ICFM Webinar No.11

Disaster Management in Brazil: Contributions from the Geological Survey of Brazil

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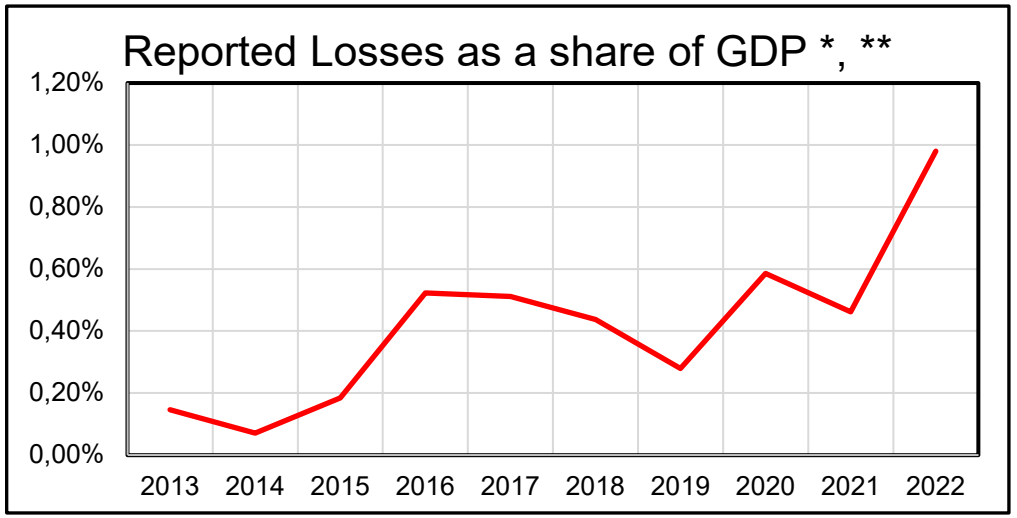
MINISTRY OF MINES AND ENERGY

FEDERAL GOVERNMENT
BRASIL
UNION AND RECONSTRUCTION

Summary

- Introduction
- History and context of the institution
- Prevention and mitigation
- Preparedness
- Response, rehabilitation and recovery
- Education and capacity building
- Challenges for the future

Introduction



Recognized losses to climate related disasters:

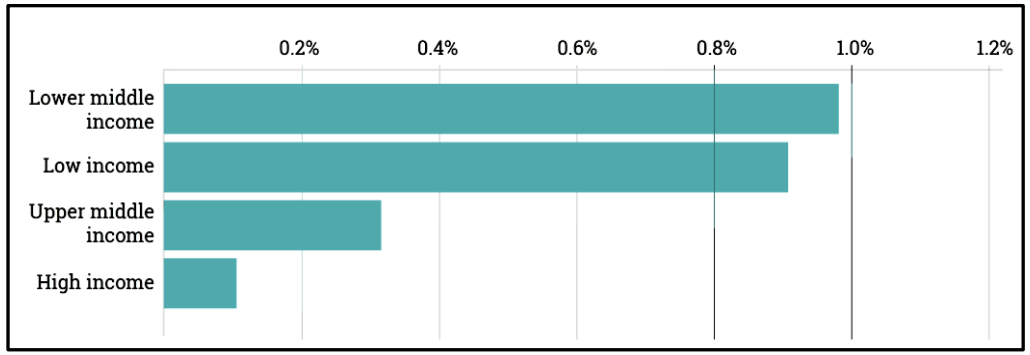
Flood, mass movements, drought, strong winds.

Law 12.608/2012 led to an increase in information availability.

* As reported by Municipality Governments.

** Data from the Ministry of Regional Development, S2ID Portal: https://s2id.mi.gov.br/paginas/relatorios/

Average economic loss from disasters as share of GDP by country income group



Global Assessment Report – GAR 2022
United Nations Office for Disaster Risk Reduction – UNDRR.

https://www.undrr.org/gar2022-our-world-risk-gar

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History of the Geological Survey of Brazil

1969 — Foundation

Founded as the Mineral Resources Research Company - CPRM
Public-Private Ownership

1970s — Rain Gauge Network

Starts operating the National Hydrometeorological Network

1990s — Designated as the Geological Survey of Brazil

Major changes in institutional responsibilities
Public Ownership

2010s — Increased participation in Disaster Management

Redesign of national disaster management by Law 12.608/2012

2020s — Recognized as an Science, Technology and Innovation Institution - ICT

Completed all the prerequisites for recognition as an ICT

Contributions within the DRM Cycle

- High and very high risk sectoring
- Flood and landslide susceptibility charts
- Landslide hazard maps
- Geotechnical charts for urban suitability toward flood and mass movements

- Post disaster technical evaluation

- Flood Early Warning Systems for Major River Basins
- Operation and maintenance of the majority of the National Network of Rain and River Gauges

- Crisis / Emergency support

Image: https://www.un-spider.org/risks-and-disasters

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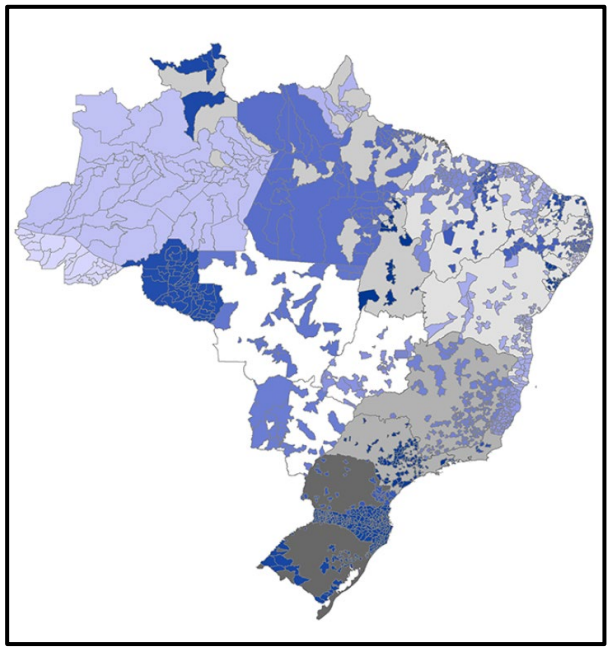
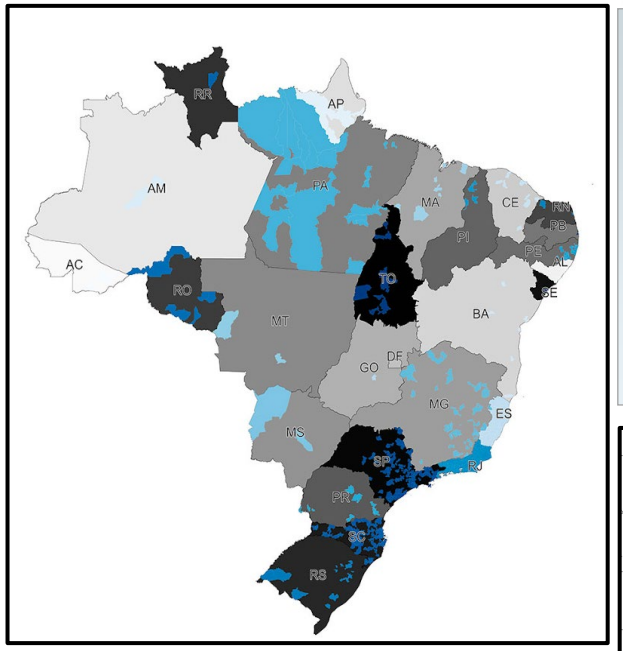
Cartography for disaster prevention



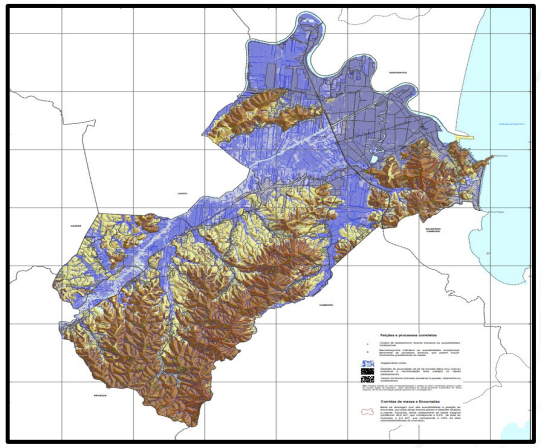
1632 High and very high flood and landslide risk sectoring:

On site inspection of residential areas at risk.



622 Flood and landslide susceptibility charts:

Geoprocessing to identify areas prone to flood and landslides



- 16 Geotechnical charts for urban suitability toward disasters
- 10 Mass Movement hazard maps
- 7 Flood level maps, integrated to the Hydrological Alert System
- Special class projects

http://www.sgb.gov.br/publique/Gestao-Territorial/Prevencao-de-Desastres-38
http://www.sgb.gov.br/sace/index_manchas_inundacao.php

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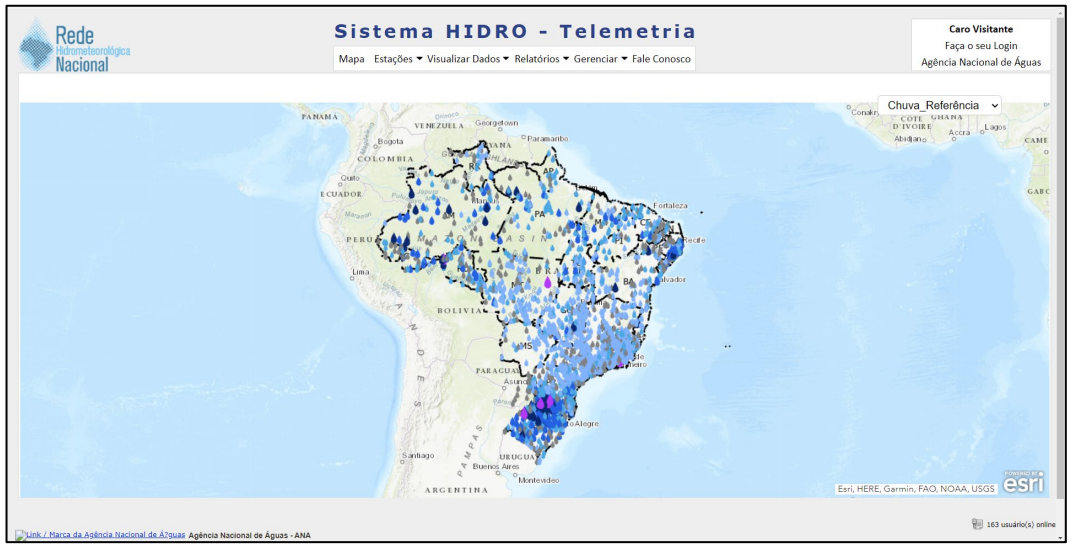
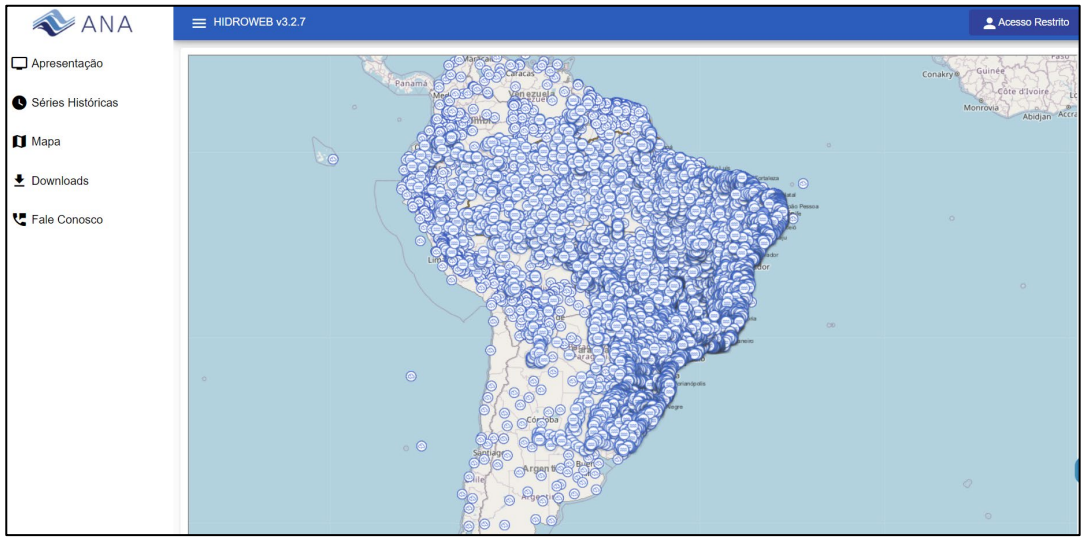
National Hydrometeorological Network

The SGB operates 3,518 out of 4,641 rain and river gauges. Which pertain to the National Hydrometeorological Network - National Water Agency - ANA

National Hydrometeorological Network





All data is open to the public and made available online by the National Water Agency - ANA.

https://www.snirh.gov.br/hidrotelemetria/Mapa.aspx

https://www.snirh.gov.br/hidroweb/apresentacao

Hydrological Alert System - SAH

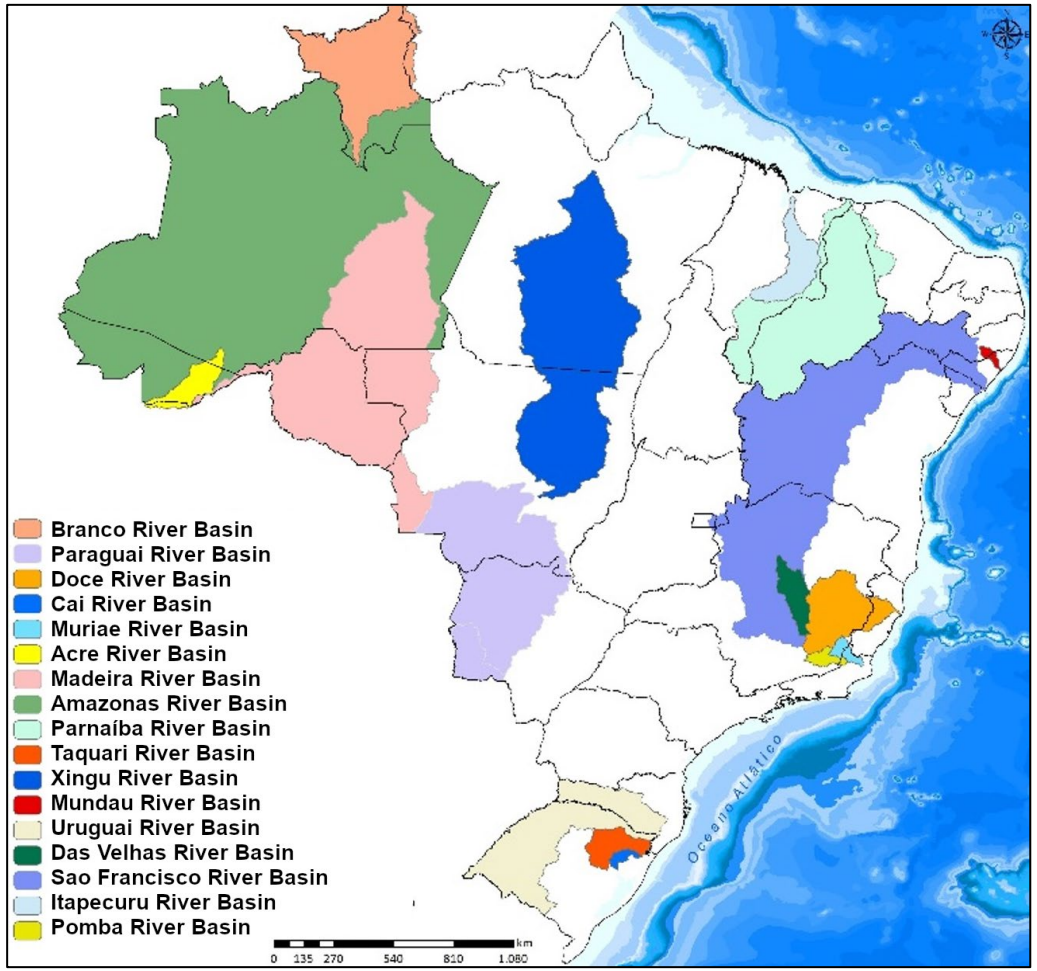
Warning levels

Severe Flood
Flood level causes severe damage

Flood
Flood level causes damages

Alert
High possibility of flood

Attention
Moderate possibility of flood



http://www.sgb.gov.br/sace/

Crisis / Emergency support





Our team is mobilized on demand, to lend our expertise during major crisis or shortly after.

http://www.sgb.gov.br/publique/Gestao-Territorial/Prevencao-de-Desastres/Avaliacao-Tecnica-Pos-Desastre-7141.html

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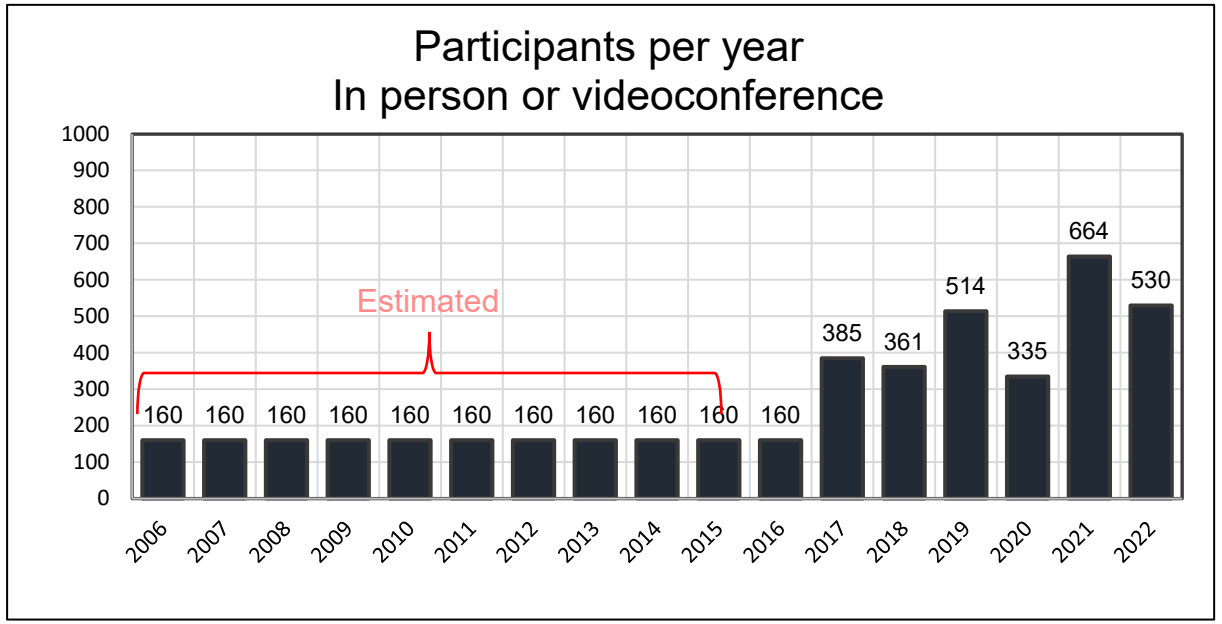
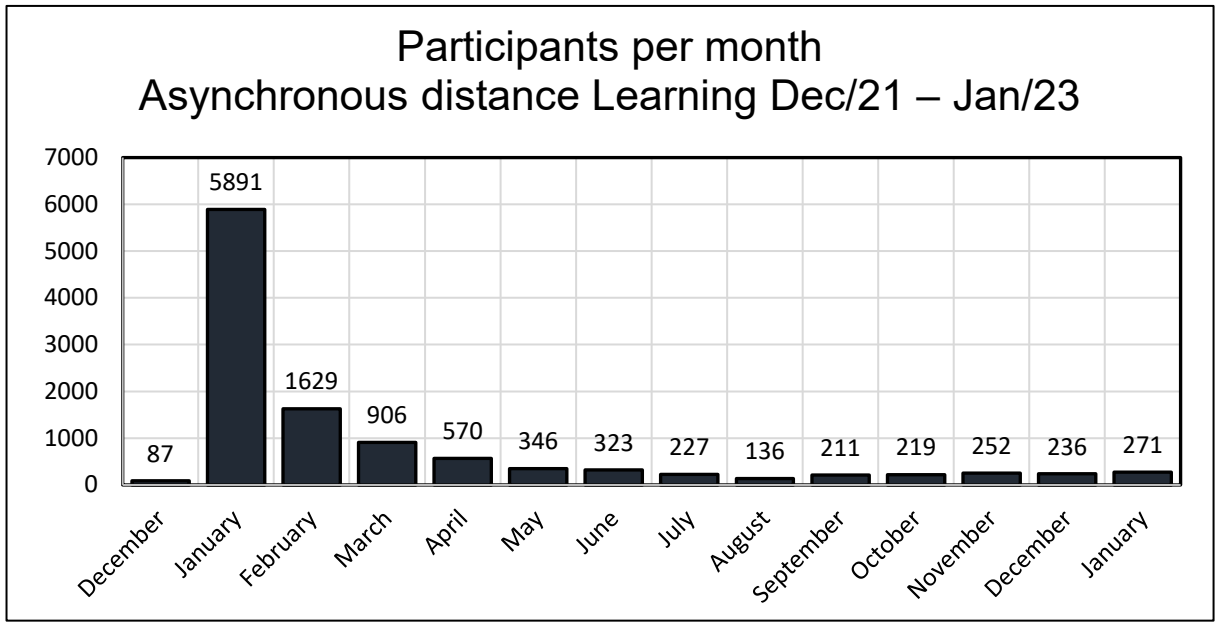
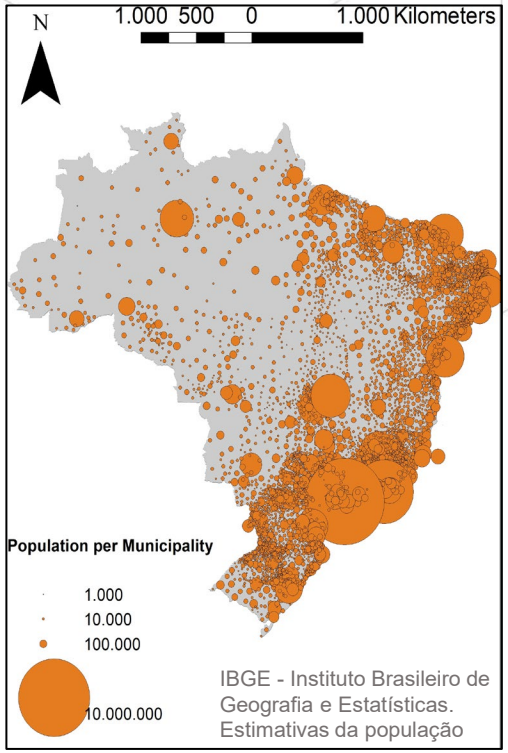
Training Programs for civil defense officials





Online Platform – National School of Public Administration - ENAP



IBGE - Instituto Brasileiro de Geografia e Estatísticas. Estimativas da população

Photos: Training programs across the country.

http://www.sgb.gov.br/publique/Gestao-Territorial/Difusao-do-Conhecimento/Capacitacao-em-Percepcao-e-Mapeamento-de-Areas-de-Risco-Geologico-7388.html

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Challenges for the future

- Deal with climate change and with the dynamic occupation of the territory

- Model hazard and develop early warning systems for small catchment areas and ungauged basins

- Increase national rain and river gauge network

- Integrate data and studies from institutions at all levels and for multiple risks

- Bridge the gap between the scientific studies, the public policies and the society

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Thank you for your attention

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