks related to emergency response. The choice of which branch of the military, police, or civilian agencies will be deployed, is not set in stone by federal legislation, but is rather an operational decision of the relevant authorities according to the magnitude and necessity of the situation. For this purpose, the **Military Police** and the **Military Fire Brigades** act as reserves and constitutional auxiliary forces of the Brazilian Army. In the case of **Roraima**, the **CBMRR** has the mandate of prevention and response to natural disasters, as well as protecting life, property and the environment. They provide immediate response to fire, conduct rescue when needed, and are also responsible for risk management at the local level. They work in coordination with the Federal and State Civil Defence, State government, Secretariat of Infrastructure, and private companies when in need of extra equipment.

Both the army and the police can take different roles based on their presence in the region, capacity, and specialization. For instance, the **Army**, among many other roles, are responsible for isolated units in the middle of the Amazon basin or next to the borders with the neighbouring countries. The **Navy** is responsible for the protection of the national waters and its main tasks are on the water, whereas the land falls under the domain of the Army. For instance, during the Amazon fires, the Brazilian Air Force was responsible for using their aircrafts to put down the fires.⁵³ In the case of the floods and landslides in Petropolis, Rio de Janeiro, the fire department was responsible for searching and assisting the survivors.⁵⁴ But in this latter case, *the **Fuzileiros Navais***, the expeditionary troop of the Navy, provided additional assisted due to their experience dealing with similar disasters while serving at the United Nations Stabilization Mission in Haiti (MINUSTAH). This specific troop, the *Fuzileiros*, has the capacity to disembark on land during amphibious operations. Even though the scope of their mandate is not as wide as the Army, they



Photo: DCAF

have direct contact with the population and in such cases, they would be the ones deployed by the civilian defence plan or the federal government.

Prevention – risk analysis and information sharing

At the national level, the **CEMADEN** works closely with the **Ministry of Science, Technology, Innovation and Communication** and is responsible of monitoring natural threats in risk areas across Brazilian municipalities susceptible to the occurrence of natural disasters. In addition, it conducts research and implements technological innovations to contribute to the improvement of the early warning system with the ultimate goal of reducing the number of fatalities and material damage across the country. To achieve its objectives, CEMADEN manages the Risk Reduction Strategy⁵⁵ in Brazil, encompassing 5 spheres:

1. Knowing the risks: Systematic collection of information and risk analysis.
2. Monitoring and alert systems: Development of operational monitoring and alert systems.
3. CEMADEN education program⁵⁶: A network of schools and communities for disaster prevention. The program was recognized as “an inspiring practice”

by the UNFCCC and designated as good practice for disaster risk awareness.

4. Dissemination and communication: Communication of information on risk monitoring and alerts. It works to ensure all people at risk are alerted, understand the risks and warnings, and that the information clear and useful.
5. Response capacity: Development of response capacity at national and local levels. The focus is on ensuring that response plans tested and updated, using local knowledge and that the population is prepared to respond to alerts.

CEMADEN operates 24 hours, monitoring the risk areas of 957 municipalities classified as vulnerable to natural disasters. It sends natural disaster alerts to the National Centre for Risk and Disaster Management (CENAD), attached to the MIDR, which assists the National Civil Defence System. When CEMADEN sends alerts classified as 'very high risk' to the State and Municipal Civil Defence bodies, the Municipal Contingency Plan is activated. For instance, in the case of Roraima, direct coordination occurs with the **CBMRR**. If deemed necessary, the assistance of Armed Forces is requested at this stage (such as major natural disasters).

Preparedness and Planning

At the national level, the PNPDEC has the primary responsibility to track and monitor threats, vulnerabilities, and produce early warnings as well as national awareness and prevention against natural disasters. According to Brazilian legislation, the PNPDEC covers

actions such as prevention, mitigation, preparation, response, and recovery. One of the main avenues for preparedness and planning is urban and rural land planning, as well as guiding communities to adopt adequate prevention and response actions in disaster situations.

At the local level, municipalities develop their contingency plans, which already include the protocols for requesting assistance from other stakeholders, including the armed forces through the SINPDEC when required. In the latter case, the "Instructions for the use of the armed forces in support of civil defence" contain the guidelines for the role of armed forces in disaster response operations.

Among prevention actions at the local level, the CBMRR undertakes remote monitoring⁵⁷ using the Prodes and Deforestation Detection in Real Time (DETER) systems from the National Institute for Space Research (INPE)⁵⁸, planning and sourcing equipment (such as 4x4 vehicles, vessels), conducts inspections to verify the situation of local communities and provides guidance to population on how to act during emergencies. It also maintains an inventory of all institutions' capacities and resources available for disaster response. Similarly, other security sector actors such as the **Army** and the **Navy** conduct patrols to verify the status and check on the needs of local communities. The purpose of those inspection patrols sometimes goes beyond DRR; however, it incorporates preparedness actions.

The **CBMRR** also conducts training as part of preparedness actions, targeting both volunteers and potential hires. Training covers disasters such as fires and floodings, and some of the trainees have been hired to act as an arm of the Civil Defence during emergencies. Other prevention activities involve planting trees in targeted areas, awareness building with local communities, the **Environmental Protection Group (GPRAM)** coordinates joint operations at the federal, state and municipal levels, such as *Operação Período Chuvoso*, which focuses on actions to prepare for and mitigate for the impact of flooding, landslides and emergency tree cutting. The frequency of these incidents increases during the high rain season.

Photo: DCAF



IV. Social Cohesion and Peacebuilding

Due to Brazil's vulnerability to the frequency and intensity of natural disasters caused, especially by floods and landslides, **DRR is an essential activity for maintaining social cohesion and a positive perception of the state**. Floods and landslides cause, in addition to deaths, severe economic losses such as the destruction of homes and infrastructure. Seasonal floodings during the winter (rainy season) have increased in duration⁵⁹

and magnitude⁶⁰. During this season, the communities in certain areas are often flooded. This creates several challenges including difficulty accessing food as well as struggles to generate income due to limited mobility. At the same time, diseases emerge as supplies of drinking water are affected.

In 2011 the country experienced heavy rainfalls, which caused flooding and landslides, which resulted in significant human and property losses. The negative public perception about the state's responsibility and response to the emergency led to periods of social unrest. In the aftermath, **the Federal Government has worked to consolidate a multisectoral program** that would allow for coordinated action between the bodies involved in issues related to monitoring and alert management, alarm and articulation, response and mobilization.

Despite significant progress made in DRR structures, some communities still face critical vulnerabilities to natural disasters. Workshop participants described their experiences in natural disasters, stating the lack of assistance and support from state authorities. They perceive a high level of discrimination against them due to their migrant/refugee, or indigenous status. Participants discussed experiences where they **did not receive food aid because of their status as migrants**. These vulnerable groups feel distanced from state actors, including security sector actors such as the Municipal Guard, Military Police and Military Fire Brigade. Most of them do not know whom to contact in case of a natural

disaster, and because of **past incidents of forced eviction that involved excessive use of force**, they do not trust security sector actors.

There are operations at the national level that are part of trust-building measures with the local communities during times of disasters, crises, or other needs of assistance. In the Brazilian context, they are called **Civic-Social Actions (ACISO)**. The ACISO are activities promoted by the armed forces, with a temporary or programmed provision of assistance to communities using human, material, and technical resources to face pressing challenges.⁶¹ These activities aim to promote the civic and community spirit of citizens in Brazil. A similar operation would be a Humanitarian Task Force, such as Operation Welcome in Roraima, to relieve human suffering caused by a disaster that threatens life or represents significant damage to the population. It includes ACISO activities complementing the civilian and governmental response/NGOs to the disaster using military means.

In addition, the **National Week of Disaster Reduction** was established on the second Monday of October every year. The goal is to increase the awareness of disaster and risk perception, as well as to enhance local prevention and preparedness, especially in high-risk areas.⁶² This is evidence of consideration of some of the intersectional and multidimensional risks in public policies such as territorial planning, urban development, health, environment, climate change, water resources management, geology, infrastructure, education, science

Photo: Yolanda Mêne/Amazônia Real



and technology, assistance, and those that may be incorporated into SINPDEC, with a view to protecting the population.

V. Findings

- While the size of Brazil's territory clearly poses a significant challenge when it comes to disaster response and risk reduction, the Brazilian government has developed several **approaches for planning and allocating resources where they are needed most**. The maintenance of an inventory by the Fire Brigade of all resources for DRR across institutions allows the monitoring gaps as well as quickly shifting resources as needed in case of emergency. The use of remote monitoring technology also allows the gathering of risk data for early warning and early response.
- Yet, there are important **differences in terms of capacity between the municipal, state and federal levels**, as well as across States and the Federal District. The Military Police and Military Brigade in Roraima state report limitations in the number of officers as well as transportation means, equipment and tools. Resource limitations, both in terms of human resources and equipment are addressed by requesting support from the Armed Forces (as required). This entails significant coordination between agencies, which in some cases can result in **longer response times**.
- Municipal Civil Protection and Defence bodies design their own Municipal Contingency Plans. The plans usually include actions such as on-site verification of risk areas, activation of the siren system, possibility of vacating risk areas, and deployment of response teams close to risk areas. In addition, municipalities are not required to report to the Federal level about the actions they undertake. This means that municipalities have a significant degree of autonomy for DRR, but there is also a **gap in feedback and lessons learned between the different governance levels**.
- Most State Coordination for Protection and Civil Defence units have alert systems in place. In Roraima, the adoption of the alert system via SMS was possible after the National Secretariat for Protection and Civil Defence made the system available within the region. The system provides relevant information about heavy rains, landslides, floods, and other environmental hazards. Although it is intended to be accessible to any individual in Roraima, **vulnerable communities such as indigenous peoples, migrants and refugees are not aware of the alert system** or are unable to access it due to the lack of cell phones or network connectivity in their regions.
- The Brazilian government has made significant investments in responding to the needs of communities in times of crisis. However, formal response mechanisms sometimes overlook migrants and other disadvantaged groups, pointing to a need for **greater attention to the needs and perceptions of communities which are particularly at risk** in order to better contribute to social cohesion.
- **Involving security institutions in awareness and educational campaigns** can be an important contribution to preparedness and take advantage of the ability of these institutions to reach remote areas of the country. At the same time, there seems to be a need for **campaigns to be developed with sensitivity to past experiences** communities may have had with the security sector which (negatively) affect perceptions and levels of confidence today. This is particularly true for historically marginalized or disadvantaged groups, such as migrants and indigenous communities.
- Given Brazil's vast territory, **communities in remote areas (for instance, indigenous) will remain the first line of defence** when it comes to preparing for and mitigating the risks of disasters. Several representatives of security institutions shared their perception that indigenous communities may have better means of adaptation and resilience than what formal government institutions are able to offer. **Mutual respect and an openness to learn from communities** themselves can also make important contributions to social cohesion.

3. Protect

I. Legal Framework

When it comes to the protection of the environment, there are two main categories: the conservation of the environment and environmental crimes/illicit activities⁶³. Annex 2 provides detailed information about what is considered an environmental crime in Brazilian legislation, and how concepts such as environment or degradation of environmental quality are understood.

In the case of protection of the environment, Law N° 6.938 of 1981, also known as the National Policy for the Environment (PNMA), provides the main framework for preserving, improving, and recovering the environmental quality, ensuring conditions for socio-economic development, the interests of national security, and the

protection of the dignity of human life within the country. Since 1981, Brazil incorporated in its environmental legislation that every private or public business activity must be carried out following the guidelines of the PNMA. In addition, environmental education is considered critical for guaranteeing the protection of the environment.

Some of the objectives of PNMA include aligning socioeconomic development with environmental preservation and ecological balance (maintaining equilibrium between species in an ecosystem); as well as defining priority areas for government action and establishing criteria and standards related to quality and ecological balance and the use of natural resources. The PNMA works on balancing interests at the federal, state and municipal levels, and develops research and national technologies to enhance the efficient use of environmental resources. It is also involved in the dissemination of environmental data and information, and the formation of public awareness of the need to preserve environmental quality and ecological balance. The PNMA has faculties to enforce laws and impose the obligation to compensate or indemnify damages when deemed pertinent.

Similarly, Law N° 6.938 of 1981 confers the Power of Environmental Policing to the Military Environmental Police. The Military Environmental Police Units have the constitutional attribution of prevention and repression of infractions committed against the environment. It

provides them faculties to act in areas such as protection of flora, fauna, fisheries, and specially protected areas, as well as environmental crimes.⁶⁴

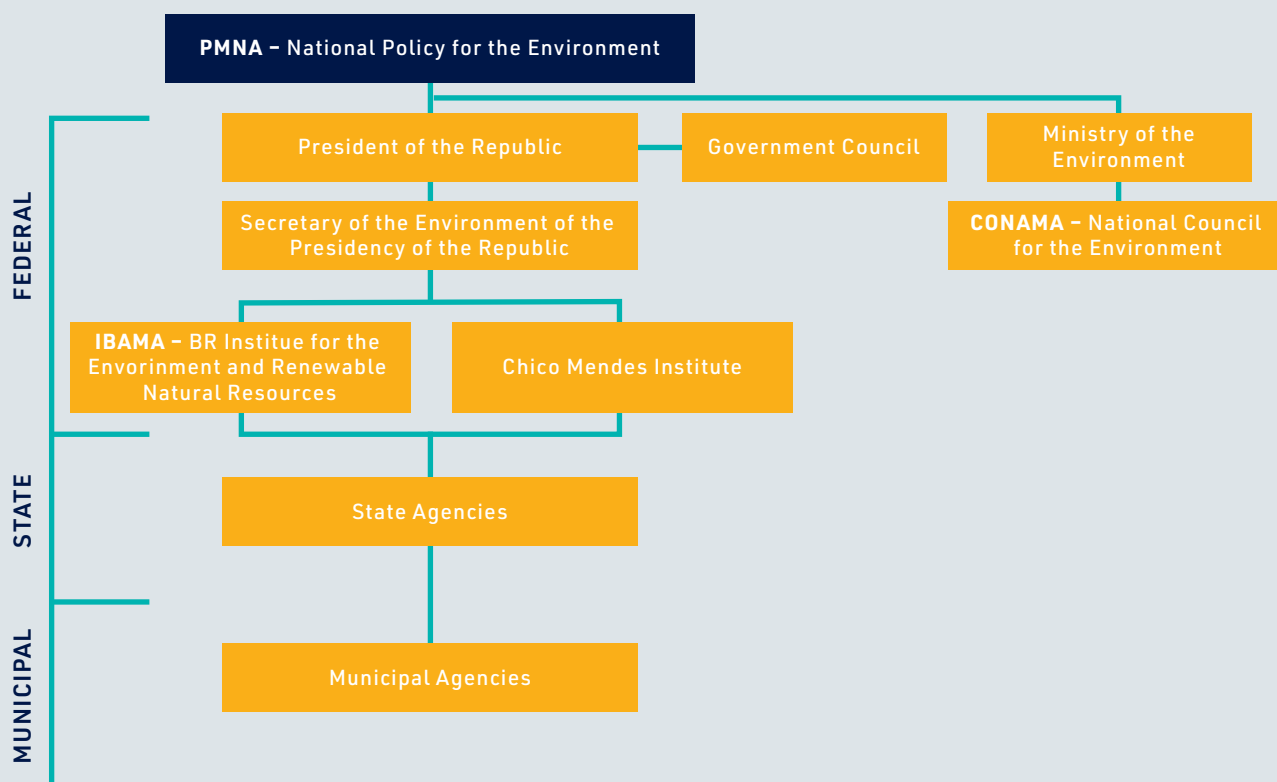
Further, the main statute governing the protection of habitats and biodiversity is Law 9.985/2000, which establishes and regulates the National System of the Environment (SISNAMA). The law envisages different categories of conservation units, according to specific objectives and the degree of protection to be achieved in each case.⁶⁵

As a complement, Law No 9.605 – 1998 on Environmental Crimes, outlines environmental crimes, the sanctions, and which stance (civil, administrative, or criminal) comprises the panorama of protection of the environment in the country. In the case of environmental administrative offenses, SISNAMA and the Port Agents, from the Brazilian Navy, have police authority to issue infractions and initiate administrative process.

Federal Law 7.347/1985 confers NGOs and other institutions legal standing for filing environmental class actions. In addition, Article 70(2) of Law 9.605/1998 - Environmental Crimes Act states that any person that witnesses an environmental offence can initiate enforcement actions with the pertinent authorities.

While the security sector plays a key role in environmental protection in Brazil, the main policies do not mention them explicitly except in Law 9.605 – 1988

Figure 5: National Policy for the Environment



on Environmental Crimes. Nonetheless, the mandates of institutions such as the Federal Police, Military Police and the Army do mention environment protection.

Environmental protection has an intricate relation with the local culture and local communities' subsistence, which is also reflected to some extent in the legislative framework. Hunting, fishing, and harvesting are part of indigenous communities' culture as they determine their self-sufficiency and traditional livelihood systems. While the Wildlife Protection Act (Law 5,197 / 1967) prohibits hunting, the Law of Environmental Crimes (Law 9,605/1998) allows hunting 'when in a state of necessity'. The Disarmament Statute (Law 10,826/2003) includes a category of 'subsistence hunter' for rural residents over 25 years-old who rely on the use of firearms for their family's subsistence; however, the 1988 Constitution and the Indian Statute (Law 6,001/73) provide ancestral rights over lands and faculties to hunt and fish in their areas to Indigenous peoples without any age restriction. Some local communities are not familiarized with these laws – particularly Venezuelan indigenous migrants and refugees – which prevents them from understanding the limits of certain activities and their rights when engaged in them.

II. Stakeholders

The SISNAMA is comprised by bodies and entities at the federal (Union), state, and municipal level responsible for the protection and improvement of the environmental quality. In its higher stance, the Government Council is responsible for advising the President of the Republic in the formulation of national policies and government guidelines for the environment and its resources. The National Council for the Environment (CONAMA) serves as a consultative and deliberative body, with the purpose of advising, studying, and proposing to the Government Council, guidelines for government policies for the environment and natural resources, and deliberating, within the scope of its competence, on norms and standards compatible with an ecologically balanced environment.

The Environment Secretariat of the Presidency of the Republic, a central institution, is responsible for planning, coordinating, supervising, and controlling, as a federal body, the national policy, and governmental guidelines established for the environment. Attached to the Environment Secretariat, the **Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA)** and the **ICMBio** serve as executing agencies, with the respective tasks of executing and enforcing the governmental policy and guidelines established for environmental conservation. In addition, at the state

level, there are sectional bodies which execute programs, projects, and conduct control, and inspection of activities with the potential to cause environmental degradation. Complementing this work, local bodies are responsible for the control and inspection of these activities at the municipal level.

Alongside the structure of the PNMA, the Ministry of the Environment is a body of the Federal Public Administration responsible for the National Environmental Policy, as well as areas related to preservation, conservation, and sustainable use of ecosystems, biodiversity, and forests. It develops economic and social strategies, mechanisms, and instruments for improving environmental quality and sustainable use of natural resources; policies for the integration of the environment and economic production; environmental policies and programs for the Amazon; international strategies and instruments for promoting environmental policies; and economic ecological zoning. To accomplish this, the Ministry has a complex structure with different secretaries and agencies to promote sufficient data collection and available materials to inform the environmental policies.

Conservation Units

At the federal level, the ICMBio is responsible for demarcating protected areas in the Brazilian territory known as conservation units. Due to their relevance for the environment, these areas are managed by the public sector and are subject to specific legislation. Currently, there are 344 federal conservation units.⁶⁶ ICMBio has

Figure 6: Protect - Stakeholders in the Security Sector



faculties to exercise police powers within these areas,⁶⁷ and it acts in coordination with the Federal Police (sometimes State and Municipal Police) or the Armed Forces.

Due to the difficulties to access these territories (challenging geography), and the relatively low need to have permanent security presence, civilian agencies such as IBAMA, ICMBio and the National Foundation of Indigenous People (FUNAI) coordinate with security sector actors. According to the Decree N° 4.411 of 2002, both the Federal Police and the Armed Forces have the “freedom of transit and access, by water, air or land, of military and police officers to carry out displacements, parking, patrolling, policing and other operations or activities related to the security and integrity of the national territory, to the guarantee of the law and public order and security”. This law is a good example of the intersection between environmental protection and the security sector as it acknowledges the environment is part of the “national integrity” and its direct link to national security.

Other significant conservation efforts at the federal level can be found in the INPE, which has five different types of monitoring systems to track deforestation in Brazil's Legal Amazon (BLA). Among these systems, the DETER initiative⁶⁸ excels. The DETER system is a contribution of the INPE to the action plan of the Brazilian Ministry of Science, Technology, Innovation and Communications through the Permanent Inter-ministerial Working Group to reduce deforestation through satellite imagery and almost daily revisit, enabling an early warning system to support surveillance and control of deforestation. The DETER system was developed to aid IBAMA in environmental inspections related to mining related deforestation, illegal logging and manmade wildfires for land grabbing and agricultural purposes. However, DETER alerts are neither

detailed nor fast enough to fully assist law enforcement environmental institutions for operational purposes and they have to combine this satellite imaginary resources with other type of air surveillance techniques.⁶⁹

Federal Police

The mandate of the Federal Police has several attributions and functions. It is a civil institution comprised by different units, which makes its mandate complex to describe. In the environmental area, it has three major pillars: (a) Environmental Criminal Investigation (coordinated by a board, with no prosecution functions, no specific directions); (b) Forensics (environmental, engineering, geo-information); and (c) Intelligence⁷⁰ to inform decision-making. In addition, it utilizes remote sensory systems to detect drug plantations, laboratories, and transportation, which are easy to hide in the Amazon.

The Federal Police coordinates with several state institutions. Although there seems to be certain overlap in some competences, there is a slight segmentation both geographically and in terms of competence division. For instance, within the Amazon, issues involving indigenous matters, a river diving two states or within 50 km of the international border, and mining, fall under the domain of the Federal Police. However, issues related to wood/timber trade typically fall within state competency.

The Federal Police is only deployed to field operations for serious crimes (according to environmental legislation). In many cases, the Federal Police conducts joint operations with the Military Police (mandated to protect people, enforce the laws, fight crime and preserve public order), Municipal Polices, or other civilian supervision agencies responsible for environmental matters such as IBAMA and ICMBio (federal), but also state supervision agencies including the State Secretariat of the Environment.

Photo: Vinícius Mendonça/IBAMA



Coordination usually takes place in large operations (which can involve up to 400 agents), operations involving travel, operations within indigenous lands or in federal conservation areas, or in cases with the presence of large numbers of people in the field. For joint operations, there is usually one organization leading the operation. Depending on the case it can either be the Armed Forces, or the Federal Police.

Municipal Guard

At the local level, some municipalities have the faculty to create Municipal Guards. In Roraima, the Municipal Guard⁷¹ has one unit with the mandate of environmental protection, the GPRAM, which is responsible for issues related to animals.

Brazilian Army

The Brazilian Army participates in both, environmental conservation and protection activities. The Army has military units located in all the national biomes, including the Amazon, Pantanal, Cerrado, Caatinga, Atlantic Forest and Pampas. Due to their presence in such areas and following the rules and regulations framework of the Directorate of Real Estate and Environment (DPIMA) that deal with environmental management, the Army contributes to the preservation of fauna and flora species. Additionally, the Army participates in fighting

environmental crimes such as illegal deforestation and mining in coordination with the Federal Police and other civilian agencies.

The DPIMA regulates, supervises, and coordinates activities related with environmental management. Activities include undertaking environmental inventories, diagnosis, studies, and assessments in cooperation with national and international partners. It also provides training to both military and civilians on environmental matters.

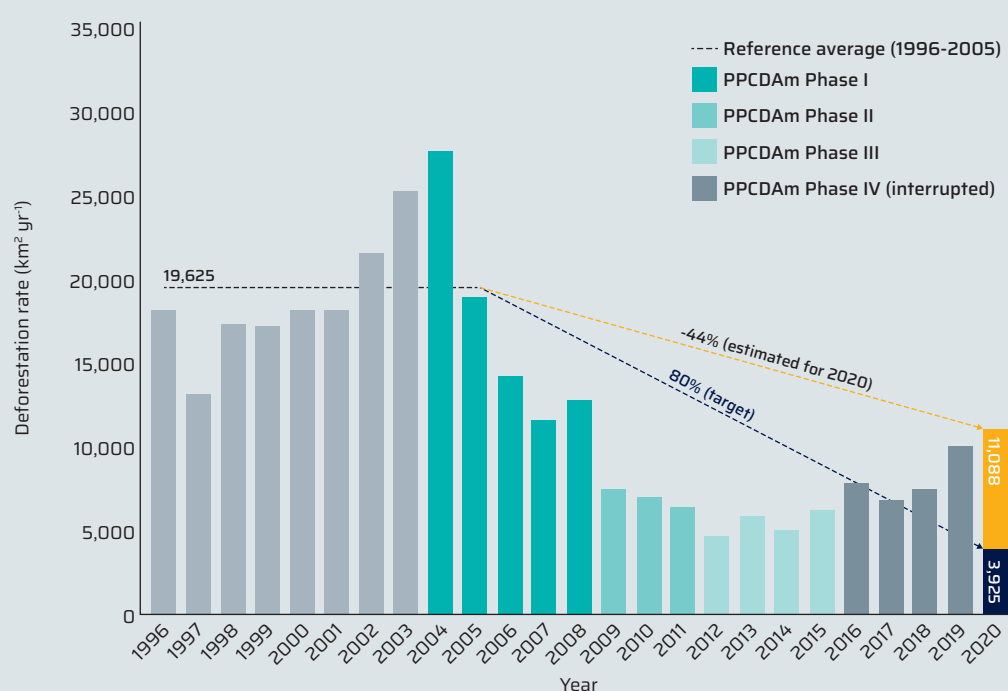
III. Service Delivery

The Evolving Role of the Security Sector in Addressing Environmental Crime

Specific observations related to current approaches to detecting, sanctioning and preventing environmental crime are included under the related sub-headings below. However, it is important to first understand how the role of the security sector in addressing environmental crime has changed significantly in recent years, as this evolution offers valuable lessons for future consideration of the benefits and challenges of involving security sector actors in this space.

Up until 2019, the environmental agencies IBAMA and ICMBio were some of the most successful actors in the detection and repression of environmental

Figure 7: Official numbers for the rates of deforestation rates of the Brazilian Amazon.



Coloured bars represent phases of the Brazilian government's PPCDAm. Figure directly taken from Silva Junior, Pessôa, Carvalho et al. (2020; p. 144).

crimes in the Amazon. For example, in the period 2004-2019, illegal deforestation saw a constant yearly reduction throughout the implementation of the PPCDAm as is shown in Figure 7. The plan was launched by the Federal Government and executed with improved coordination between public actors across Legislative and Executive powers and security sector actors.⁷²

During this period IBAMA and ICMBio were the vanguard in the fight against illegal logging activities. IBAMA was well equipped and capable of collecting intelligence and rapidly implementing surgical operations with a specialised enforcement team known as GEF - *Grupo Especializado de Fiscalização*. These rapid operational raids were conducted in highly mobile light vehicles and/or helicopters and with less than a dozen agents per deployment. Agents would arrive at the crime scene, make the arrests, issue fines, and most importantly, destroy the logging machinery which would prove essential to hamper deforestation in the long term. Firstly, it was difficult for the agents to move the seized heavy machinery in remote and isolated areas in the jungle, and secondly, the systematic destruction of the logging machinery eventually proved to be a strong deterrent for criminal organizations due to the high economic cost of machinery losses.

Further, IBAMA's operations were considered effective for two reasons. In the first place, **the agency had**

the mandate, manpower, skills, and resources, to undertake such complex operations. Secondly, **IBAMA had the valuable intelligence that was provided by civil society actors and environmental leaders** as a result of their confidence and trust in IBAMA's capacity to respond. IBAMA agents reportedly coordinated well with other agencies at Federal and State level, and they managed to develop a close relationship and an important communications network with civil society leaders, indigenous and rural peoples in the Amazon, who would report almost in real time to these agents when they saw an environmental crime was being committed.⁷³

In 2019, the new elected Brazilian government transferred the responsibility of combating environmental crimes to the armed forces and IBAMA's personnel progressively decreased from around 1,500 enforcement agents in 2012, to around 600 in late 2021.⁷⁴ However, the army was never given the mandate to either arrest, nor issue fines, nor to destroy the logging machinery. Furthermore, the military operations employed the use of slow, heavy, and noisy vehicles. By the time they would reach the crime scene, the loggers would be gone and without the mandate to destroy the machinery, the illegal activities would resume after a few days or weeks. As the army had no authority to impose fines, those had to be collected by other government agencies which slowed the process and therefore the number of fines during that period diminished.⁷⁵

Photo: Luiz Nistal



Another issue resulted from the change of policy in 2019 was that the **new responsibilities attributed to the Armed Forces were not accompanied with a new set of skills and knowledge** for the military to undergo their newly assigned tasks. For example, the legal logging is regulated by the types of trees that can be chopped and most importantly, where can they be cut. The problem is that ensuring compliance is a difficult task for law enforcement agents if they lack the knowledge to identify the types of logs seized in a routine inspection or checkpoint for examples since criminals often try to disguise unauthorized wood as legal.

In recent years Brazil has tried to curb the skyrocketing deforestation rate that spiked since 2019. From May 2020 to April 2021 "Operation Green Brazil 2" (*Operação Verde Brasil 2*) was conducted by the Brazilian Army and left federal agencies with expertise in combating deforestation relegated to a minor role. This operation was reportedly less efficient than those conducted by the specialized environmental oversight, even registering an increase in the number of forest fires during the mandate of the operation.⁷⁶ However, it is also important to note that **while IBAMA was for years better funded and supported than the army for this task, it was never**

able to stop illegal deforestation entirely due to the vast size of the region to cover and the obstacles to traveling through the jungle.

Detection

Currently, detection of environmental crime remains a challenge, given not only the **size of Brazil's territory**, but also the relative ease with which criminals can transit the region. The Amazon basin offers many economic opportunities such as wood, gold, illegal land acquisition, and livestock raising. It is also a natural corridor for drug trafficking between Brazil, Bolivia, Peru, and Colombia, but also with Europe; as well as for weapons' trade/trafficking. Moreover, there is anecdotal evidence that organized crime and environmental crime are closely linked. The Amazon, in addition to serving as a transit corridor provides economic opportunities to exploit natural resources including soybean agriculture and cattle ranching, but also illegal activities such as logging and mining using revenues from drug trafficking.

The Brazilian Armed Forces and Federal Police have undertaken efforts to both **detect and address environmental crime through stronger international cooperation**. This includes several joint military and police operations with neighbouring countries like Colombia, Bolivia⁷⁷, French Guyana⁷⁸ and Peru⁷⁹). With Colombia in particular, Brazil conducts the Annual Regional Military Exchange Meeting aimed at curbing environmental crimes and combat crimes along the border through operations for blocking illegal mining and seizing equipment for illegal timber logging and implementing a remote sensor system to improve the effectiveness for detecting environmental crimes.⁸⁰

Security sector actors (especially at the municipal level) and local communities expressed that security institutions are understaffed and under-resourced. As one example, in **Roraima**, the **CIPA/PMRR**, a unit attached to the Military State Police, has only 27 officers, roughly 25% of the human force required to cover an area 5 times the size of Switzerland. In addition, it lacks sufficient transportation means and equipment such as boats, drones, and radios, which are key items to fulfil their mandate. Similarly, the **Federal Police**, which has the mandate to investigate federal crimes such as **environmental crimes, crimes in indigenous areas or transnational crimes**, have only 11,615 active employees, compared to the 406,384 of the **Military Police** – whose functions are more of a **preventive nature, maintenance of public order and public safety**, but cannot enter areas of federal jurisdiction.⁸¹ Further, even when the Military Police have large, specialized units such as cavalry, shock, tactical groups, aviation, anti-bombing, among others, the case of

Roraima demonstrates there are important differences across States. These resource limitations constrain the ability of security institutions to detect and address environmental crime.

As one way of compensating for resource limitations, **satellite mapping and remote monitoring technologies** allow monitoring of areas where permanent presence of the security sector is not feasible and enhance preparedness capacities for DRR. In terms of environmental protection, stakeholders such as the Federal Police, State Military Police, and the ICMBio, among others, use remote monitoring to identify and prioritize areas of intervention.

Financial monitoring is also a key aspect of efforts to detect environmental crime. The Federal Police's Environmental Forensics area has an accounting department that monitors transactions generated from wood activities. It verifies activities reported against financial flows. The Document Forensics area validates exploration licenses/permits as many illegal activities are conducted using forged documents (support of investigations). There is a separate area that deals with money laundering.

Sanctions & Remediation

The Environmental Crime Act and Decree 6.514/2008 establishes both administrative and criminal penalties for the more than 200 environmental offences. However, security sector actors such as the Federal Police acknowledge the **intricate relationship between environmental crimes and local communities' livelihood systems**. For instance, most of the large strategic operations resulting in the dismantling of illegal logging activities do not result in the imposition of a penalty to the individuals found conducting illegal logging. Such individuals are usually taken into custody to present their testimony and are immediately released. These operations focus instead on dismantling organized crime by identifying and capturing the heads and funders of illegal logging operations and equipment seizures. As described by the Federal Police, learning from previous interventions demonstrates that without providing alternatives to illegal activities, individuals continue engaging in similar activities, or in some cases, end up involved in more serious crimes.

It is also important to examine the **enforcement of the penalties which are imposed**. Information compiled by the NGO Mongabay and the journalistic alliance *Tras las huellas de la palma*⁸² revealed that in the last 12 years, only 44 fines have been imposed on irregular/illegal palm oil producers by both federal and state authorities. Of the total sanctions registered between

May 2011 and November 2021, only 20 revealed the amounts, which add up to 1.37 million Brazilian real (about USD 261,000). From these, only three were registered as paid, and several of them do not contain any information on the environmental crimes committed.⁸³ This example demonstrates how in many cases, **finances are left unpaid and there is a gap in enforcing sanctions**. Furthermore, a 2019 Human Rights Watch (HRW) report⁸⁴ showed a systematic **failure to properly investigate and prosecute acts of violence and intimidation linked to illegal logging**. Of the 28 killings documented in the report, only two had gone to trial, and of the more than 40 cases of threats, none had gone to trial.

Another recent study conducted by the think tank Igarapé Institute analysed the distribution of 369 operations carried out by the Federal Police in the period 2016-2021 in each of the nine states comprising the Brazilian Amazon. The operations targeted five illicit activities: illegal deforestation, land grabbing, illegal logging, illegal mining, and agriculture and livestock farming. The findings of the study suggest that imposing fines is not sufficient to deter perpetrators of illegal activities. They also highlight the need for **strong intelligence capabilities and strategic prioritization** based on the prevalence of specific types of crimes in certain states. In order to deter and repress crimes, the Brazilian security sector also needs to strengthen its **administrative inspection capacity**⁸⁵ and **criminal prosecution**, both of which are mentioned as constrained by scarce human and financial resources.⁸⁶

Prevention

Two prevention strategies aiming at upstream disruption as a strategy to deal with the vast territory are worth mentioning. One is the destruction of equipment for logging and illegal mining, which increases the costs

and reduces the incentive to engage in these activities. The other is the tackling of mercury smuggling across Brazilian borders⁸⁷ and the sampling of waterways for mercury contamination as an upstream detection and disruption strategy of 1) illegal mining (for which mercury is a key ingredient), 2) mercury pollution (in ground water and rivers), and 3) deforestation associated with mining.

Environmental education is one of the principles of the National Environmental Policy (Article 2, Law 6.938/1981). Security sector actors such as the Military Fire Brigade, Military Police, Federal Police and Municipal Guard conduct environmental awareness activities at the federal, state and municipal levels. The principle of citizen participation is also enshrined in the National Climate Change Policy (Article 3, Law 12.187/2009). NGOs and individuals have legal faculties to report crimes file environmental class actions.

The GPRAM has coordinated joint operations at the federal, state and municipal levels. For instance:

- Operation Guardians of the Biome: focus on combating illegal deforestation in the Amazon. The action is coordinated by the Ministry of Justice and Public Security with participation of the **Ministry of the Environment** and the Ministry of Defence. The operation aims to reduce illegal deforestation in the Amazon through coordinated actions between the Federal Police, the Federal Highway Police, the National Public Security Force, the FUNAI, the CENSIPAM and supervisory bodies, such as IBAMA and the ICMBio.⁸⁸
- Operation *Verde Vivo* is an action coordinated by the Military Fire Brigade of the Federal District in response to situations of environmental emergency caused by forest fires. The Operation aims to perform services to prevent and combat forest fires in the Federal District, in order to protect the environment

Photo: Néia Dutra



and the population, as well as develop awareness in the community to preserve the fauna and flora of the Cerrado of the Federal District.

Additionally, other environmental conservation activities conducted by the Brazilian Army involve planting trees, environmental awareness campaigns, activities aimed at preservation of plant and animal species, and the integration of military activities with sustainability and environmental conservation.

- Examples of recent environmental protection activities include (1) participation in the International Coastal Cleanup Day, a worldwide event held annually during the third weekend of September; (2) the cleaning of Permanent Preservation Areas, and (3) planting of 50 native tree seedlings in the Bom Retiro Stream. Some of these activities have been implemented in coordination with Military Fire Brigades, the Municipal Environment Secretariat, the Municipal Health Secretariat and the NGOs.
- The army has also delivered training in Environmental Education, with emphasis on preventing and fighting fires in the Pantanal Biome. This activity brought together coordinators and teachers from municipal and state public schools of Campo Grand and allowed to disseminate some the actions of the Brazilian Army in terms of protection and preservation of the environment.

IV. Social cohesion and peacebuilding

Links between the environment and growing tensions/violence

There are a number of **connections between exploitation of natural resources and patterns of violence** in Brazil. A HRW report from 2021 showed that since 2009 there have been more than 300 deaths related to land conflicts in the Brazilian Amazon, of which only 14 (5%) have been prosecuted.⁸⁹ Indigenous peoples and local communities have always played an important role by providing government authorities with first-hand information about environmental criminal activities. However, the combination of the weakening of environmental enforcement institutions and the wave of invasions and violence against indigenous and local communities in the Amazon has undermined the confidence of these communities in the security sector institutions.⁹⁰

Further, the issue of violent crimes related to deforestation and environmental preservation is a growing concern. Several NGOs have been reporting over 12,000 **land- or water-related conflicts** in the Brazilian Amazon over the past 10 years, which have

resulted in a surge of violence and deaths.⁹¹ In the decade 2012-21, Brazil has been the country with the most murders of environmentalists, with nearly 20 percent of the killings which have occurred worldwide according to the NGO Global Witness.⁹² The same NGO posits that the high number of cases in Brazil is partly attributable to a greater awareness and better monitoring by civil society of this issue compared to other parts of the world.

Indigenous peoples have played a key role in the protection of the Amazon and have suffered the most together with **afro-descendants** due to the violent clashes and murders of environmental leaders.⁹³ Additionally, **women** have been particularly in the scope of such violence. The think tank Igarapé Institute has also reported that 8 out of 10 women human and environmental rights defenders in the Amazon have been victims of violence.⁹⁴

In the northeast of the Brazilian Amazon, violence derived from disputes over land between companies dedicated to the monoculture of palm oil and indigenous communities has also increased. For instance, a collaboration of the NGO Mongabay and the journalistic alliance *Tras las huellas de la palma* gathered information showing clashes between indigenous and Afro-descendant communities and private security guards hired by companies in the palm oil industry.⁹⁵

Illegal mining is another source of tension. **Rivers and aquifers are poisoned with mercury because of illegal mining** activities of the *garimpeiros*. Since the water is contaminated, it cannot be used for drinking nor farming, directly affecting the economic and health security of the local communities. This situation creates **additional tensions between local communities and garimpeiros**. During the mission, the project team visited communities where children had been affected by hydrocephaly, which is related to heavy metals poisoning during the embryo gestation⁹⁶, and a side effect of eating fish from rivers poisoned with mercury.⁹⁷ There is a need to strengthen monitoring of aquifers as well as provide training on preventive measures, risk management and community collaboration methods.⁹⁸

Relationships between the security sector and communities

One of the main constraints to effective environmental protection in Brazil is the distancing and lack of trust between local communities and the security sector. The gap is even bigger with vulnerable groups such as migrants, refugees, and indigenous peoples. Cooperation with local communities for crime prevention and information sharing is challenging as

most communities are either involved or related to such activities. For instance, about 15 million people live in remote areas in the Amazon, who rely on extractive activities such as farming, fishing, and sometimes mining for subsistence. Some of these activities are illegal.

Even in cases where local communities have licenses, they do not have sufficient resources to expand or grow their activities. As a result, they depend on the financing of third parties which obtain most of the economic benefit and offer low compensation to local communities. Further, **local police agents are usually not included in large local operations in order to protect them** from 'communities' rage' resulting from the dismantling of illegal operations. Brazil is a large and diverse country, therefore there is a need to reconcile development plans with the environmental needs of local communities.

Interviewees at the community level stated that they have experienced **differences in the quality of service and response when it comes to reporting environmental crimes** to the police or competent agencies. With minimal knowledge about their rights and limited access to decision-making structures and public debates, migrants and refugees find themselves with a low level of confidence in triggering the police or other local security institutions. Participants shared that when they have reached out to security sector actors, they do not feel welcome and claim it happens because of their national origin. This adds up to the intimidation, threats and physical violence, derived of increasing xenophobia that migrants, refugees and indigenous communities (particularly from Venezuelan origin) face. Brazil's response to the migrant crisis is given in the form of reception, migratory regularization, provision of accommodation and basic humanitarian assistance in shelters, relocation of migrants in other states of the country (internalization) and socioeconomic integration.⁹⁹ However, **xenophobia has been pointed out by the participants as one of the factors that aggravates their personal and community security challenges.**

Despite these challenges, interviewees expressed interest in **increasing their level of knowledge focused on mitigating the effects of environmental risks** and prevention to mitigate the effects of the climate crisis. Participants suggested that creating working groups (via WhatsApp or other digital media) can be a starting point for expanding collaboration between civil society and local authorities. This action could also serve to establish effective early warning systems. In addition, they recommended creating environmental awareness initiatives between the Brazilian communities and migrants and refugees which could also serve as entry points for safe dialogue spaces to address existing conflicts and work on mitigating xenophobic speech.

It is important to note that security institutions have also made efforts to reach out to and support communities. As noted above under Prepare, **the armed forces conduct civic-social actions (ACISO)**, to provide assistance to communities in need. In the context of environmental protection, recent examples of ACISO occurred during the framework of Operation 'Joint Agata' in March 2022 aimed at combating cross-border and environmental crimes and strengthening the presence of the state in the Western Amazon.¹⁰⁰ This operation had the participation of the Federal Police, the Brazilian Army, the Brazilian Navy, IBAMA, the ICMBio and the Secretary of Public Security of the State of Amazonas. The ACISO component of the operation sought to provide medical and dental care, recreational activities for the population, recovery of public facilities, educational and preventive lectures, among others aiming at the well-being of the population in the area of operations.

In another positive example, experts credit the success of some anti-deforestation operations in Brazil to the close collaboration and trust established between environmental and law enforcement agents with indigenous communities, which had a major role not only in combatting forest fires — being officially employed to do so — but also as guardians of the forest, denouncing environmental crimes (mining, logging, etc.) directly to the heads of environmental protection agencies.¹⁰¹

V. Findings

- The **role of security institutions in environmental protection has significantly increased** in recent years, in some cases replacing previous efforts on the part of environmental protection agencies to prevent environmental crime. In Brazil's current political context, the balance between security and civilian environmental agencies may shift again. However, the stakes are high for exploiting natural resources in the Amazon and the critical importance of protecting this area combined with the links between environmental and other forms of serious crime make it likely the security sector will continue playing a prominent role in coming years.
 - It is therefore important to **capitalize on recent lessons learned** and to ensure a **human security orientation to future security operations** in this domain, to include creating more spaces for dialogue between security institutions and communities.
- To tackle the issue of the **vastness of the territory to be surveilled**, there are a couple of effective preventative activities aiming at **upstream disruption**, such as targeting mercury smuggling

at the borders and destruction of equipment used for illegal activities. Moreover, the usage of **remote monitoring technologies** has proved to be an effective way of expanding surveillance over remote areas.

- Focusing on the financial aspects of environmental crime, such as **financial forensics and tracking, document security and fraud detection** is proving an effective strategy to tackle larger scale organized criminal activity around environmental crime.
- **'Repression operations'** (for instance, 'Arch of Fire') have a quick effect/impact as they result in the arrest of people involved in illegal activities. However, the effect is only temporary, and a new problem is created due to the loss of people's livelihoods. Those affected are often forced to migrate to find new job opportunities. Others get involved in other types of crimes, which creates a series of new issues. On the other hand, **operations including affirmative, sustainable development actions** (such as 'Green Arch') are harder as they require inter-agency and cross-sectoral cooperation, additional time and resources. However, since they address the root causes of many of the issues contributing to communities' involvement in illegal operations, they are significantly more effective and sustainable.
- Governance in Brazil is distributed across federal, state and municipal levels, which in some cases makes the question of **jurisdiction for environmental crimes** more complex. As one example, only the federal police can legally enter areas governed by indigenous communities, which is reportedly where the majority of serious environmental crime takes place. The federal police have the mandate to investigate crimes and are not mandated to address public safety. Conversely, state or municipal police (where they exist) are physically closer to these areas, and have the mandate to maintain public order and ensure public safety; however, they cannot enter demarcated lands, and must rely on federal police instructions, sometimes slowing and/or complicating responses.
 - Prior 2018, the role of civilian institutions such as IBAMA and FUNAI was key for tackling illegal activities and implementing effective operations to dismantle environmental crimes. Strengthening or reviving the role of these institutions may lead to a more effective response for addressing environmental crimes.
- Criminal organizations bribe and threaten government officials in order to facilitate their operations, thus creating **risks of corruption** throughout the chain of detecting and responding to environmental crime. Local officials also determine and direct the use of key assets including police. This is promising from the perspective of decentralized decision making, but also requires strong oversight to **ensure local conflicts of interest do not influence police operations**, for example where local officials may have financial interests in allowing environmental crime to continue.
- Deterring (serious) environmental crime requires consistent enforcement of penalties which are severe enough to affect the cost-benefit analysis of criminal organizations. While it is clear that Brazilian security institutions already employ a data-driven and prioritized approach to tackling environmental crime, there is room to examine **the enforcement of penalties and the prosecution of cases** to ensure initial operations ultimately lead to consequences which will deter future crimes. This applies not only to illegal logging and mining, for example,

Photo: Ibamagov



but also to the need to investigate and prosecute cases of violence related to the extraction of natural resources.

- Environmental and human security are inextricably linked, a connection which is becoming more critical as pressures related to the exploitation of natural resources continue to grow. In Brazil, security institutions have been playing a particularly prominent role at this intersection and have demonstrated a clear understanding of the challenges they face in **building and retaining the confidence of communities and developing differentiated approaches** to forms of environmental harm which range from subsistence practices to serious organized crime. There are opportunities to continue building on this, and for international partners to learn from this experience (for instance, the program *Brasil Mais*).
- While migrants and refugees have expressed concerns regarding interactions with the security sector, they have also expressed a clear willingness to learn more about the best ways to mitigate environmental risks, not least because in some cases their migration to Brazil was driven by environmental factors. This may offer an important entry point for **dialogue with security institutions**, who could learn more about risk factors from these communities while at the same time raising awareness regarding prohibited, environmentally harmful activities.
- Communities with limited options for subsistence and income generation are under pressure, and in some cases more vulnerable to offers to become involved in environmental crime. Members of communities are also keenly aware of the costs of environmental degradation, thus creating **local tensions around decisions and actions related to the exploitation of natural resources**.
- **Impunity for the increasing violence** associated with the extraction of natural resources risks significantly undermining the confidence communities place in security institutions and serving as a barrier to future cooperation.

Conclusion

Recommendations

The findings of this study show that Brazil's security sector plays an important role in preventing and protecting against the impacts of climate change, and in protecting the environment. Brazil has robust national legislation on the topic, and possesses a good number

of federal, state, and municipal agencies that have the capacity to monitor and enforce the law. However, the vast land extension of the country represents a major challenge in terms of existing resources, manpower and capabilities to address all DRR and environmental protection needs. In addition, the underlying causes of natural disasters and environmental crimes usually escapes the competencies of the security sector. To effectively address these issues, there is a need for holistic approaches that involve collaboration between several state actors (ministries of Health, Labour and Social Security, Environment, Integration and Regional Development, Women, and Human Rights, etc.).

International partners should:

- Consider the recommendations for the various Brazilian institutions as a possible **roadmap for their cooperation** with Brazil.
- Building on some of the promising practices applied by Brazilian security institutions (such as upstream crime prevention, remote monitoring technologies, maintaining inventories of available resources, and focusing on financial intelligence and document forensics), **identify and support opportunities for sharing experiences and peer-to-peer exchanges** with other countries facing similar challenges.
- **Recognize and learn from the unique lessons** offered by the role Brazilian security sector institutions have been playing in environmental protection, from data-driven approaches to detecting and deterring environmental crime to the recognition of the role livelihoods and levels of trust play in enabling or hindering cooperation between security officials and communities.
- **Support of the creation of spaces for a structured dialogue** between the security sector, and the local communities to obtain a better understanding of their needs and reconcile existing approaches on DRR and environmental protection. Methodological approaches to similar dialogue conducted elsewhere in the region may be of particular interest in gradually strengthening the relationship between security institutions and communities, particularly groups which have been historically underserved or marginalized.
- **Continue supporting migration management programs:** International actors should provide support to climate change related migration through human mobility projects aimed at helping local communities to build dignified and resilient housing spaces. This will result in a lower incidence of disasters caused by environmental hazards. In

addition, these programs can influence communities' perceptions of security sector actors such as the military, who are often involved in the delivery of these actions (such as the management of refugee camps).

- **Promote and support regional and international law enforcement initiatives**, to include exchanges of lessons learned and good practices.

Federal Police, State Military Police and Municipal Guards should:

- **Review current mandates and distribution/prioritization of security sector resources**, with a particular emphasis on distinctions between the federal, state and municipal levels, to identify any potential gaps or inefficiencies which might be addressed in future responses to disasters or environmental crime.
- **Invest in additional capacity** where appropriate. Security sector actors expressed the need to invest in up-to-date equipment, technologies, and transportation means, as well as technical and specialized training on environmental issues.¹⁰² It may be particularly important to examine where additional expertise is needed to improve monitoring of activities including logging and to strengthen investigations and prosecution of serious instances of environmental crime. Education and training across all levels of the security sector could also be helpful when it comes to enhancing understanding of the complex links between climate change and community safety. Concrete areas for increasing capacities could be training on **identification of fraudulent documents/permits** and expanding capacities for **monitoring financial flows, illegal timber and mineral exports** and **remote monitoring**.
- **Address security from a multidimensional perspective**: For the sake of community safety, it is essential that government authorities implement effective means of reducing harm to the environment by increasing health, personal and community safety levels, providing environmental sustainability mechanisms. Security institutions are well aware of the limits of their roles in addressing the full range of factors driving harm to the environment and can continue seeking opportunities to provide coordinated responses with other government sectors and with civil society.
- **Enhance inter-agency communication**: Experience and knowledge sharing of best practices amongst municipal, state, and national bodies can help to improve the quality and the effectiveness and efficiency of security delivery, resulting in improved preparedness and protection.
 - For example, more coordination between Public Sector Actors like the SISNAMA and security sector actors at the national level (Civil Defense, Military Police, Federal Police) and also at sub-national level (State Police, and the Municipal Police) is fundamental for designing effective interventions that tackle environmental risks such as droughts and floodings, as well as environmental crimes (illegal logging, mining, and land use/ownership).
 - Better cooperation and information sharing can also help to ensure resources are prioritized and used effectively, as well as identifying and addressing potential risks related to corruption and impunity.
- **Ensure enforcement of environmental legislation is impartial and paired with education and awareness raising**. The communities in this study demonstrated low levels of trust in the authorities because of what they perceive as a high level of impunity and lack of effective actions against those who commit both environmental crimes and violent crimes resulting from environmental dispute contexts. Local communities also expressed a lack of knowledge of environmental legislation.
 - Security sector actors such as the Brazilian Army, CIPA, Military Fire Brigades, and Municipal Guards already have actions in place related to environmental education and awareness programs. The scope of such programs could be expanded to strengthen the role and participation of civil society and local communities in environmental protection in coordination with security institutions.
- **Promote the inclusion of communities in environmental decision-making processes**. Due to their experiences, migrants, refugees, and indigenous peoples are well placed to share their needs in the public sphere. This would allow for an improved response to climate and environmental risks. Fostering community participation is not only key to improve preparedness and protection responses but is also crucial for the sustainability of initiatives and for strengthening social cohesion.
- **Continue to strengthen/expand early warning systems**. Ensure that all people living in vulnerable areas have access to the system in a timely manner (for instance, updating list of contacts databases; reassessing current protocols on the workflow and the warning sending and receiving process; providing trainings focused on environmental data analysis for

hazard monitoring, ideally jointly with universities and municipal and state monitoring institutions).¹⁰³

➤ **Strengthen relationships with local communities.**

Effective security provision requires legitimacy and support from the community. Many local communities perceive security actors' role as repressors rather than protectors. This reduces the space for cooperation due to the low levels of trust for approaching security sector actors when facing environmental challenges. At the same time, there are positive examples on which to build, including the collaboration and trust between environmental and law enforcement agencies and indigenous communities, which has improved efforts to combat forest fires and detect environmental crimes.

- The security sector should focus on trust building initiatives with local communities, prioritizing vulnerable and marginalized groups which are more distanced from security sector actors. Programs that facilitate dialogue around local communities' environmental needs can contribute to strengthening relationships with civil society.

➤ Together with civilian oversight actors, **identify possible risks of corruption and strengthen oversight measures** where needed. This could include reviewing whether and how sanctions for environmental crimes are enforced and how decisions regarding the allocation of security sector assets are made.

➤ **Increase cooperation efforts amongst security sector actors of neighbouring countries.** Cooperation initiatives that allow for lesson-learned exchanges involving security sector actors from the federal, state and municipal level can strengthen the effectiveness of environmental protection operations. Experience elsewhere has also shown that there may be a need to identify and overcome practical obstacles to sharing sensitive information as part of efforts to enhance cross-border approaches and close gaps in law enforcement.

Opportunities and Entry-Points

The **expressed commitment of the new government to protecting Brazil's valuable natural resources** may offer an important opportunity to review existing roles and practices of the security sector in DRR and environmental protection; to identify specific gaps and opportunities to use resources more effectively across different sectors and levels of governance; and to ensure security sector responses are well tailored to the needs and vulnerabilities of different communities.

Implications for SSG/R

- Operations targeting the **humanitarian, development and security nexus** are more likely to be effective for disaster risk reduction and environmental protection. Coordination between environmental and security actors is fundamental for designing effective interventions that tackle environmental risks. Droughts and flooding, as well as illegal operations in logging, mining, and land use/ownership, can be approached by integrating **civil society participation in environmental education, early warning systems and alternative livelihood programs**.
- Law enforcement alone is insufficient to address incidents of environmental crime. It is clear some environmental crime, namely that perpetrated by organized criminal groups, requires a strong and effective law enforcement response. However, it is often the case that individuals and communities involved in environmental harm (whether through subsistence practices or through involvement in criminal activities) have few alternatives in terms of source of income. While more time and effort may be required up front, **integrated solutions which address the development of alternative livelihoods as well as enforcing environmental law** are more likely to succeed over the longer term.
- **Security responses to climate and environmental risks must be informed and guided by environmental expertise.** This implies carefully examining the respective roles and mandates of security and other government institutions and developing coordinated approaches which correspond to the strengths, expertise and access of each institution. Ideally, security institutions can work closely with environmental agencies/ministries in planning and conducting operations. Where this is not possible, security institutions must have the training, doctrine and expertise required for them to play an effective and appropriate role.
- **Risk-informed planning** is indispensable to both disaster-risk reduction and tackling environmental crime. This is particularly true when covering large geographic areas with limited resources. It may include the use of sampling to detect illegal practices, collection and analysis of surveillance data to target illegal operations, or an emphasis on financial intelligence to better identify and target groups involved in enterprises including transnational trafficking. For DRR, the use of remote monitoring technology allows gathering of risk data, including in less accessible areas to inform for early warning systems and provide early response.

- Risk-informed planning goes beyond **technologically enabled aspects** of criminal investigations and includes a thorough analysis of **community needs**, for example to identify where at-risk communities may be particularly vulnerable to the economic opportunities offered by groups engaged in environmental crime or specific disaster hazards.
- Governance of both security and natural resources takes place through a complex and interconnected set of relationships among individuals and institutions. It is important to examine these relationships, particularly where roles and responsibilities intersect (for instance, across national and subnational levels), to identify **gaps and areas where mismanagement or corruption are a risk**. It is equally important to critically examine **how human and financial resources are distributed across the system** and whether resource decisions are made at a level that enables effective responses.
- **Communities are willing and able to play a role as key actors in climate security**. In some cases, traditional approaches to agriculture and natural resource management are important sources of resilience and can substantively complement what government institutions could offer when it comes to mitigating climate security risks. In others, communities are eager to learn more about prohibited practices and sustainable alternatives, creating an opening for dialogue and awareness raising among communities, security institutions and civilian agencies.
- **Attention to the needs of vulnerable groups** is critical in the context of DRR and environmental protection.
 - Communities including migrants who live in remote areas or informal urban settlements are particularly vulnerable to natural disasters including flooding and landslides; and yet may not have access to early warning systems or reliable information on risks and mitigation measures.
 - Groups with limited economic opportunities may also be under pressure to participate in activities which harm the environment.
 - Individuals and communities who have had negative interactions with security institutions may also be less likely to report environmental crimes.
- Climate and environmental risks are not limited by national boundaries, and there is a need to **support increased cooperation among security sector actors of neighbouring countries**. In Brazil, for example, the Amazon is a natural corridor for criminal organizations. Cooperation initiatives that allow for lesson-learned exchanges involving security sector actors from the federal, state, and municipal levels can strengthen the effectiveness of environmental protection operations. Experience with other regional law enforcement initiatives has also shown that it is important to identify and address practical barriers which may exist, for example to sharing sensitive information as part of cross-border efforts to strengthen investigations and close gaps in enforcement.

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Annex 1. Brazilian Glossary - Prepare

According to the legislation, the definitions are as follows:

I - mitigation actions - measures designed to reduce, limit, or avoid the risk of disaster.

II - preparation actions - measures aimed at optimizing response actions and minimizing damage and losses resulting from the disaster.

III - prevention actions - priority measures aimed at avoiding the conversion of risk into a disaster or the installation of vulnerabilities.

IV - recovery actions - measures developed after the occurrence of the disaster aimed at restoring social normality that include the reconstruction of damaged or destroyed infrastructure and the recovery of the environment and the economy.

V - response actions - measures of an emergency nature, carried out during or after the occurrence of the disaster, aimed at helping and assisting the affected population and restoring essential services.

VI - restoration actions - emergency measures aimed at restoring safety and habitability conditions and essential services to the population in the area affected by the disaster.

VII - disaster – a result of an adverse event resulting from a natural or anthropic action on a vulnerable scenario that causes human, material, or environmental damage and economic and social damages.

VIII - state of public calamity - an abnormal situation caused by a disaster that causes damage and losses that imply a substantial compromise of the response capacity of the Public Power of the affected federative entity or that demand the adoption of exceptional administrative measures for response and recovery.

IX - contingency plan - a set of pre-established measures intended to respond to an emergency situation or a state of public calamity in a planned and intersectoral articulated way, prepared based on disaster hypotheses, with the objective of minimizing its effects.

X - civil protection and defense - set of prevention, mitigation, preparation, response, and recovery actions aimed at:

- a) avoid or minimize the effects resulting from a disaster.
- b) preserve the morale of the population; and
- c) restore social normality and make it resilient.

XI - state and district civil defense and protection system - set of bodies and entities of the state or district public administration responsible for carrying out prevention, mitigation, preparation, response, and recovery actions and risk and disaster management actions.

XII - Federal Civil Defense and Protection System - set of bodies and entities of the federal public administration responsible for the execution of prevention, mitigation, preparation, response, and recovery actions and the planning and coordination of risk and disaster management actions.

XIII - municipal civil defense and protection system - set of bodies and entities of the municipal public administration responsible for the execution of prevention, mitigation, preparation, response, and recovery actions and risk and disaster management actions.

XIV - emergency situation – an abnormal situation caused by a disaster that causes damage and losses that imply the partial commitment of the response capacity of the Public Power of the affected federative entity or that requires the adoption of exceptional administrative measures for response and recovery.

The risks are defined through the following categories:

- I - climatological.
- II - of fire.
- III - handling hazardous products.
- IV - health.
- V - in dams.
- VI - hydrogeological.
- VII - hydrological.
- VIII - meteorological.
- IX - nuclear and radiological; and
- X - seismological.

The disasters are defined by their:

1. Nature (natural or technologic)
2. Periodicity (cyclical/seasonal or sporadic)
3. Evolution (sudden or gradual).

Brazil also has its Classification and Coding of Disasters (COBRADE) following the United Nations guidelines.

Annex 2. Brazilian Glossary – Protect

In accordance to the Law N° 6.938 of 1981, the following terms are defined as:

I - environment, the set of conditions, laws, influences and interactions of a physical, chemical and biological nature, which allows, shelters and governs life in all its forms.

II - degradation of environmental quality, adverse alteration of the characteristics of the environment.

III - pollution, the degradation of environmental quality resulting from activities that directly or indirectly:

- a) harm the health, safety, and well-being of the population.
- b) create adverse conditions for social and economic activities.
- c) adversely affect the biota.
- d) affect the aesthetic or sanitary conditions of the environment.
- e) release materials or energy that does not comply with established environmental standards.

IV - polluter, the individual or legal entity, of public or private law, responsible, directly or indirectly, for an activity causing environmental degradation.

V - environmental resources: the atmosphere, inland, surface, and underground waters, estuaries, the territorial sea, soil, subsoil, elements of the biosphere, fauna, and flora.

According to the Law No 9.605 – 1998 on Environmental crimes, against the fauna are as follows:

Art. 29. Killing, stalking, hunting, catching, using specimens of wild fauna, native or on a migratory route, without proper permission, license, or authorization from the competent authority, or in disagreement with that obtained.

Art. 30. Exporting raw amphibian and reptile skins and hides abroad, without authorization from the competent environmental authority.

Art. 31. Introduce an animal specimen into the country, without a favorable official technical opinion and a license issued by a competent authority.

Art. 32. Practicing an act of abuse, mistreatment, injuring or mutilating wild, domestic or domesticated, native or exotic animals.

Art. 33. Cause, through the emission of effluents or transport of materials, the perishing of specimens of aquatic fauna existing in rivers, lakes, dams, lagoons, bays, or Brazilian jurisdictional waters.

Art. 34. Fishing during a period in which fishing is prohibited or in places prohibited by the competent body.

Art. 35. Fishing using:

I - explosives or substances that, in contact with water, produce a similar effect.

II - toxic substances, or other means prohibited by the competent authority:

Art. 36. For the purposes of this Law, fishing is considered to be any act intended to remove, extract, collect, catch, seize or capture specimens of the groups of fish, crustaceans, mollusks, and hydrobic plants, susceptible or not for economic use, except for the species endangered species, included in the official lists of fauna and flora.

Art. 37. It is not a crime to slaughter an animal when carried out:

I - in a state of need, to satisfy the agent's or his family's hunger.

II - to protect crops, orchards, and livestock from predatory or destructive action by animals, provided that it is legally and expressly authorized by the competent authority.

III - (VETOED)

IV - because the animal is harmful, provided that it is so characterized by the competent body.

The crimes against the flora are as it follows:

Art. 38. Destroy or damage a forest considered to be of permanent preservation, even if information, or use it in breach of protection rules:

Art. 38-A. Destroy or damage primary or secondary vegetation, in an advanced or medium stage of regeneration, of the Atlantic Forest Biome, or use it in breach of protection rules: (Included by Law No. 11,428, of 2006).

Art. 39. Cutting down trees in a forest is considered to be of permanent preservation, without permission from the competent authority.

Art. 40. Cause direct or indirect damage to Conservation Units and the areas dealt with in art. 27 of Decree No. 99,274, of June 6, 1990, regardless of its location.

Art. 41. Cause forest or forest fire: Art. 42. Manufacture, sell, transport, or release balloons that can cause fires in forests and other forms of vegetation, in urban areas, or any type of human settlement: Art. 44. Extract stone, sand, lime, or any kind of minerals from forests in the public domain or considered permanent preservation, without prior authorization:

Art. 45. Cut or transform hardwood into charcoal, as classified by an act of the Government, for industrial, energy purposes, or for any other exploitation, economic or not, in disagreement with the legal provisions: Art. 46. Receiving or acquiring, for commercial or industrial purposes, wood, firewood, charcoal, and other products of plant origin, without requiring the seller to show a license, granted by the competent authority, and without providing the copy that must accompany the product until final processing.

Art. 48. Prevent or hinder the natural regeneration of forests and other forms of vegetation.

Art. 49. Destroy, damage, injure or mistreat, in any way or means, ornamental plants in public places or on the private property of others.

Art. 50. Destroy or damage native or planted forests or vegetation fixed in dunes, protecting mangroves, the object of special preservation.

Art. 50-A. Deforest, economically exploit or degrade forest, planted or native, on public domain or vacant land, without authorization from the competent body: (Included by Law No. 11,284, of 2006).

Art. 51. Trading chainsaws or using them in forests and other forms of vegetation, without a license or registration from the competent authority.

Art. 52. Entering Conservation Units carrying substances or instruments suitable for hunting or for the exploitation of forest products or by-products, without a license from the competent authority.

Art. 53. In the crimes provided for in this Section, the penalty is increased from one-sixth to one-third if: I - the fact results in the decrease of natural waters, the erosion of the soil, or the modification of the climatic regime.

II - the crime is committed: a) during the seed fall period; b) in the period of vegetation formation; c) against rare or endangered species, even if the threat occurs only at the place of infringement; d) in times of drought or flooding; e) during the night, on Sundays or holidays.

Pollution and other crimes:

Art. 54. Cause pollution of any nature at such levels that it results in or may result in harm to human health, or that causes the death of animals or the significant destruction of flora.

Art. 55. Carry out research, mining, or extraction of mineral resources without the competent authorization, permission, concession, or license, or in disagreement with the one obtained.

Art. 56. Produce, process, pack, import, export, market, supply, transport, store, store, store or use a product or substance that is toxic, dangerous, or harmful to human health or the environment, in violation of the requirements established in laws or regulations.

Art. 60. Build, renovate, expand, install or operate, in any part of the national territory, potentially polluting establishments, works, or services, without a license or authorization from the competent environmental bodies, or contrary to the relevant legal and regulatory norms.

Art. 61. Spread disease or pests or species that may cause damage to agriculture, livestock, fauna, flora, or ecosystems.

Crimes against Urban Planning and Cultural Heritage:

Art. 62. Destroy, render useless or deteriorate:

I - property specially protected by law, administrative act, or judicial decision.

II - archive, record, museum, library, art gallery, scientific facility, or similar protected by law, administrative act, or judicial decision.

Art. 63. Change the appearance or structure of a building or site specially protected by law, administrative act, or judicial decision, due to its scenic, ecological, tourist, artistic, historical, cultural, religious, archaeological, ethnographic, or monumental value, without authorization from the competent authority or in disagreement with the one granted.

Art. 64. Promoting construction on non-buildable land, or in its surroundings, considered as such due to its scenic, ecological, artistic, tourist, historical, cultural, religious, archaeological, ethnographic, or monumental value, without authorization from the competent authority or in disagreement with the granted.

Art. 65. Graffiti or otherwise defiling an urban building or monument.

Annex 3 - Brazilian Glossary – Climate Change

As a recent development, some terms mainstreamed in the climate change thematic were also included in national law (Law 12.187) such as the following :

I - adaptation: initiatives and measures to reduce the vulnerability of natural and human systems to the current and expected effects of climate change.

II - adverse effects of climate change: changes in the physical environment or biota resulting from climate change that have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems, on the functioning of socioeconomic systems or on health and the human well-being.

III - emissions: release of greenhouse gases or their precursors into the atmosphere in a specific area and in a specific period.

IV - source: process or activity that releases greenhouse gas, aerosol or precursor of greenhouse gas into the atmosphere.

V - greenhouse gases: gaseous constituents, natural or man-made, which, in the atmosphere, absorb and re-emit infrared radiation.

VI - impact: the effects of climate change on human and natural systems.

VII - mitigation: technological changes and replacements that reduce the use of resources and emissions per unit of production, as well as the implementation of measures that reduce greenhouse gas emissions and increase sinks.

VIII - climate change: climate change that can be directly or indirectly attributed to human activity that alters the composition of the world atmosphere and that is added to that caused by natural climate variability observed over comparable periods.

IX - sink: process, activity or mechanism that removes greenhouse gas, aerosol or precursor of greenhouse gas from the atmosphere; and

X - vulnerability: degree of susceptibility and inability of a system, depending on its sensitivity, adaptability, and the character, magnitude and rate of change and variation of the climate to which it is exposed, to deal with the adverse effects of climate change. climate, including climate variability and extreme events.

Annex 4 – Methodology (Actor Mapping & Workshop Details)

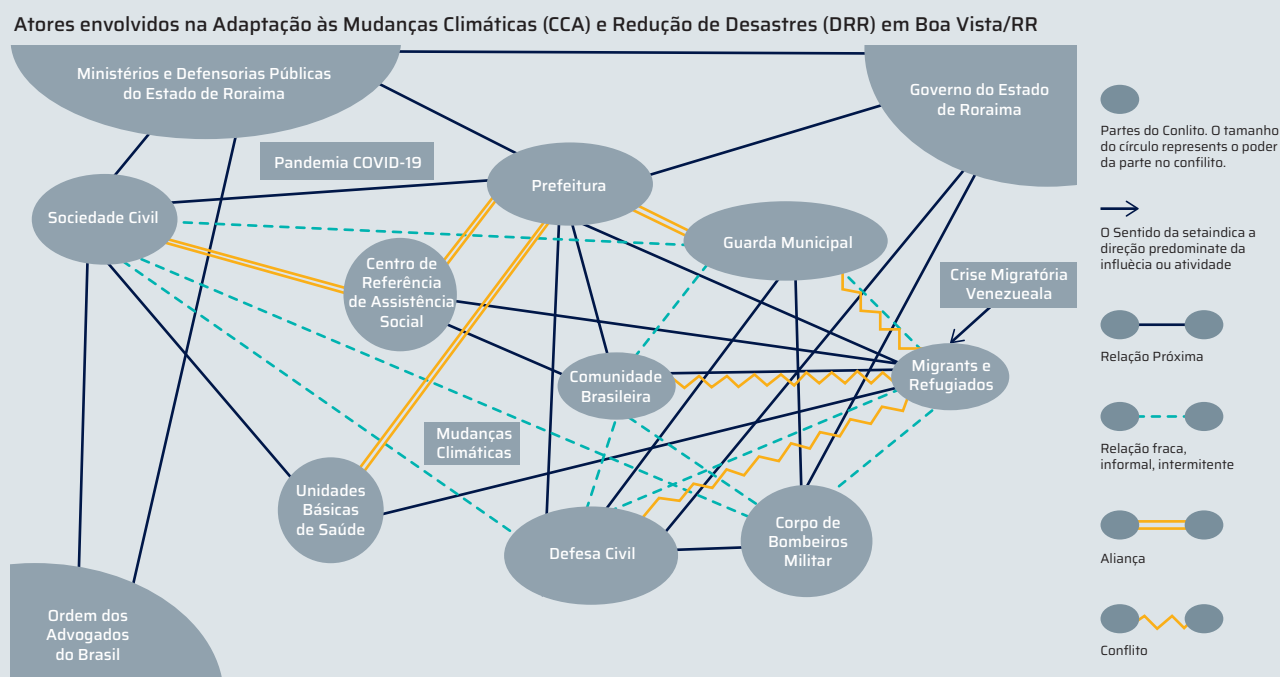
Actor Mapping

The objective of the actor mapping was to identify actors in Boa Vista, Roraima who are affected by, have influence on, and are involved in disaster risk reduction and environmental protection. The actor mapping focused on the relevant aspects of the local context, existing conflicts, power relations, and the ways in which local actors interrelate.¹⁰⁴ The analysis allowed selecting participants for the two-day workshop reducing the risk of causing unintended tensions/conflicts during the activities. For instance, relationships between Venezuelan migrants and refugees – a group highly vulnerable to environmental risks – and the Brazilian local community are weak, and subject to constant tensions and conflict. Similarly, their relationship with security sector actors such as the Municipal Guard is tense as

they've been subject to forced evictions. Having these groups together in the same workshop would have undermined participation and constrained people from sharing information.

The mapping exercise suggested including participants from the communities of *Alvorada*, *Amsterdam*, *João de Barro*, *Vila Nova*, *Vila Vintém* and *Warao a Janoko*, located in the municipalities of Boa Vista and Cantá, in the state of Roraima. These areas are some of the most affected by environmental risks and extreme weather events such as droughts, floods, illegal logging and man-made fires, mostly caused by deforestation for livestock and agribusiness. Due to their proximity with the Venezuelan border, these communities have a significant number of Venezuelan migrants and refugees.

Figure 8: Actors involved in Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) in Boa Vista, Roraima.



The actor mapping above includes the Public Defender's Office State of Roraima (*Defensoria Pública do Estado de Roraima*); Government State of Roraima (*Governo do Estado do Roraima*); Brazilian Bar Association (*Ordem dos Advogados do Brasil*); Municipal Executive Branch (*Prefeitura*); Municipal Guard (*Guarda Municipal*); Civil

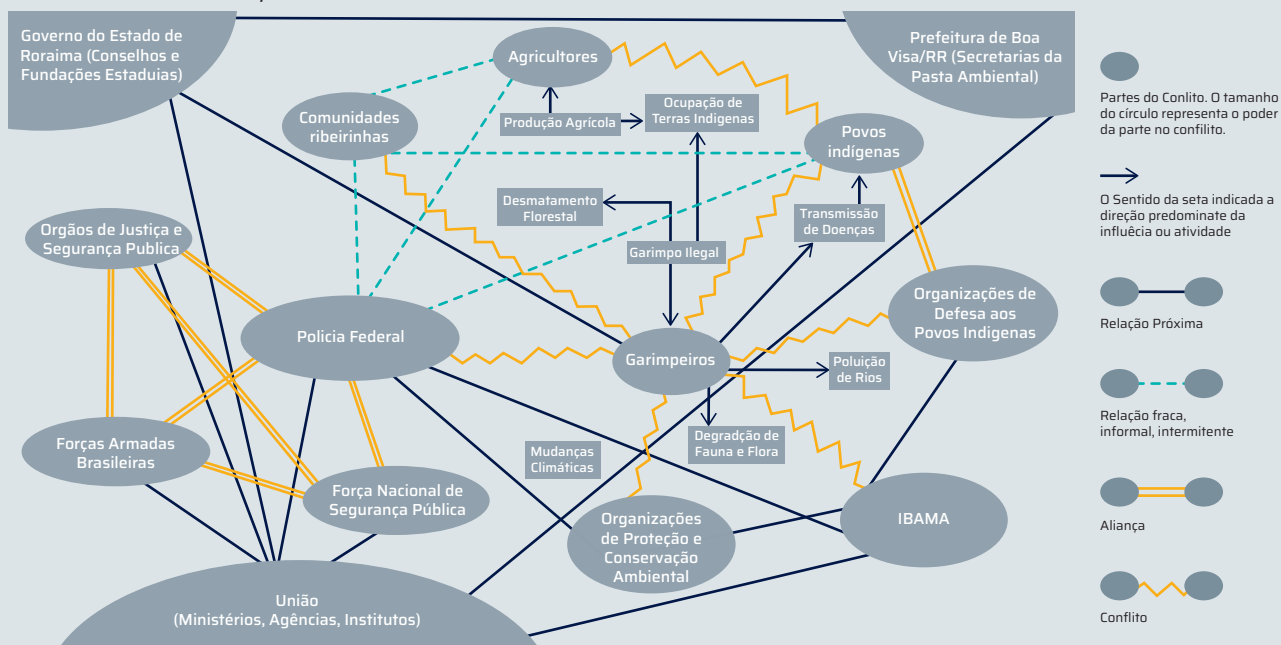
Defense (*Defesa Civil*), Military Fire Brigade (*Corpo de Bombeiros Militar*); Basic Health Units (*Unidades Básicas de Saúde*); Social Assistance Reference Centres (*Centros de Referência de Assistência Social - CRAS*); Brazilian Community (*Comunidade Brasileira*); Migrants and Refugees (*Migrantes e refugiados*).

The actor mapping includes the following actors:
 Government of the State of Roraima - State Councils and Foundations (*Governo do Estado de Roraima - Conselhos Estaduais e Fundações*); Municipality of Boa Vista, Roraima - Secretariats of the Environmental Portfolio (*Município de Boa Vista, Roraima - Secretarias do Portfólio Ambiental*); Ministries, Agencies, Institutes (*Unilao - Ministérios, Órgãos, Institutos*); IBAMA; Organizations of Environmental Protection and Conservation (*Organizações de Proteção e Conservação Ambiental*); (*Força Nacional de Segurança Pública*);

Brazilian Armed Forces (*Forças Armadas Brasileiras*); Justice and Public Security Bodies (*Organismos de Justiça e Segurança Pública*); Federal Police (*Polícia Federal*); Small scale miners (*Garimpeiros*); Organizations for the Defence of Indigenous Peoples (*Organizações de Defesa dos Povos Indígenas*); Indigenous Peoples (*Povos Indígenas*); Riverine communities (*Comunidades ribeirinhas*); Farmers (*Agricultores*).

Figure 9: Actors involved in environmental protection in Boa Vista, Roraima.

Atores envolvidos na Proteção Ambiental em Boa Vista/RR



Two-day workshop – Boa Vista, Roraima

The objective of the workshop was exploring community's perspective about the role of the security sector in the areas of DRR and environmental protection. The workshop discussions were centered on the local security risks arising from the impacts of climate change, extreme weather events, and environmental protection; actors involved in DRR and environmental protection; service delivery by the security sector; and the impact their communities.

Participants included Venezuelan migrants and refugees living in public or private spaces and shelters in Roraima¹⁰⁵, as well as indigenous peoples of the *Warao* ethnic group. These groups are some of the most affected by environmental risks due to the areas where they reside and their source of livelihood. The *Warao*¹⁰⁶ are Venezuelan migrants and refugees that have crossed the border due to the lack of access to food because of the high levels of mercury water pollution in their areas, as well as the Venezuelan economic crisis.

The workshop was primarily intended to examine community's perspectives about the role of the Brazilian security sector, in coordination with other actors in DRR and environmental protection. However, due to the significant presence of Venezuelan migrants and refugees in Roraima, some of the findings in this report incorporate a migration perspective.

Venezuelan migrants and refugees are located in the areas most vulnerable to natural disasters in Roraima, where they often face landslides and flooding. In addition, they are exposed to human-led environmental degradation such as water pollution in the Igarapé river, which affects their health and food security. Further, due to economic insecurity, some migrants and refugees engage in illegal activities such as hunting or capture of tropical birds for sale. They are distanced from state actors and lack knowledge about environmental legislation and the roles of the security sector.

Since the overall focus of the stocktaking study is to explore the role of national security institutions in DRR and environmental protection, constraints related to the topic of migration/refugees are mentioned where essential but are not explored in detail as it would be beyond the scope of the current mandate.

Photo: SJMR



Photo: DCAF



Photo: DCAF



Photo: DCAF



Photo: DCAF



Photo: DCAF



Photo: DCAF




Endnotes

1. Roraima is located in Brazil's North region, sharing borders with Venezuela, Guyana, and the states of Amazonas and Pará. It has the smallest population of the country, with 630,000 inhabitants (roughly 250,000 migrants/refugees).
2. DCAF – Geneva Centre for Security Sector Governance 2022.
3. Corpo de Bombeiros Militar de Roraima (CBMRR) e Defesa Civil; Brazilian Army (2); Polícia Federal (Environmental Crimes Unit, Investigations – Geo-information, Coordenação-Geral de Repressão a Crimes contra o Meio Ambiente e Direitos Humanos da Polícia Federal); Polícia Militar Roraima (PMRR) / Companhia Independente de Policiamento Ambiental da Polícia Militar de Roraima; Fuzileiros Navais (Navy).
4. The SJMR is an organization with operations in over 50 countries and specialized in migration, forced displacement and refugees. It has supported thousands of people with the provision of free services, emergency interventions, protection and projects aimed at integration, psychosocial and pastoral support to migrants and refugees, promoting and protecting their dignity and rights, as well as accompanying their process of social inclusion. For more information, visit SJMR Brazil: <https://sjmrbrasil.org/quemsomos/>
5. See Annex 3
6. Rainforest Foundation US 2022.
7. Thomson 2020.
8. Greenpeace n.d.
9. The Amazon study area (7,256,362 km²) was defined using Eva et al. subregions and Olson et al. biomes which include: Amazon sensu stricto, Andres, Guiana, and Gurupi. See: Alvez-Valles et al. 2018; Gatti et al. 2021; Achard et al. 2005; Olson et al. 2001.
10. Government of Brazil 2009.
11. Milaré et al. 2021.
12. Government of Brazil 2023.
13. World Bank 2021.
14. USAID 2022.
15. It has a low population density, with a territorial extension of 224.300.506 km² and a population of 652.713 Portal Amazonia 2022.
16. Oliveira and Ramalho 2021.
17. Roraima has experienced a large influx of Venezuelan migrants since 2013.
18. Wladimila 2021.
19. World Bank 2021.
20. Plataforma CIPÓ 2021.
21. Muñoz 2019.
22. Souza et al. 2022.
23. Tyukavina et al. 2017.
24. Gonzaga 2022.
25. WWF n.d.
26. According to Human Rights Watch, illegal deforestation in the Brazilian Amazon is mostly driven by criminal networks exploiting timber, often relying on armed men to protect their operations, which are robust enough to cover logistical capacity to coordinate large-scale extraction, processing, and sales. States facing significant illegal logging operations are Acre, Amazonas, Pará, Maranhão and Rondônia. The Brazilian Amazon spans 4.1 million km²; the Amazon Region Protected Areas Program covers 60 million hectares supported by donations from the World Bank's Global Environment Facility (The GEF), the German Federal Ministry for Economic Cooperation and Development (BMZ), through the German Development Bank (KfW), the Amazon Fund, through the Brazilian National Development Bank (BNDES), the WWF Network, the InterAmerican Development Bank (IDB), the Gordon and Betty Moore Foundation (GBMF), Anglo-American, Natura and O Boticário. Timber is a highly profitable commodity facing significant demand both at international and domestic markets. See: Muñoz 2019; Environmental Justice Atlas 2020; Diaz 2021.
27. Rodrigues 2021.
28. The budget cuts inflicted by President Bolsonaro's administration have weakened environmental regulation and constrained environmental agencies' capacities for punishing environmental criminals. See Branford and Borges 2021; Up until 2016, 96 infractions due to environmental crimes were issued. The most common were fauna irregular trade, unauthorised captivity, exploitation of the image of an abused or mistreated animal, hunting and capturing a wild animal. The states with the highest rates of infractions were São Paulo (27% of the total), Rio de Janeiro (14%) and Pará (12%). See IBAMA 2016; The most common environmental crimes are those related to Article 46 of the Environmental Crimes Law : « taking, acquiring, selling, storing, or transporting for commercial or industrial purposes, wood, firewood, charcoal and other forest products without authorization » Brito, Barreto, and Rothman 2005.
29. Tuxá, Guajajara, and Terena 2022; Mapbiomas n.d.
30. UN-OHCHR 2021.
31. Rodrigues 2021.
32. Menegassi 2021.
33. ND-GAIN 2023.

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34. World Bank 2022.
 35. Ibid.
 36. Pruitt-Young 2021.
 37. Government of Brazil 2020.
 38. Mercure et al. 2019.
 39. Government of Brazil 2020.
 40. Ceratti 2016.
 41. Marques, Gunkel, and Sobral 2019.
 42. Barni et al. 2015; Also see recent information about environmental crimes / illegal activities in Roraima in Cowie, Costa, and Prado 2022.
 43. GPRAM - Grupo de Proteção Ambiental 2022a.
 44. According to Sinéia Wapichana, an indigenous leader from the region. Roraima 1 2021; Indigenous workshop participants also stated the issue of mercury pollution of water sources, which has undermined their food security.
 45. Brazil is a federal republic with three levels of government: (1) the central or Union government; (2) 26 state governments and the Federal District government; and (3) over 5,500 municipal governments.
 46. The Ministry of National Integration (MNI) through its National Secretariat of Civil Defense (NSCD) which coordinates the National Civil Defense System (SINPDEC).
 47. To understand what is considered a disaster, risk, and the concepts such as mitigation strategy and preparedness through the Brazilian legislation, please see Annex 1.
 48. Calheiros, de Castro, and Dantas 2009.
 49. Consult Annex 1 for more details on the concepts.
 50. Important to note that a region will have a command for the units inside the limits of the municipality. Usually, the closest unit or the one with the more adequate resources is triggered. If they need assistance, the same command will call for other units. If still is not enough, the command can contact other commands in nearby regions.
 51. Ministry of Defense of Brazil - Joint Staff of the Armed Forces 2015.
 52. For the purpose of this document, the Brazilian armed forces are composed of the Air Force, the Navy, and the Army, while the Military Police and the Military Fire Brigade will be explicitly mentioned. In Brazil, each branch of the military (Air Force, Navy, and Army) divide their areas of responsibility into 8 different commands, based on the geography of the country and the potential action of each force. This means there are different instances of cooperation at the vertical and horizontal levels.
 53. Catve 2019.
 54. G1 2011a.
 55. For more information, visit CEMADEN's website.
 56. The program relies on information and communication technologies in the areas of citizen science, information sharing, and participatory management of community interventions.
 57. For more information on the possibilities of remote technologies, see also Buffon and Mendonça 2021.
 58. For more information visit: Coordenação-Geral de Observação da Terra. "Monitoramento do Desmatamento da Floresta Amazônica Brasileira por Satélite" and "Deter e Deter Intenso"
 59. World Weather Attribution 2022.
 60. G1 2011b.
 61. Ministry of Defense of Brazil 2009.
 62. To fulfill the objective XIII of the PNPDEC.
 63. To understand what is considered an environmental crime in Brazil, please read Annex 2.
 64. Polícia Militar de São Paulo 2022.
 65. Milaré et al. 2021.
 66. Visit Instituto Chico Mendes Institute de Conservação da Biodiversidade
 67. Milaré et al. 2021.
 68. Diniz et al. 2015.
 69. Waisbich, Andrade, and Brasil 2021.
 70. As part of its activities, the Federal Police supports the program Brasil MAIS, in cooperation with 200 at the federal, state and municipal level.
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71. Roraima's Municipal Guard has a unit which is part of the Civil Defense (Defesa Civil). It has functions of prevention, response and reconstruction in face of natural disasters. It often participates in DRR efforts along with Military Police and Military Fire Brigade.
 72. Trancoso 2021.
 73. Albertolli, Gomes Couto, and McGuire 2021.
 74. Tollefson 2021.
 75. Spring 2021.
 76. Albertolli, Gomes Couto, and McGuire 2021.
 77. Joint operations between Bolivia and Brazil 'by air, land and river' against organized crime on the 3,400-kilometer border they share are common. See La Información 2013.
 78. Operation Tumucumaque. The activity, which took place from April 11 to 13, 2019, was coordinated, on the Brazilian side, by the Amapá Border Command and the 34th Jungle Infantry Battalion (CFAP/34o BIS), headquartered in the northern state of Amapá. of Brazil, and, on the Guyanese side, by the Third Foreign Infantry Regiment (3rd REI). The objective was to combat cross-border and environmental crimes in the region. Approximately 150 Brazilian and 150 French military participated in Tumucumaque. Blockades and river controls, area control, river and land patrols were carried out. Diálogo Américas 2019.
 79. Operation Bracolper 2022. The operation included 15 missions to exchange information on intelligence, surveillance, and control of biodiversity and the environment, comprehensive action days, and standardization of procedures in order to strengthen the capacities of the three naval institutions to combat transnational threats. and common crimes (drug trafficking, environmental exploitation, wildlife trafficking, illegal mining) in the Amazon area. The exercises were carried out in three phases (July, August and September) and were carried out between the river ports of Iquitos (Peru), Leticia (Colombia) and Manaus (Brazil). InfoDefensa 2022.
 80. Szklarz 2020.
 81. Fórum Brasileiro de Segurança Pública 2022, 7.
 82. "Tras las huellas de la palma", translated as "In the footsteps of the palm" is a cross-border investigation coordinated by Mongabay Latam in partnership with Agencia Ocote from Guatemala, La Barra Espaciadora from Ecuador, France 24 in Spanish from Colombia and Contracorriente and Colectivo Linea 84 from Honduras.
 83. Tras las Huellas de la Palma Alliance 2022b.
 84. Muñoz 2019.
 85. Inspections focused on administrative inspections are focused on reviewing compliance with the normative and regulatory framework with respect to permits for activities related to the management and exploitation of natural resources.
 86. Waisbich et al. 2022.
 87. Brazil significantly reduced legal mercury imports starting 2014. By 2021, the country completely eliminated mercury imports. Source: Interview Federal Police, Environmental Crimes Unit. For more information see: Bispo 2022; OCHA 2022.
 88. GPRAM - Grupamento de Proteção Ambiental 2022b.
 89. HRW 2021.
 90. Brown 2022.
 91. Climate Counsel, Greenpeace Brasil, and Observatorio do Clima 2022.
 92. Hines 2022.
 93. Ibid.
 94. Diálogo Américas 2022.
 95. Tras las Huellas de la Palma Alliance 2022a.
 96. Dolce 2022.
 97. Warren 2022.
 98. Ibid.
 99. UNICEF 2019.
 100. Operation 'Joint Agata' is carried out against crimes on the Western Amazon border.
 101. Albertolli, Gomes Couto, and McGuire 2021.
 102. Hammerschmidt et al. 2021. They implement the Protocol for Expert Report in Animal Welfare (PERAW) as guidance for the first approach to complaint cases related to animal mistreatment.
 103. Saito, Teixeira de Lima, and Carvalho de Assis Dias 2019.
 104. Course 3: Conflict Analysis and Strategic Management in Complex Settings. DPP-CFM Module 1. Oliver Jütersonke & Cristina Hoyos
 105. In Boa Vista, 1,803 people live in 13 urban shelters and in Pacaraima (a city bordering Venezuela), there are 4,225 people in all in the 17 shelters formed there, totaling 6,028 migrants and refugees (2,274 men, 1,667 women and 2,087 under 18 years of age). These shelters have the logistical support of non-governmental organizations to meet basic needs of food, hygiene, and access to public services, as well as socio-educational work to provide greater social integration with Brazilians. The second profile group were indigenous peoples of the warao ethnic group, of which it is estimated that 5,799 of them live in Brazilian territory.
 106. UNHCR 2021.
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DCAF Geneva Centre
for Security Sector
Governance

P.O. Box 1360
CH-1211 Geneva 1
Switzerland

✉ info@dcaf.ch

☎ +41 (0) 22 730 94 00

🐦 @DCAF_Geneva

www.dcaf.ch

