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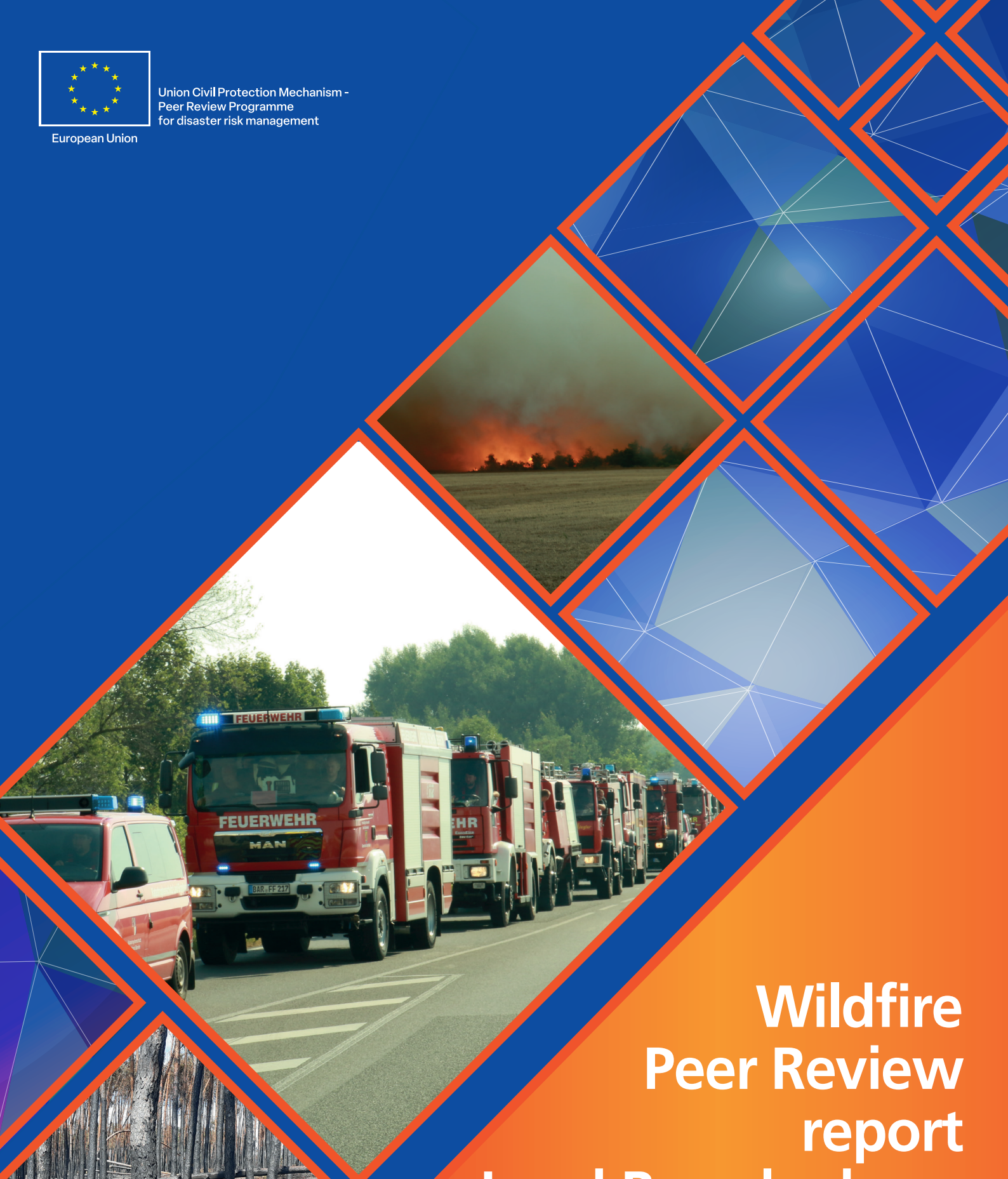
Peer Review Programme
for disaster risk management



Wildfire Peer Review report Land Brandenburg 2025

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Acknowledgements

The peers consisted of four experts:

- Carlos MENDES, Deputy Director for Prevention and Risk Management in the Portuguese National Authority for Emergency and Civil Protection;
- Dario NEGRO, Official of the Italian Civil Protection Department of the Prime Minister Cabinet Office;
- Alberte PIÑEIRO, Deputy Director of Forest Resources for the Regional Government of Galicia, Spain;
- Carolina RODRÍGUEZ, Forest Management and Soil Protection Service, member of the Forest Fire Operation System for the Regional Government of Balearic Islands, Spain.

Figure 1 - The peers, the National and Regional Contact Points (NCP/RCP), and representatives from the Ministry of Agriculture, Food, Environment and Consumer Protection of the State of Brandenburg (MLEUV) and the State Forest Agency (LFB). From left to right: Dennis Lonsdorfer (NCP/BBK); Raimund Engel (LFB); Dario Negro (peer); Carolina Rodríguez (peer); Norman Barth (RCP/LSTE); Carlos Mendes (peer); Alberte Piñeiro (peer); Martina Heinitz (MLEUV).

Figure 2 - The Peer review team. From left to right: Dennis Lonsdorfer (NCP/BBK); Raimund Engel (LFB); Judith Sørensen (DG ECHO); Dario Negro (peer); Carolina Rodríguez (peer); Norman Barth (RCP/LSTE); Carlos Mendes (peer); Alberte Piñeiro (peer); Martina Heinitz (MLEUV); Cristina Bräilescu (DG ECHO); Veronica Casartelli (CMCC); Guillermo Griem (DG ECHO); Angelica Marengo (CMCC); Dana Salpina (CMCC).

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The authorities of Land Brandenburg, represented by the State School and Technical Facility for Fire and Disaster Protection (LSTE) within the Ministry of the Interior and for Municipal Affairs (MIK), in cooperation with the Federal Office of Civil Protection and Disaster Assistance (BBK), volunteered to undergo the peer review of wildfire risk management capabilities and provided onsite support throughout the mission. Particular thanks are due for the full commitment and the full-time logistical support provided by Norman Barth, Dennis Lonsdorfer, and Lisanne Siebel-Achenbach.

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In September 2023, the authorities of Land Brandenburg, in cooperation with the BBK, requested a peer review of their wildfire risk management capabilities under the Union Civil Protection Mechanism (UCPM) Peer Review Programme. This is a thematic review focusing on the following key thematic areas of the wildfire risk management cycle:

- Governance of wildfire risk management: Overall governance framework; institutional framework; coordination and partnership; wildfire risk management strategy; wildfire risk financing; systemic resilience.
- Wildfire risk management planning: Legislative framework and processes; roles of stakeholders; prioritisation of measures; monitoring, evaluation and reporting; policy coherence.
- Wildfire prevention: Legislative framework and processes; landscape management; fire use laws, guidelines, and enforcement; innovation and knowledge services.
- Wildfire preparedness: Legislative framework and processes; training, exercises, and international exchanges.
- Recovery and lessons learned: Legislative framework and processes; lessons learned; data collection and analysis.

The infographic below highlights the thematic areas (hexagons) and topics (wedges) of the Wildfire Peer Review Assessment Framework (Wildfire PRAF) covered in this report[1].

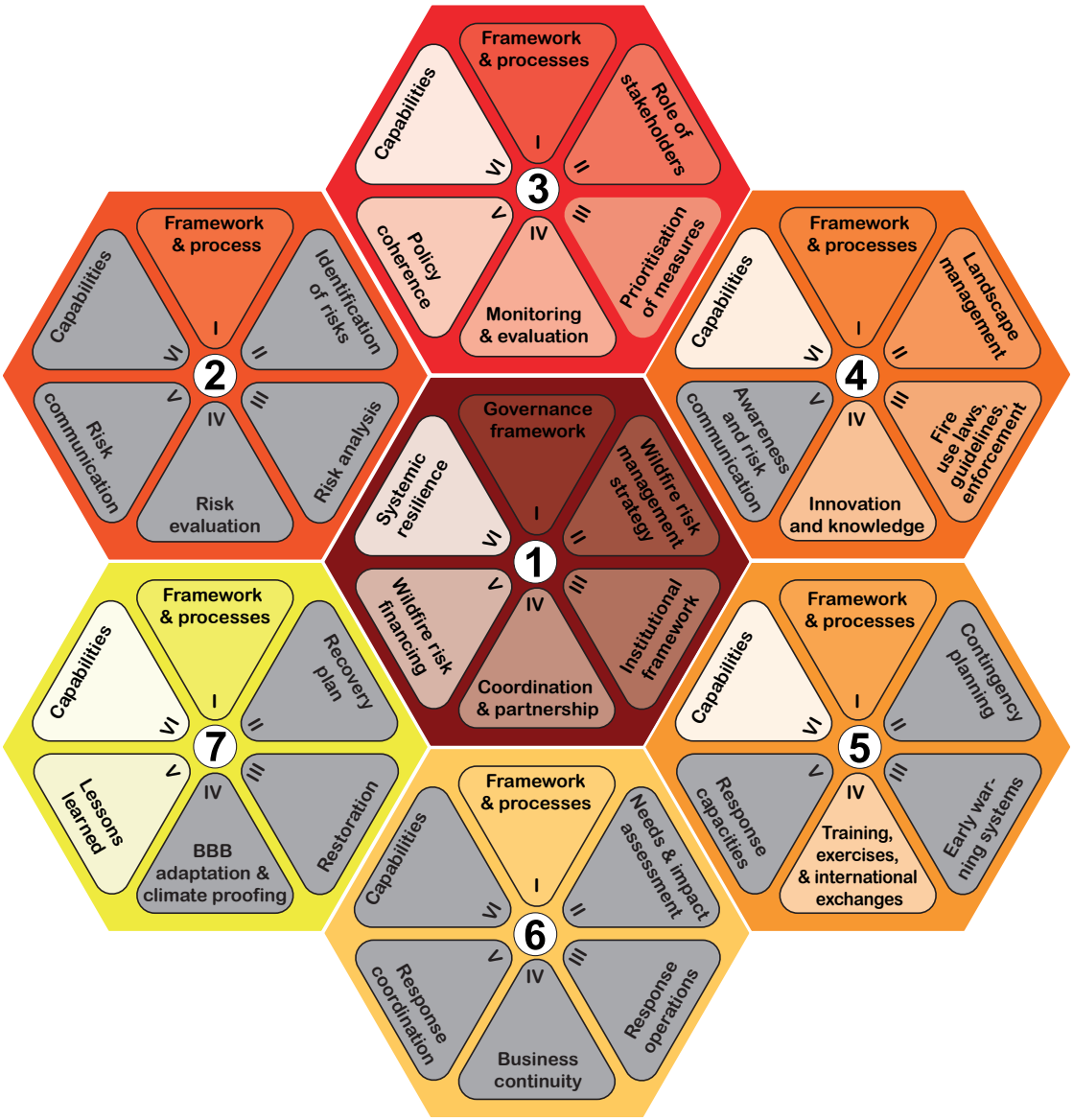

Figure 3 – Wildfire Peer Review Assessment Framework. The coloured areas represent the thematic areas addressed in this peer review.

1 Casartelli Veronica, and Jaroslav Mysiak. 'Union Civil Protection Mechanism - Peer Review Programme for Disaster Risk Management: Wildfire Peer Review Assessment Framework (Wildfire PRAF)', 2023.

Executive Summary

The wildfire risk management system in Land Brandenburg has seen steady improvements in recent years. Following the major wildfires of 2018, 2019, 2020, and 2022, the State demonstrated a stronger commitment to integrated wildfire risk management, making significant efforts to enhance its overall governance framework.

Land Brandenburg's specific environmental characteristics (e.g., large areas of pine tree monoculture and a dry sandy soil), coupled with non-climatic drivers such as the presence of unexploded ordnance, elevate wildfire risk to an emerging threat that demands proactive and strategic attention.

Recent advancements in the wildfire risk management system – particularly in the early detection system, the central procurement of operational technology with grants from the State of Brandenburg, and training – highlight a growing awareness of these escalating challenges and a concrete commitment to bolstering resilience across the region.

Strengths and recommendations of the wildfire risk management system in Land Brandenburg are outlined in the report for the key focus areas covered in this peer review: governance of wildfire risk management, wildfire risk management planning, wildfire prevention, wildfire preparedness, and recovery and lessons learned. Strengths and recommendations regarding wildfire prevention, wildfire preparedness, and recovery and lessons learned are limited to the topics covered during the review (Figure 3).

Further details and explanations of the strengths and recommendations listed below can be found in the 'Conclusions' sections of each key focus area, specifically in chapters 2.7, 4.6, 5.5, 6.3, and 8.4.

Key strengths identified:

GOVERNANCE OF WILDFIRE RISK MANAGEMENT

- Current and future challenges posed by wildfires in a fast-evolving risk landscape are well recognised **at the strategic level**. Recent major wildfire events in Land Brandenburg have led to **significant** improvements in the overall **wildfire risk management system**, including the adoption of comprehensive legislative acts, such as the Brandenburg Fire and Disaster Management Act and the Forest Act, which provide a strong legal foundation for effectively managing wildfire risk.

- Significant effort has been devoted to improving **horizontal coordination** between key entities involved in wildfire risk management. The Joint Forest Fire Decree by the Ministry of Interior and Municipalities (MIK) and the Ministry of Agriculture, Environment and Climate Protection (MLUK) helped strengthen the collaboration between the two authorities and paved the way towards a **more integrated wildfire risk management** approach.

- A **Wildfire Competence Centre (WBZZ)** is being established, with the goal of building on existing expertise and bringing knowledge together. It will facilitate **closer cooperation and collaboration** between stakeholders and could help foster data collection/analysis/sharing and exploitation of innovative tools.

- A **wide range of stakeholders**, such as public authorities, volunteers, landowners, and Civil Society Organisations (CSOs), show great interest and commitment in improving wildfire risk governance.

- **Cross-border collaboration with Poland** is already in place, foreseeing common operations procedures in case of wildfires at the border and the implementation of joint risk awareness initiatives with the population.

- Land Brandenburg makes **extensive use of European funding**, particularly through the Common Agricultural Policy (CAP) and the European Agricultural Fund for Rural Development (EAFRD), to implement wildfire prevention measures and enhance the early detection system.

- Land Brandenburg has supported the fire and disaster protection authorities with **extensive grants**. Specifically, in the period from 2021 to 2024, funds from the state budget, the Brandenburg Financial Equalisation Act (BbgFAG) and the Future Investment Fund Establishment Act (ZifoG) amounting to EUR 150 million were allocated for this purpose.

- The federal level, represented by the Federal Ministry of Interior (BMI) and – if deemed necessary – the Federal Office of Civil Protection and Disaster Assistance (BBK), is part of several **working groups** composed of federal state representatives. These working groups are set up by the permanent conference of the Ministries of the Interior of the federal states and discuss, among others, wildfire risk management-related topics and agree on common guidelines.

WILDFIRE RISK MANAGEMENT PLANNING

- **Hazard and risk analyses** are recommended and conducted at the different territorial levels, ranging from local to district, state and federal levels. Specifically, the Land Brandenburg 'Central hazard and risk analysis' includes measures aimed at enhancing wildfire risk management at the state level.

- Although the maps are difficult to access due to restriction issues, a good **knowledge and mapping** of the area with Unexploded Ordnance (**UXO**) is already in place.

- A long-standing and well-established **legal framework for classifying forest areas into wildfire hazard areas** exists, dating back to the Fire Protection Act of 1956.

WILDFIRE PREVENTION

- State regulations foresee a number of **restrictions** in terms of the usage of fire in forest areas, which are more severe in days of high meteorological fire risk.

- Overall, there is a **good capacity** to implement prevention measures within **public** forests. As for **private forests**, forest owners can be supported by Associations of forest owners in the implementation and maintenance of a **wide range of prevention measures**, such as firebreaks, water supply points, and road maintenance works.

- A **forest conversion process** is in place, replacing monoculture with mixed forest stands which are more fire resistant. An analysis of the potential areas to be converted has already been conducted to further implement the transformation process.

- Although not widely known by the public, the publicly available **web-GIS 'Geoportal Forst Brandenburg'**, implemented by the State Forestry Agency, can support small forest and landowners in identifying and implementing climate change adaptation and wildfire risk reduction measures by making available data and information to support decision making.

- **Risk awareness** is recognised as a key prevention action and a number of campaigns on different fire-related topics have already been successfully implemented.

- Land Brandenburg has implemented several wildfire prevention measures through the **efficient use of European funding**, such as CAP and EAFRD. A notable example of these measures in a UXO area is the work carried out in Jüterbog, a former military training area managed by the Brandenburg Wilderness Foundation.

WILDFIRE PREPAREDNESS

- **Significant investments** have been made in recent years to enhance the **early detection system**, supported by improvements in **data collection**, **analysis**, **and sharing**. As a result, a **good capacity** to monitor the territory with the use of new technologies and tools is already in place.

- While there is room for improvement, a **wildfire fighting training programme** has been established, featuring continuous updates that integrate international practices. The programme includes specialised **courses for Group and platoon leaders as well as incident commanders** at the State School and Technical Facility for Fire and Disaster Protection (LSTE), a training module on wildfires as well as a toolbox of tactical approaches to be adapted at the local level based on specific contexts.

- The state system is characterised by a large number of **volunteer firefighters**, who provide extensive coverage and good knowledge of the territory.

- The importance of ensuring the **safety of firefighters** in wildfire response operations is very well recognised and investments in Personal Protective Equipment (PPE) have been made in recent years, although this has not yet been implemented due to local jurisdictions.

- **Exercises** are implemented considering **worst-case scenarios** to test and improve communication and collaboration between different administrations.

- Following federal guidelines, Land Brandenburg is in the process of implementing **dynamic firefighting maps**, accessible through a web-geoportal. These maps will feature geo-localised information on firebreaks, roads, and water points.

RECOVERY AND LESSONS LEARNED

- After recent major wildfires (e.g. 2018-2022), **informal lessons learnt processes** have been spontaneously conducted to understand weaknesses in the wildfire risk management system and identify ways for improvements.

- Comprehensive guidance for **forest restoration after wildfires** are in place. Additionally, the Ministry of Agriculture, Food, Environment and Consumer Protection of the State of Brandenburg (MLEUV) – previously,

the MLUK – supports forest owners in the restoration of burnt areas.

- The **importance of data collection**, **analysis**, **and sharing** is very well understood. **Statistical data** aligned with EU standards are already collected and used, inter alia, to identify wildfire hot-spots and prioritise prevention/preparedness measures.

Key recommendations:

GOVERNANCE OF WILDFIRE RISK MANAGEMENT

- Consider **updating the Forest Fire Decree** to effectively regulate the entire wildfire risk management cycle and further clarify roles and responsibilities.
- Wildfire risk governance is characterised by formal delimitation of competences. Ensuring a degree of **flexibility** could help **facilitate cooperation** between the **forest protection** and **civil protection communities**.
- An **overarching wildfire risk management strategy** would help set clear strategic objectives and priorities and allocate financial resources. Also, it should include a dedicated section addressing wildfire risk management in areas with UXO. A **Key Performance Indicator** (KPI) **system**[2] could be established to monitor the effectiveness of the strategy.
- There are opportunities to streamline **vertical coordination** (from state to district and local level) and improve **horizontal collaboration** between different actors (e.g. forest services, fire services, UXO management teams) and stakeholders in wildfire risk management. To this aim, the establishment of an **inter-institutional Committee** could ensure regular discussions while also supporting the Wildfire Competence Centre by providing recommendations and guidance.
- The **Wildfire Competence Centre (WBZZ)** should be operationalised to enhance prevention and preparedness, optimise response strategies, and foster better coordination and collaboration among actors with a role in wildfire risk management. Key entities and authorities, as well as stakeholders from various administrations and associations, should be structurally involved with the aim to foster awareness and a shared understanding of wildfire risk. The WBZZ would serve as a critical hub for improving wildfire **resilience** and could function as the **operational structure of the inter-institutional Committee**.
- A **Wildfire Protection Advisory Board** connected to the WBZZ could be established to provide scientific advice and evidence-based insights, informing the decision-making process. This board should be composed of leading local **scientific institutes** dealing with wildfire risk to capitalise on the existing knowledge and strengthen the science-policy interface.
- The **working groups** established by the permanent conference of the Ministries of the Interior of the **federal** states could be employed to further develop relevant **guidelines** and support German states in wildfire

2 Key Performance Indicators (KPIs) are the critical (key) quantifiable indicators of progress toward an intended result. KPIs provide a focus for strategic and operational improvement, create an analytical basis for decision making and help focus attention on what matters most. Possible KPIs could be, for instance: 'At least x% of Wildland-Urban Interface (WUI) areas should have a wildfire risk management plan in place', 'All firefighters or other relevant actors (foresters, rangers, etc) should follow a minimum training', etc.

risk management issues, such as wildfire risk management planning and training, ensuring a homogeneous approach.

- **Cost-benefit analysis** could be conducted for better allocation of funds across the different stages of the wildfire risk management cycle (including the use of aerial capacities). Also, **anticipatory financing mechanisms** at the local level should be established to support forest owners in managing costly interventions. Specifically, **financial incentives** should be offered to encourage landowners to engage in forest conversion processes.

- Despite the enormous effort already carried out in the **removal of UXO**, **greater investment** could be considered, especially in prioritised vegetation areas near settlements, as fires in these areas are usually the ones that account for a bigger burnt area.

- It is recommended to strengthen the **local level capacities** in wildfire risk management and further consider local needs following a **bottom-up** approach.

- Encourage the consolidation of forest areas into **larger associations** rather than fragmented small properties.

- Consider introducing a spectrum of **options and tools** to deal with **poorly managed forest lands** and forests with unclear ownership.

WILDFIRE RISK MANAGEMENT PLANNING

- An update of the Forest Fire Decree would represent an excellent opportunity to establish a **clearer regulatory framework for wildfire risk management planning** across various levels and create a strong link between risk management planning, risk assessments, and existing hazard and risk analyses.

- Although they are not mandatory, a **follow-up process of the recommendations** included in the '**Central Hazard and Risk Analysis'** is advisable, as they offer valuable guidance for enhancing wildfire risk management.

- The development of an **integrated wildfire risk management plan,** linked to an overarching strategy *(ref. Governance)* and based on the 'Central Hazard and Risk analysis', would help clarify **roles and responsibilities** in wildfire risk management and facilitate resource **allocation** for the implementation of risk reduction measures. A virtuous planning process encompassing **monitoring, evaluation and regular updates** could be formally established. **Relevant stakeholders** should be actively engaged in the process, and a wide **consultation process** should be conducted.

- **Local wildfire risk management plans** for Wildland-Urban Interface (**WUI**) areas could be developed in accordance with specific technical guidelines, which need to be established to support the planning process. These plans must clearly outline priorities, with a particular focus on wildfire risk management in WUI areas surrounding the UXO zones.

- **Sustainable forest and landscape management** approaches should be prioritised in wildfire risk management planning and could be fostered through the development of specific guidelines, such as guidelines on firebreak planning.

- **Further support** could be provided to local authorities to increase their capacity in **implementing existing wildfire risk assessment guidelines** for better risk management planning. The state authorities could develop and manage a **dedicated support programme** including financial and human resources (e.g., targeted funding, technical expertise, and additional personnel). This approach would not only help improve local preparedness but also contribute to a **coordinated and coherent approach** to wildfire risk management.

WILDFIRE PREVENTION

- **Coordination** among key actors in the area of wildfire prevention should be improved and collaboration with landowners strengthened. Furthermore, **responsibilities of landowners in implementing preventive measures** should be clearly defined and a system of sanctions for non-compliance should be established, allowing **public authorities** to implement such measures on private land to mitigate wildfire risk.

- It is highly recommended to increase prevention measures in **WUI areas**, taking into consideration firefighting capacities and needs. **Guidelines on building wildfire-resilient WUI areas** for landowners and communities could be developed.

- Consider **revising the legislative framework** with a view to further facilitate the implementation of **wildfire prevention** measures. Since **prescribed fires** are crucial for prevention, regulations should allow exceptions for their use in forest areas by certified and trained staff, provided safety requirements are met. Further flexibility should also be ensured in Natura 2000 areas in order to allow for the implementation of fire protection corridors and ensure their maintenance.

- **Guidelines for fuel management** at the landscape level (including but not limited to forests) would make prevention options clearer to local communities and organisations. These could include the potential reintroduction of **grazing** as a tool to manage fuel growth in forests, and the use of **firebreaks** for other economic activities.

- The establishment of a **main network of forest firebreaks** could help in increasing the overall territorial resilience. The **agricultural landscape** could be used as a prevention tool to break the vertical/horizontal vegetation continuity.

- **Forest management** should be considered as a key wildfire prevention measure and, likewise, wildfire prevention should be fully integrated into forest management plans. To facilitate this process, **guidelines** (to be applied on a voluntary basis in high-risk areas) outlining key win-win measures could be developed to ensure a more systemic and holistic approach to mitigate wildfire risks across the State. For instance, such guidelines could provide support for more effective firebreak planning.

- It is recommended to **strengthen the link between land use (territorial) planning** and **wildfire risk management planning**, taking into consideration existing synergies and trade-offs and promoting

policy coherence. Additionally, it is crucial to **clarify roles and responsibilities** in land use/territorial planning in 'buffer zones' bordering forests and to define who is responsible for decisions in these areas in order to ensure effective management and coordination.

- An overall **wildfire risk communication strategy**, based on an evaluation of public perception of wildfire risk, should be drafted at the state level in close cooperation with key stakeholders. The strategy could include **guidance** on key messages and communication channels, to ensure consistency and coherence at all levels. This strategy should focus on creating **targeted risk awareness campaigns** and also include information on climate change and its impacts. The WBZZ could be a hub for coordinating this activity.

WILDFIRE PREPAREDNESS

- The **activation of fire restrictions**, as well as the dissemination of public warnings and awareness raising actions, should refer to a **single**, scientifically based, and widely understood **risk index**. In this view, it is strongly recommended to harmonise existing fire risk indexes developed by the Meteorological Service and the Forest Administration.

- Consider the opportunity to further develop the **incident command system** to increase response capacities. Advanced training for wildfire incident commanders should be established and organised on a regular basis to increase the number of trained firefighters.

- Consider the opportunity to create **small teams of well-trained firefighters** (at the district or state level) focused on wildfire firefighting operations and forest fire analysis, that could be deployed in case of major events.

- The **training capacity** on wildfire fighting needs to be expanded and the **number of training courses** should be increased particularly at the basic level (especially at the local and district levels), where most participants are volunteers.

- All **firefighters** involved in **wildfire fighting** need to be trained to enhance their skills and preparedness. Basic training courses should include **safety procedures** to better prepare first responders. Furthermore, it is recommended to **expand the curricula of training courses** at all levels to include additional topics, such as fire behaviour, prescribed burnings, and technical fire.

- To complement theoretical courses, consider establishing **prepositioning initiatives in areas with high wildfire risk**, which could also serve as a valuable training opportunity for firefighters.

- EU initiatives, such as the **Exchange of Experts Programme** or the **Pre-Positioning** initiative, could be exploited by firefighters to increase knowledge and skills in wildfire operations, such as those regarding fire behaviour in extreme weather conditions (e.g., in the Mediterranean region).

- Standards regarding wildfire **PPE for firefighters** should be clearly included in the regulations. A **greater investment** in such PPE should be envisaged to achieve better safety.

- Clear **standard operating procedures** and **ad-hoc agreements** should be established to efficiently request and promptly activate resources, such as aerial means from the army or police. This is crucial for increasing the system's capacity to make use of aerial resources, reducing mobilization time, and clarifying costs and reimbursement processes.

- Regulations on the **content of civil protection plans** at the local level should be further improved to harmonise their structure and ensure consistency. This will make these plans more accountable and effective in addressing risks and coordinating responses during emergencies.

- With regards to UXO areas, due to existing difficulties in firefighting activities, it is highly recommended to **improve the preparedness of neighbouring communities**. This includes developing dedicated civil protection plans and evacuation procedures, as well as conducting targeted risk awareness, training, and exercises targeted to the population to enhance citizens' preparedness.

RECOVERY AND LESSONS LEARNED

- A **lesson learnt process** to systematically identify weaknesses and suggestions for improvements, potentially through the Wildfire Competence Centre, should be **formally established**. Key findings in terms of recommendations for improving the overall wildfire risk management should be **widely disseminated.**

- Post-fire forestry investigation needs to be further improved. The establishment of **specialised multidisciplinary post-fire investigation units**, integrating advanced forensic techniques, meteorological analysis, and fire behaviour considerations could be considered. This would greatly enhance the accuracy of fire cause investigations, bolster legal accountability for wildfire-related crimes, and better inform decision making across the entire risk management cycle.

- Clear **Standard Operating Procedures** (SOPs) should be established to clarify roles and responsibilities and to guide actions in cases where **prosecution** is deemed necessary as a result of the post-fire investigation.

- Wildfire statistics need to be further enhanced by including a detailed **analysis of wildfire suppression costs**. Additionally, assessments of economic losses to ecosystem services due to wildfires would provide valuable data to inform decision making.

1 - Introduction

1.1 - Peer review of disaster risk management capabilities

Peer review is a common working method for assessing policy performance and implementation. The European Union's Civil Protection Mechanism (UCPM) introduced peer review as a means for improving risk management capabilities, stimulating exchange of knowledge, identifying good practices of policy and operations, and fostering integration of risk prevention, preparedness, and response. The EC General Directorate for Civil Protection and Humanitarian Aid Operations (ECHO) operates the UCPM Peer Review Programme. Since 2013, eighteen countries have completed the voluntary peer review assessment.

Wildfire peer review is a strategic tool for strengthening resilience against wildfires at the European, national, and sub-national level, with the primary objective to exchange knowledge through independent analyses conducted by experts (the 'peers') from UCPM countries.

1.2 - Scope of the review in Land Brandenburg

Land Brandenburg, represented by the State School and Technical Facility for Fire and Disaster Protection (LSTE) within the Ministry of the Interior and for Municipal Affairs (MIK), in cooperation with the Federal Office of Civil Protection and Disaster Assistance (BBK), submitted a request for a UCPM peer review of wildfire risk management capabilities in September 2023. The scope of the assessment was co-designed through dialogue and consultations which involved stakeholders from the MIK and the BBK. ECHO appointed four peers through a call for interest circulated among the UCPM countries. During a field visit in held in Potsdam in November 2024, organised by the LSTE/MIK and the BBK, the peers engaged in discussions with representatives from key institutions, including ministries, agencies, academic institutions, civil society organisations, and stakeholders from neighbouring Gorzów Wielkopolski[3], Poland (see Figures 4 and 5).

Figures 4 and 5 - The Peer review team (peers, DG ECHO, CMCC), the NCP/RCP team, and representatives from key institutions attending plenary meetings at the MIK, during the peer review on-site mission.

The 2023 Wildfire Peer Review Assessment Framework[4] elaborates on the thematic areas and topics pertaining to wildfire risk management capabilities. Countries/regions may choose between a comprehensive review of all areas or a tailored thematic review focusing on a selection of these areas. Land Brandenburg chose a tailored thematic review focused on the following key areas: governance of wildfire risk management (overall governance and legislative framework and processes), wildfire risk management planning, wildfire prevention, wildfire preparedness, and recovery and lessons learned (see Figure 3).

3 Specifically, the Provincial Headquarters of the State Fire Service in Gorzów Wielkopolski (*Komenda Wojewódzka Państwowej Straży Pożarnej w Gorzowie Wielkopolskim*), Poland.

4 https://civil-protection-humanitarian-aid.ec.europa.eu/system/files/2023-06/Wildfire_PRAF_V2.pdf

2 - Governance of wildfire risk management

2.1 - Governance framework

- In Germany, the disaster management system is characterised by **shared responsibilities** between the Federation and the Federal States '*Länder*' (e.g., Land Brandenburg). The **federal states** are responsible for disaster risk management **in times of peace** and have respective disaster risk management laws.

- In Land Brandenburg, wildfire risk management is regulated by three main instruments: the **Brandenburg Fire and Disaster Management Act**, the **Forest Fire Decree**, and the **Forest Act**.

- The **Forest Fire Decree**, which focuses on risk assessment, planning, preparedness and response, has laid the way towards a more **integrated wildfire risk management approach**.

Federal level and general organisation

The federal structure of Germany is reflected in its disaster management system, characterised by shared responsibilities between the Federation and the Federal States '*Länder*' (e.g., Land Brandenburg). 'Civil protection', intended as 'protection of the population', is an overarching theme that comprises two elements: disaster management (*Katastrophenschutz*) and civil protection (*Zivilschutz*). The federal states are responsible for disaster management in times of peace and have respective disaster management laws, defining – inter alia – the responsible authorities and their tasks (see Section 2.2, Institutional framework). In the case of defence (e.g. in times of war or armed conflict) the Federation is in charge of civil protection, as laid out in the Federal Civil Protection and Disaster Relief Act. Overall, the federal level is generally responsible for national/internal security and central tasks of civil protection, through the Federal Ministry of the Interior and Community (BMI)[5].

The Federal Civil Protection and Disaster Relief Act[6] regulates the responsibilities of the Federal (or 'national') level in civil protection and emergency management and assigns administrative tasks to the BBK, which is under the BMI. Specifically, the federation plays a supportive role for federal states mostly in the areas of risk preparedness (e.g., training, early warning) and emergency response. Regarding the latter, the Federation assists the federal states upon request ('disaster assistance'), following a system of subsidiarity in task distribution (see also Section 7.1, Wildfire emergency response).

Another relevant legislative instrument at the federal level is the Federal Climate Adaptation Act[7] of 20 December 2023, which regulates climate adaptation by the Federation, including the drafting of the German Climate Adaptation Strategy, under the responsibility of the Federal Ministry of the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), and the climate adaptation strategies to be drafted by the States (see Section 2.4 for Land Brandenburg's strategy).

5 European Commission, 'Germany', European Civil Protection and Humanitarian Aid Operations, accessed 17 December 2024, https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/germany_en

6 The Federal Civil Protection and Disaster Relief Act can be found at this link https://www.gesetze-im-internet.de/zsg/

7 The Federal Climate Adaptation Act is available at this link: https://www.bmuv.de/fileadmin/Daten_BMU/Download_PDF/Gesetze/kang_en_bf.pdf

Land Brandenburg

The main legislative instruments governing wildfire risk management in Land Brandenburg are: the Law on Fire Protection, Assistance, and Disaster Management of Land Brandenburg of 24 May 2004 ('Brandenburg Fire and Disaster Management Act'), last amended by Article 9 of the Act of March 5, 2024 (GVBl.I/24, No. 9, p.9); the Joint Decree of the Ministry of the Interior and Municipal Affairs and the Ministry of Agriculture, Environment, and Climate Protection on the Prevention and Defence against Forest Fires of 16 January 2024 ('Forest Fire Decree'); and the Forest Act of Land Brandenburg of 20 April 2004, last amended by Article 2 of the Act of June 20, 2024 (GVBl.I/24, No. 24, p. 16, as amended No. 40).

The Brandenburg Fire and Disaster Management Act[8] aims to ensure preventive and defensive measures within the integrated assistance system *'in case of: (1) fire hazards (fire protection); (2) other emergencies and accidents (assistance); and (3) major damage events and disasters (disaster management)'*. In these fields, it regulates the roles and responsibilities of the actors involved at the various levels mainly in the area of preparedness (e.g., contingency planning) and response. It also provides an overview of the duties to be performed by the population in case of fire.

The Forest Fire Decree[9] regulates forest fire risk management with a focus on risk assessment, planning, preparedness, and response.

Another relevant law partly addressing forest fire risk is the Forest Act of Land Brandenburg[10]. Overall, the law covers issues ranging from the conservation and management of forests to roles and responsibilities of managing actors, as well as forest fire risk, with particular emphasis on prevention and preparedness activities in relation to forested areas (Articles 20-24).

The main authorities responsible for wildfire risk management are the Ministry of the Interior and for Municipal Affairs (MIK), specifically responsible for preparedness activities, emergency response, and risk assessment, and the Ministry of Agriculture, Food, Environment and Consumer Protection of the State of Brandenburg (MLEUV) (previously, Ministry of Agriculture, Environment, and Climate Protection – MLUK), responsible for forest fire prevention.

8 The Brandenburg Fire and Disaster Management Act is available at this link: https://bravors.brandenburg.de/gesetze/bbgbkg#2

9 The Forest Fire Decree is available at this link: https://bravors.brandenburg.de/verwaltungsvorschriften/waldbraende_2024

10 The Forest Act can be found at this link https://bravors.brandenburg.de/gesetze/lwaldg#body

Box 1 - Example of good practice from Spain: Wildfire risk governance in Galicia

Galicia's (Northwest Spain) wildfire risk management framework is shaped by a combination of national, regional, and local regulations and plans, tailored to address the region's specific challenges. This system integrates civil protection, forest management, and local planning to ensure a comprehensive approach to wildfire risk prevention, preparedness, response, and recovery.

At the national level, Royal Decree 893/2013[11] establishes the Basic Civil Protection Guidelines for Wildfire Emergencies, mandating standardised emergency planning across Spain. This decree ensures that national, regional, and local plans are cohesive, fostering coordinated responses to wildfires. The State Plan for Civil Protection for Wildfire Emergencies[12], approved in 2014, complements this by defining strategic measures for wildfire preparedness and management across all regions.

The Galician Emergency Law 5/2007[13] provides a legal framework for emergency and risk management, emphasizing alignment with national standards while considering local needs. The Special Civil Protection Plan for Wildfire Emergencies in Galicia (PEIFOGA[14]), revised in 2019, focuses on safeguarding not only forests but also cultural assets, infrastructure, and essential services.

Complementing these efforts, the Wildfire Prevention and Suppression Galician Law 3/2007[15] emphasises sustainable forest practices and land management. The PLADIGA 2024[16] plan integrates prevention, response, and recovery strategies as mandated by this law.

Local governments in Galicia also play a significant role in wildfire risk management. Municipalities are guided by specific planning documents that complement the national and regional frameworks. These guidelines help local authorities develop customised action plans that address the unique risks within their jurisdictions. The local plans are designed to ensure that municipalities are adequately prepared to respond to wildfires and can effectively coordinate with regional and national agencies (Municipal Guidelines[17]).

2.2 - Institutional framework

- Responsibility for wildfire risk management lies primarily with the states. However, several federal bodies play a supportive role, including the **Federal Office of Civil Protection and Disaster Assistance** (BBK), the **Federal Agency for Technical Relief** (THW), the **Federal Police**, and the **Armed Forces**.

- At the state level, the main actors with a role in wildfire risk management are the **Ministry of the Interior and for Municipal Affairs** (MIK), with central tasks of fire protection, assistance, and disaster management, and the **Ministry of Agriculture, Food, Environment and Consumer Protection of the State of Brandenburg** (MLEUV), with a main role in prevention, and the Ordnance Disposal Service (KMBD), which manages unexploded ordnance (UXOs).

- The fire and disaster risk management system of Land Brandenburg is largely based on the **voluntary commitment of citizens** in the volunteer fire brigades at the municipal level as well as on aid organisations involved in civil protection.

Federal level

11 https://www.boe.es/buscar/act.php?id=BOE-A-2013-12823
12 https://www.boe.es/buscar/act.php?id=BOE-A-2014-11493
13 https://www.lex.gal/galilex/?p_p_id=galilex_WAR_galilexportlet&p_p_lifecycle=1&p_p_state=normal&p_p_mode=view&p_p_col_id=Column-1&p_p_col_count=1&_galilex_WAR_galilexportlet_accion=Ficha&_galilex_WAR_galilexportlet_idGalilex=7722&langId=es_ES
14 https://ficheiros-web.xunta.gal/emerxencias/plans/PEIFOGA_CAS.pdf
15 https://www.lex.gal/galilex/9673
16 https://mediorural.xunta.gal/es/temas/defensa-monte/pladiga-2024
17 https://ficheiros-web.xunta.gal/emerxencias/plans/guia_pam_incendios.pdf

At the federal level, the Federal Ministry of the Interior and Community (BMI) is the superior federal government authority for civil protection. It coordinates inter-ministerial collaboration and is generally responsible for national/internal security. The BMI supervises the two federal civil protection agencies, the Federal Office of Civil Protection and Disaster Assistance (BBK) and the Federal Agency for Technical Relief (THW). BBK, founded in 2004, handles federal-level civil protection responsibilities, such as contingency planning, risk preparedness, public warnings, and collaboration on the Sendai Framework for Disaster Risk Reduction. THW, with a workforce composed mainly of volunteers (99%), provides technical assistance in large-scale emergencies both domestically and internationally.

Well-trained volunteers form one of the key elements of Germany's civil protection system, with 96% of firefighters and 74% of emergency aid personnel from organisations like the German Red Cross serving on a volunteer basis.

Furthermore, the Federal Police and the Armed Forces (*Bundeswehr*) – with certain limitations regarding the use of weapons – also play a supporting role in the event of natural hazard-related disasters or particularly serious accidents.

Another relevant actor at the Federal level is the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) which has central responsibilities in the forestry sector. The BMUV supports states in protecting, conserving, sustainably managing, and restoring forests through various initiatives and projects[18]. Among others, the Ministry collaborates with the federal states in developing programmes and joint strategies[19]. Notably, it is responsible for drafting the German strategy for adapting to climate change (DAS).

Land Brandenburg

The Brandenburg Fire and Disaster Management Act regulates the roles of the following actors, which, at the various administrative levels, have a key role in the wildfire risk management system: (1) the independent municipalities, associations of municipalities, offices, and the independent cities; (2) the districts; (3) the districts and the independent cities (also named 'lower disaster management authorities'); (4) the state, through the Ministry of the Interior and for Municipal Affairs (MIK), also called 'highest disaster management authority' or 'highest special supervisory authority'.

Starting from the lower level, the independent municipalities, municipal associations, the offices, and independent cities, are specifically responsible for local fire protection and local assistance. Notably, in accordance with the Act, they shall maintain an efficient fire department corresponding to local conditions, ensure an adequate water supply for firefighting, and take care of the training and continuing education of fire department personnel. To carry out these tasks, they employ fire brigades. Additionally, they are also responsible for: the preparation of the 'hazard and risk analysis' and for setting protection objectives in the 'hazard prevention plan' corresponding to local conditions (see also Section 3.1, Wildfire risk assessment); establishing, coordinating, and updating 'alarm and operational plans' for fire protection and assistance; promoting self-help among the population and fire safety education; and taking other measures necessary to effectively prevent and combat hazards, in particular through the implementation of exercises.

The districts are responsible for supra-local fire protection and supra-local assistance. Among other functions, districts shall support the independent municipalities, the associations of municipalities, and the offices by providing facilities for the fire brigades and ensure the training and further education of volunteer firefighters. Additionally, they are in charge of preparing a 'supra-local hazard and risk analysis' and setting protection goals for their area; drawing up, coordinating and updating 'alarm and operational plans'; and taking other measures necessary for the effective prevention and control of major incidents and disasters.

18 For more information visit: https://www.bmuv.de/en/topics/nature-and-biological-diversity/overview-nature-and-biological-diversity/forests/international-forest-conservation

19 'BMUV: Tasks and Structure', Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, accessed 17 December 2024, https://www.bmuv.de/en/ministry/tasks-and-structure

The districts and the independent cities, also called 'lower disaster management authorities', are responsible for disaster management. Specifically, they shall provide, on the basis of the 'hazard and risk analysis' carried out at their level, the following services: leadership; fire protection; medical service; support service; protection from hazardous substances; and recovery/repair services[20]. In this context, they are responsible for setting up and operating the disaster management units and facilities (see also Section 7.1, Wildfire emergency response).

The state, through the MIK, is responsible for central tasks of fire protection, assistance and disaster management and supporting the above-mentioned actors in fulfilling their tasks. Specifically, the MIK contributes to improving fire protection and provides central training through the State School and Technical Facility for Fire and Disaster Protection (LSTE), which is a subordinate facility of the Ministry[21]. The LSTE fulfils essential central tasks of the state according to the Brandenburg Fire and Disaster Management Act, particularly aimed at supporting municipal authorities. Besides training, the tasks of the state include: prepare a 'Central hazard and risk analysis' for Land Brandenburg and set protection objectives for hazardous events (see Sections 3.1 and 4.1, Wildfire risk management planning); draw up, coordinate and update 'alarm and operational plans'; provide the necessary equipment for disaster management (including a central disaster management warehouse) when this responsibility exceeds the tasks of the districts and independent cities; support fire protection research and fire protection standardization; work towards cooperation with other federal states of Germany and other countries; take other measures necessary for the effective prevention and control of major damage events and disasters, such as carrying out exercises which, if necessary, may also extend beyond national and state borders; make decisions to ensure the long-term and sustainable protection of critical infrastructure.

The fire and disaster management system of Land Brandenburg is largely based on the voluntary commitment of citizens in the volunteer fire brigades at the municipal level (see Section 7.1, Wildfire emergency response), as well as on aid organisations involved in civil protection, such as the German Red Cross and the German Life Rescue Association Brandenburg[22].

Other relevant actors involved in forest fire risk management are the forestry authorities. The Ministry of Agriculture, Food, Environment and Consumer Protection of the State of Brandenburg (MLEUV) is defined as the 'highest forestry authority' according to the Forest Act, and plays a central role in forest fire prevention. It is divided into departments with a technical focus and exercises technical and legal supervision over the State Office for the Environment ('highest environmental authority'), the 'lower environmental authorities' of the administrative districts and independent cities, and the organisationally independent administration of the Lower Oder Valley National Park[23].

Under the MLEUV, the State Forestry Agency of Brandenburg (LFB - *Landesbetrieb Forst Brandenburg*), established in 2009, operates as a 'lower forestry authority' under Article 31 of the Forest Act. Its mandate includes safeguarding the economic, ecological, and recreational functions of state-owned forests and serving as a partner to private and communal forest owners[24]. As the forest authority, LFB ensures compliance with forest laws, provides grants to support private forestry, and is responsible for protecting 1.1 million hectares of woodland. It is also highly active in forest education, working to increase public awareness, enhance environmental knowledge, and promote sustai-

20 Crisis Management Coordination Centre, Ministry of Interior, 'Central Hazard and Risk Analysis of the State of Brandenburg', 2022.

21 MIK, 'Organisation of Fire Protection', accessed 17 December 2024, https://mik.brandenburg.de/mik/de/innere-sicherheit/brand-katastrophenschutz/brandschutz/

22 As reported in the 'Central hazard and risk analysis' of Land Brandenburg, 1910 active aid workers operate in the federal state of Brandenburg in the field of civil protection.

23 MLUK, 'Environment', accessed 17 December 2024, https://mluk.brandenburg.de/mluk/en/environment/.

24 eustafor - Managing state forests responsibly, 'Landesbetrieb Forst Brandenburg – European State Forest Association', accessed 17 December 2024, https://eustafor.eu/members/landesbetrieb-forst-brandenburg/

nable forestry practices[25]. Particular attention is paid to providing adequate information on wildfire risk to the young population.

With the structural change of the LFB on January 1, 2024, the previous forestry offices were restructured into 14 new Forestry Offices, namely one in each district. These are responsible for sovereign and public welfare-oriented tasks throughout the forests of Land Brandenburg. They carry out the tasks assigned according to the Forest Act, act as regulatory authorities for permits, safeguard the interests of the forest as representatives of public interests, and support forest owners in managing their forests through advice and guidance. Forestry Offices are also involved in forest protection, forest fire monitoring across the entire forest, and forest education[26].

Finally, the Ordnance Disposal Service (KMBD) also plays an extended role in preventing fires. Under the Central Police Services of Land Brandenburg located in Wünsdorf, the KMBD is responsible for the management of unexploded ordnance (UXO). Its activities include identifying ordnance contamination, documenting cleared areas, receiving, transporting, storing, and destroying ordnance. The KMBD has seven branches, mostly located in police stations: the central ordnance dismantling facility with a blasting site is located in Kummersdorf/Gut[27]. Notably, this service has rendered more than 14,500 tons of explosive ordnance harmless by 2020 and recovered and destroyed over 32 million explosive ordnance units[28].

2.3 - Coordination and partnership

- **Several associations** in Land Brandenburg play a role in wildfire risk management, including fire brigade associations and forestry associations, the latter supporting forest and landowners in managing their forested areas.

- A **working group for forest protection** is established in every district and independent city and acts as a technical coordinating body, bringing together epresentatives from the fire and disaster risk management authorities, the lower forestry authority, and the police.

- Land Brandenburg is establishing a **Wildfire Competence Centre (WBZZ)**, bringing together key actors in wildfire risk management to enhance **coordination and inter-departmental collaboration** for more effective wildfire prevention and response.

In Germany, there is a permanent conference of the Ministries of the Interior, which includes the heads of the Ministries of the Interior of each state and the Federal Ministry of the Interior and Community (BMI). This conference serves as a platform for cooperation on trans-regional and national matters. It is organised into six working groups, with Working Group 5 specifically tasked with responsibilities related to fire and rescue services, disaster protection, and civil protection. Within this working group, dedicated committees bring together representatives from both the federal states and the federal government.

In Land Brandenburg, the following associations, centres, and groups foster coordination and partnership among the

25 For more information visit this link https://forst.brandenburg.de/lfb/de/

26 The list of Forestry Offices can be found at this link: https://forst.brandenburg.de/lfb/de/ueber-uns/forstaemter/

27 MIK, 'Explosive Ordnance Disposal', accessed 17 December 2024, https://mik.brandenburg.de/mik/de/innere-sicherheit/kampfmittelbeseitigung/

28 Anne Gnilke and Tanjia Sanders, 'Forest Fires and the Role of Military Contaminated Sites on Forest and Succession Areas in Brandenburg', 2024, Thünen Institute of Forest Ecosystems edition, DOI:10.3220/PB1705316426000.

actors involved in wildfire risk management.

The State Advisory Board for Fire and Disaster Management, established by Article 6 of the Brandenburg Fire and Disaster Management Act, is a special board appointed and chaired by the MIK which advises on fundamental issues of fire protection, assistance, and disaster management and discusses suggestions for the implementation of the Act. The State Advisory Board is composed of the State Fire Director, a representative of the lower disaster management authorities, a representative of the MIK, and other members from various institutions, including the MLEUV (previously, the MLUK), the State Fire Brigade Association of Brandenburg, and the THW.

The State Fire Brigade Association of Brandenburg brings together associations representing the various typologies of fire brigades in Land Brandenburg, such as the Associations of Heads of Professional Fire Brigades, and the Associations of Volunteer Fire Brigades with Full-Time Staff. Its functions include supporting these associations' members, promoting youth fire brigades and training, and contributing to fire prevention education and fire safety awareness. The state, as well as independent municipalities, municipal associations, offices, and districts, must consult with the State Fire Brigade Association of Brandenburg or its subdivisions before enacting legal and administrative regulations related to fire services, and before making fundamental decisions that affect fire service matters.

Land Brandenburg is establishing a Wildfire Competence Centre (WBZZ) to enhance wildfire prevention and response. By organisational decree from the MIK dated November 25, 2024, the LSTE has been assigned the responsibilities of the WBZZ. Since then, a dedicated team has been tasked with preparing the WBZZ to become operational. In accordance with the concept attached to the cabinet resolution of September 3, 2024, the WBZZ would consolidate expertise across various agencies, fostering inter-departmental collaboration for effective wildfire management. This initiative responds to the rising wildfire risk and follows a state parliament resolution from June 2022 and a Wildfire Summit held in January 2023. Key objectives for the WBZZ include improving wildfire prevention, optimising response planning, coordinating protective measures and facilitating technical and scientific cooperation across local, state, federal, and EU levels. The centre will coordinate the activities of the MLEUV, the LFB, the MIK, and the LSTE. It will also involve organisational units from multiple ministries, authorities, and other stakeholders to ensure comprehensive coordination[29].

Following the 2018 wildfire season, a Wildfire Working Group engaging the main institutions involved in wildfire risk management – namely representatives from the former MLUK, LFB, LSTE, the KMBD, the State Fire Brigade Association, and other stakeholders from municipal sectors – was established by the MIK to discuss the wildfire season and generally improve wildfire risk management (see also Section 8.2, Lessons learned)[21]. However, the group is no longer active, and there are no plans for its reactivation. Rather, the content-related activities of the working group will be transferred to the planned responsibility profile of the WBZZ.

At a lower level, a working group for forest protection is established, in accordance with the Forest Fire Decree, in every district and independent city under the leadership of the lower disaster management authorities. These working groups shall meet at least once a year as technical coordinating bodies. In addition to representatives from the fire and disaster management authorities, lower forestry authority, and police, neighbouring districts or independent cities are also included in the working group.

In general, the 2022 'Central Hazard and Risk Analysis' (see Sections 3.1 and 4.1) highlights the need for better emergency coordination between Land Brandenburg and the federal government.
With regards to the forestry sector, the following centres and associations play a central role in providing support

29 'Draft for the Forest Fire Competence Centre - Version 5 of the WBZZ', 2024.

to various institutions and actors (also private). The State Forestry Competence Centre in Eberswalde (LFE), which is a department of the LFB, provides a wide range of scientific services for the state forest as well as for private and municipal forest owners, including the production of a monthly forecast of potential damage progression to the forest.

Finally, the Forest Management Associations (FBG)[30] are recognised associations of forest owners under the MLEUV, created to mitigate challenges in managing small and fragmented forest properties. These challenges include small parcel sizes, irregular land shapes, mixed ownership, and limited access, as outlined in Article 29 of the Forest Act.

Forest management is generally parcel-specific, with owners responsible for both costs and revenues from their forest areas. However, when individual parcel criteria are not practical, an alternative structure, the so-called 'Forest Community', is used. Unlike the FBG's individual parcel management, the Forest Community approach enables collective, cross-border management of the entire area, with profits or costs distributed according to each owner's contributed land area[31].

Germany and Poland benefit from a cross-border cooperation based on a friendship treaty signed by the two countries in 1991, which already thematised the topic of emergency response. In 1997, an agreement was signed on the national level regulating cross-border disaster assistance as well as prevention and preparedness efforts. To implement these agreements effectively, further agreements were enacted, for example focusing on the cross-border cooperation for medical emergencies (2013) as well as intensified cooperation for the police, border patrol and customs authorities (2015).

Additionally, while, in principle, international requests for assistance are managed via the Joint Situation and Information Centre of the Federal Government and the States (GMLZ) within the BBK, an agreement on mutual assistance in the event of disasters and serious accidents (AG *Katastrophenschutz*) was signed between the German-Polish Intergovernmental Commission for Regional and Border Cooperation (DPRK) – co-chaired by Land Brandenburg (MIK, Unit 34), and the Main Command of the Warsaw State Fire Brigade – allowing for mutual assistance between Land Brandenburg and Poland without a request via the GMLZ.

30 The list of the Forest Associations in Land Brandenburg is available at link: https://forst.brandenburg.de/lfb/de/ueber-uns/forstbetriebe/#

31 For more information see the following link: https://mluk.brandenburg.de/mluk/de/umwelt/forst/waldeigentum/forstwirtschaftliche-zusammenschluesse/

Box 2 - Example of good practice from Italy: involvement of the scientific community - the Competence Centres

In Italy, the so-called 'Competence Centres' are research institutes and universities that provide specialised services, information, data analysis, and technical-scientific contributions to the Italian Civil Protection Department (DPC).

The foundational principles defining the purposes and criteria for identifying Competence Centres were laid out in the Presidential Decree of the Council of Ministers on 14 September 2012[32]. This decree also specifies the entities eligible to serve as Competence Centres, which include:

a) Operational structures and public bodies tasked with delivering activities, services, studies, or research in specific disciplines, as mandated by laws, legislative measures, or regulations to fulfil institutional objectives.

b) Entities linked to the National Civil Protection Service (SNPC), established to advance technological development and specialised training. These entities, fully publicly funded, primarily serve the SNPC and operate under the supervision of the Department of Civil Protection.

c) Universities, university departments, or research centres that possess exclusive technical-scientific expertise or patents relating to intellectual property and research.

d) Universities, university departments, or research centres endorsed by the National Commission for the Forecasting and Prevention of Major Risks. This endorsement is based on a comparative assessment of their technical and scientific merit in response to specific needs identified by the DPC across various risk categories.

The most recent list of Competence Centres was established by Department Head Decree No. 3152, dated 24 July 2013, and published in the Official Gazette No. 220 on 19 September 2013.

Further information on the Competence Centres can be accessed via this link: https://servizio-nazionale.protezionecivile.gov.it/it/approfondimento/centri-di-competenza/

2.4 - Wildfire risk management strategy

- Land Brandenburg **does not have a wildfire risk management strategy** or an overarching plan regulating wildfire risk management.
- The **Climate adaptation strategy of Land Brandenburg** includes some wildfire-risk related measures in the so-called 'Forestry and Forest' section, under the responsibility of the MLEUV, and the 'Fire and Disaster Management' one, under the responsibility of the MIK.
- The **Forest Vision 2050** serves as a guiding framework for the management of all forests in Land Brandenburg.

Land Brandenburg does not have a wildfire risk management strategy or an overarching plan regulating wildfire risk management. However, some wildfire-risk related measures can be found in other relevant documents, such as the Climate adaptation strategy in Brandenburg[33], approved in July 2023 by the Cabinet. As reported on the website of the MLEUV, this is the '*first time that Land Brandenburg is preparing systematically and across departments for the unavoidable consequences of climate change*'. The strategy was developed by a specific inter-ministerial working group composed of 6 Ministries[34]. Notably, a specific strategy was drafted for each field of action: those addressing wildfire risks are the 'Forestry and Forest' section, under the responsibility of the MLEUV, and the 'Fire and Disaster

32 https://www.protezionecivile.gov.it/it/normativa/dpcm-del-14-settembre-2012-definizione-dei-principi-lindividuazione-e-il-funzionamento-dei-centri-competenza/

33 The link to the strategy is the following: https://mluk.brandenburg.de/sixcms/media.php/9/Klimaanpassungsstrategie-Brandenburg-LF.pdf

34 The Working group 'Adaptation to the consequences of climate change' was composed by the MLUK, MIK, Ministry of Social Affairs, Health, Integration and Consumer Protection, Ministry of Economic Affairs, Labour and Energy, Ministry of Science, Research and Culture, and Ministry of Infrastructure and Regional Planning.

Management' one, under the responsibility of the MIK. Each of these strategies includes an evaluation of the field-specific climate impacts, their capacity for action, a catalogue of measures and milestones to be implemented by 2027, and indicators for future monitoring of climate change effects. Measures dealing with forest fire risk reduction and management include the further development of forest fire early detection, particularly the integration of Firewatch within the Forest Fire Control Centres (see Section 6.1, "Box 10: Early detection of forest fires with Fire Watch: visit to the Forest Fire Control Centre South"), standardised staff management software and the integration of forest fire protection maps and maps of suspected unexploded ordnance areas into organisations with security tasks and geodata infrastructures (see also Section 5.4, Innovation and knowledge services)[35].

Additionally, the Brandenburg Climate Plan[36], adopted by the state government on March 5, 2024, also includes a measure, number 7.3, specifically focused on forest fire protection and forest protection. This Plan is the overall climate policy strategy of Land Brandenburg, promoted by the MLEUV with the goal of climate neutrality by 2045[37].

Another relevant strategic document is the Forest Vision 2050[38]. Following the previous Forest Vision 2030, this document is intended to serve as a guiding framework for the management of all forests in Land Brandenburg. The overall goal is to preserve and develop natural, climate-adaptive, and productive forests suitable for their respective locations, managing them in an economically, ecologically, and socially sustainable manner[39].

2.5 - Wildfire risk financing

- The **allocation of subsidies for reforestation** following forest fires is regulated by the Forest Act. The forest owners can receive up to 80% of the resulting reforestation costs as a subsidy.

- Land Brandenburg has **extensively used European funding**, particularly through the Common Agricultural Policy (CAP) and the European Agricultural Fund for Rural Development (EAFRD), mostly to implement **wildfire prevention measures** and enhance the **early detection system**.

- Funds from **INTERREG projects will be used** to enhance cross-border resilience with Poland, strengthen risk awareness, and improve early detection capabilities.

Part 5 of the Brandenburg Fire and Disaster Management Act regulates fire and disaster management financing. As stated in Article 44, every organisation and institution with a task in fire and disaster management is responsible for the costs associated with the tasks legally assigned to it by the law. The State covers the costs of course participants of volunteer fire departments at its facility (LSTE) and grants subsidies, according to the provisions of the budget plan, to independent municipalities, associations of municipalities, offices, independent cities and districts. These subsidies are also granted for large-scale defence measures in the event of major incidents and disasters, including extensive forest fire defence operations.

35 For further information on the strategy visit the following link: https://mluk.brandenburg.de/mluk/de/klimaschutz/klimawandel/strategie-zur-klimaanpassung/

36 The Plan can be consulted at this link: https://mluk.brandenburg.de/mluk/de/klimaschutz/klimaschutz/klimaplan/

37 'Field of Action 7: Land Use, Forestry and Sink Effects', MLUK, accessed 28 August 2024, https://mluk.brandenburg.de/mluk/de/klimaschutz/klimaschutz/klimaplan/handlungsfeld-7/

38 The 'Forest Vision 2050' document can be accessed via this link: https://mluk.brandenburg.de/sixcms/media.php/9/Flyer-Waldvision-2050.pdf

39 'Brandenburg's Forest Vision 2050', MLUK, accessed 30 August 2024, https://mluk.brandenburg.de/mluk/de/umwelt/forst/waldvision-2050/

The Forest Act governs the provision of state subsidies for forest management. For instance, Article 21 outlines subsidies for reforestation following forest fires. In the case of fire damage in corporate and private forests in Land Brandenburg, the forest owners can receive up to 80% of the reforestation costs as a subsidy. Several activities are eligible for the funding including clearance costs of pre-stocking, expert site assessment, tillage, sowing or planting, and creation of a forest edge[40]. The Forestry Grants Authority, as part of the LFB, serves as the central administration for these subsidies, operating under the guidelines of the MLEUV for the awarding of grants. It allocates funds from the Forest Conservation levy (WEA) and is responsible for subsidising regeneration costs following forest fire damage. The task of the granting authority is to examine applications, approve them, disburse funds, check proof of use and carry out random checks on site[41].

In the area of forest fire prevention, some funds allocated by the Rural Development Programme (RDP) (in the programming period 2014-2020) were used for helping to prevent forest fires in a former military testing area in Brandenburg heavily contaminated with explosive material. The project was promoted by the Brandenburg Wilderness Foundation[42].

Overall, Land Brandenburg has supported the fire and disaster protection authorities with extensive grants. In the period from 2021 to 2024, funds from the state budget, the Brandenburg Financial Equalisation Act (BbgFAG) and the Future Investment Fund Establishment Act (ZifoG) amounting to EUR 150 million were allocated for this purpose.

Additionally, a total of 111 projects with a total approval volume of around EUR 50 million have been supported since 2021 in accordance with the Fire Service Infrastructure Directive. Around EUR 8 million of this was used to support the development of a sustainable firefighting water supply in Land Brandenburg.
In terms of European financial instruments, the European Agricultural Fund for Rural Development (EAFRD) supports Land Brandenburg in forest fire risk management. Specifically, based on Regulation (EU) No. 1305/2013 of the European Parliament and the Council of 17 December 2013, concerning support for rural development by the EAFRD, the state provides grants for projects on the conversion to near-natural forest management, the utilization of advisory services and prevention of forest damage. Additionally, pursuant to Article 24 of European Regulation 1305/2013, the EU supports the installation and improvement of systems for monitoring the occurrence of forest fires. The modernisation of forest fire early detection in Land Brandenburg is financed as part of the development programme for rural areas in Brandenburg and Berlin. The financing of this project consists of EAFRD funds as well as state funds through the Investment Bank of Land Brandenburg (ILB), which granted the state EUR 4.2 million to finance the project[43].

Additionally, EAFRD co-finances some of the measures for managing and rejuvenating the state forest. The same applies to measures to reduce the risk of forest fires, improve forest fire fighting and monitor forest pests[44].

EAFRD, along with the European Agricultural Guarantee Fund (EAGF), supports the Berlin/Brandenburg metropolitan region through the Common Agricultural Policy (CAP). Overall, the CAP Strategic Plan (CAP-SP) with the associated EAFRD intervention categories formed and still forms the basis for the content of the new funding period 2023 to 2027 with a total budget of EUR 715.8 million, EUR 515.6 million from the EAFRD and EUR 197.2 million from real-

40 Information on granting of subsidies for reforestation are available on the LFB website at this link: https://forst.brandenburg.de/lfb/de/ueber-uns/bewilligungsbehoerde-forst/zuschuesse-nach-waldbrandschaeden/

41 LFB, 'Funds from the Forest Conservation Levy (WEA)', accessed 12 October 2024, https://forst.brandenburg.de/lfb/de/ueber-uns/bewilligungsbehoerde-forst/mittel-aus-walderhaltungsabgabe/

42 Further information on this Programme can be found at this link: https://ec.europa.eu/enrd/sites/default/files/project/attachments/gp_de_forest_fire_prevention_brandenburg_666_web_fin.pdf

43 LFB, 'Modernization of the Forest Fire Early Detection System and Centralization of the Forest Fire Control Centres at Two Locations in Brandenburg', accessed 17 July 2024, https://forst.brandenburg.de/lfb/de/themen/wald-schuetzen/waldbrandgefahr-in-brandenburg/modernisierung-waldbrandfrueherkennung/

44 LFB, 'Management of the State Forest', accessed 22 July 2024, https://forst.brandenburg.de/lfb/de/themen/landeswaldbewirtschaftung/

location funds. The CAP-SP offers a total of 20 interventions for rural areas in Brandenburg and Berlin. The individual funding guidelines describe the funding conditions in detail, including those eligible to apply, funding requirements, and funding procedures.

However, since Brandenburg has been given the status of a transition region (regions with a Gross Domestic Product, GDP, per capita between 75% and 90% of the EU average), the EU contribution has been reduced from 75% to 60% with some exceptions. Nearly 50% of the funds are available for the area of agri-environmental and climate measures, including water management, natural heritage and forestry, and around 30% for rural development[45].

In the area of 'forest fire prevention measures', funding is provided for activities such as repairing forest roads, establishing firebreaks, creating and maintaining protection strips, and establishing fire water extraction points. The prerequisite is that the measures are identified as potentially eligible measures in the 'forest protection plan' to be developed.

Finally, funds from INTERREG projects[46] will be used to enhance cross-border resilience with Poland, strengthen risk awareness, and improve early detection capabilities.

2.6 - Systemic resilience

- The **Climate adaptation Strategy** and the implementation of the **Forest Fire Decree** show an increasing effort towards the adoption of a **holistic integrated approach**.

Efforts towards the adoption of a holistic, cross-sectoral approach are evident in the Climate adaptation strategy in Brandenburg (2023), where ministries representing six different sectors collaborated to develop the strategic document.

Additionally, there are indications that the connection between forestry management and wildfire risk management, in terms of collaboration between the MIK and MLEUV (former MLUK), is going to be strengthened, as shown for instance by the recent Joint Decree (Forest Fire Decree), as well as by the decision to enhance inter-ministerial collaboration through the establishment of the Wildfire Competence Centre (WBZZ).

2.7 - Conclusions

The current and future challenges posed by wildfires in a fast-evolving risk landscape are well recognised at the strategic level in Land Brandenburg. Recent major wildfire events have driven significant improvements in the overall wildfire risk management system. Comprehensive legislative acts, such as the Brandenburg Fire and Disaster Management Act and the Forest Act, provide a robust legal foundation for managing wildfire risk effectively. However, updating the Forest Fire Decree is recommended to regulate the entire wildfire risk management cycle more comprehensively and to further clarify roles and responsibilities.

The federal level, represented by the Federal Ministry of the Interior and Community (BMI) and – if deemed necessary – the BBK, is part of several working groups composed of federal state representatives. These working groups are

45 Further information can be accessed via this link: https://kbs-partnernetzwerk-brandenburg.de/
46 Further information can be accessed via this link: https://ec.europa.eu/regional_policy/policy/cooperation/european-territorial_en

set up by the permanent conference of the Ministries of the Interior of the federal states and discuss, among others, wildfire risk management-related topics and agree on common guidelines. Expanding the role of these groups to include wildfire risk management planning, and strategy development would support a more homogeneous and effective approach across Germany.

Significant efforts have been made to improve horizontal coordination among key entities involved in wildfire risk management. The Joint Forest Fire Decree, issued by the MIK and the MLUK (now MLEUV), has successfully strengthened collaboration between these two authorities, paving the way for a more integrated approach. At the same time, wildfire risk governance in Brandenburg is characterised by a formal delimitation of competences, which, while effective, could benefit from greater flexibility to facilitate stronger cooperation between the forest protection and civil protection communities.

To further enhance wildfire risk management, strengthening local-level capacities and considering local needs through a bottom-up approach is highly recommended. This would ensure that solutions are tailored to the needs on the ground. There are also opportunities to streamline vertical coordination between the state, district, and local levels, as well as to improve horizontal collaboration among different actors, such as forest services, fire services, and UXO management teams. The establishment of an inter-institutional committee is recommended for ensuring regular discussions and supporting the Wildfire Competence Centre (WBZZ) with strategic recommendations and guidance.

The establishment of the WBZZ marks a key milestone in consolidating existing expertise and fostering cooperation among stakeholders. Once fully operational, the WBZZ should enhance prevention and preparedness, optimise response strategies, and improve coordination among all actors involved in wildfire risk management. To achieve this, it is essential to define clear tasks and objectives for the WBZZ, such as improving training, developing guidelines for municipalities, and raising awareness of wildfire risk.

Key entities, authorities and stakeholders from various sectors – such as forestry, agriculture, town planner, forest owners and hunter associations – should be structurally involved to foster a shared understanding of wildfire risk. Additionally, the WBZZ could serve as the operational body of the inter-institutional committee, acting as a critical hub for improving resilience. Establishing a Wildfire Protection Advisory Board connected to the WBZZ would also provide scientific advice and evidence-based insights to inform decision-making processes across all phases of wildfire risk management. This board could collaborate with scientific institutes to strengthen the science-policy interface and ensure decisions are grounded in the latest research (see also Section 2.3, "Box 2 - Example of good practice from Italy: involvement of the scientific community - the Competence Centres").

A wide range of stakeholders – including public authorities, volunteers, landowners and Civil Society Organisations – show strong interest and commitment to improving wildfire risk governance. For example, the Association of Forest Owners (Forestry consortiums) supports small-scale forest landowners in implementing wildfire prevention measures. To enhance these efforts, it is highly recommended to encourage the consolidation of fragmented forest areas into larger associations. Additionally, a spectrum of options and tools could be introduced to effectively deal with poorly managed forest lands and forests with unclear ownership (see Section 5.1, "Box 3 - Example of good practice from Spain: strategic biomass management in WUI areas in Galicia").

Although international assistance is usually requested by the Federal level, Land Brandenburg also benefits from a cross-border collaboration with Poland, which includes joint operational procedures for wildfires at the border and shared risk awareness initiatives with local populations. Building on this collaboration could further strengthen wildfire risk management through joint training initiatives and shared resources.

An overarching wildfire risk management strategy would help define clear strategic objectives and priorities, as well as allocate financial resources more effectively. Within this strategy, a dedicated section addressing wildfire risk management in areas with UXO would be particularly valuable, given that fires in such areas often result in greater burnt areas. A Key Performance Indicator (KPI)[47] system could also be developed to monitor progress and ensure accountability across all stakeholders. Based on this strategy, an overarching state-level wildfire risk management plan should be developed. Furthermore, regional (district) plans, aligned with the national one, should be drafted to ensure a coherent implementation at the different levels (for further details see Section 4.6, Wildfire risk management planning, Conclusions).

Land Brandenburg has supported the fire and disaster protection authorities with extensive grants. Specifically, in the period from 2021 to 2024, funds from the state budget, the Brandenburg Financial Equalization Act (BbgFAG) and the Future Investment Fund Establishment Act (ZifoG) amounting to EUR 150 million were allocated for this purpose. Additionally, since 2021, more than 100 projects were financed in accordance with the Fire Service Infrastructure Directive, for a total amount of EUR 50 million.

Furthermore, Land Brandenburg makes extensive use of European funding, particularly through the Common Agricultural Policy (CAP) and the European Agricultural Fund for Rural Development (EAFRD), to implement wildfire prevention measures and improve early detection. To optimise resource allocation, cost-benefit analyses should be conducted for interventions across the wildfire risk management cycle, including the use of aerial firefighting capacities. Furthermore, anticipatory financing mechanisms could be introduced at the local level to support forest owners in managing costly interventions, with financial incentives offered to encourage landowners to adopt forest conversion processes.

Despite substantial progress in the removal of UXO, greater investments in this area should be considered, especially in prioritised vegetation areas near settlements. Strengthening prevention and special response capabilities in these areas would greatly benefit the overall system.

47 More information on KPIs can be found at this link: https://www.kpi.org/kpi-basics/

3 - Wildfire risk assessment

3.1 - Legislative framework and processes

- **Hazard and risk analyses** are mandatory and conducted at the different territorial levels, ranging from local to district, state and federal levels.

- The state-level analysis, called '**Central Hazard and Risk Analysis**', is based on the lower-level analyses and the federal hazard analysis. The last document from 2022 includes a wildfire risk assessment with the description of the forest fire hazard classes and hazard levels.

According to the Brandenburg Fire and Disaster Management Act, a hazard and risk analysis must be carried out at various administrative levels, namely at the level of the independent municipalities, municipal associations, offices, and independent cities, the district level ('supra-local' analysis), and the state level. Overall, the aim of these analyses is to establish, at every level, 'protection goals'[48] for the events that pose a threat to the area[49]. Guidelines on how to draft the hazard risk analysis and the hazard prevention plan at the local level were provided by the LSTE[50].

The state-level analysis, called 'Central Hazard and Risk Analysis', is based on the hazard and risk analyses of the districts and independent cities and on the federal hazard analysis[51]. In the last analysis of 2022, the following hazards are considered: Flood, Wildfires, Release of hazardous substances, Weapons, Animal diseases and pandemic, Energy and IT failure, Mass casualties[52]. As reported in the document, the analysis is not conducted through a scenario-based approach but is rather a generalised view of the respective hazards (meta-level) and the defence potential available to Land Brandenburg. For each hazard, the following elements are addressed: the identification and description of a baseline situation considering some background information – e.g., statistics, reference events and estimation of probability based on justified assumptions; the impacts on critical infrastructures ('KRITIS areas') and protected interests; the definition of protection objectives (related to protected interests and KRITIS areas); the identification of 'prevention, defensive and mitigation' measures; the description of the existing security potentials used to cope with the hazard; and the risk assessment. The risk assessment consists of a technical assessment of whether the existing security potentials and planned measures are sufficient to achieve the protection objectives of the actors involved.

It may result in recommendations for measures (see Section 4.1, Wildfire risk management planning). As discussed in the Central analysis document (2022), *'the hazard and risk analyses of Land Brandenburg are to be carried out in the future across departments and with the involvement of all relevant operational units. This will lead to shared statements based on common findings and experiences'.*

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48 Protection goals are closely related to the risks of the territory and must be individually determined. They describe how specific hazardous situations should be addressed. For more information see: https://lste.brandenburg.de/sixcms/media.php/9/Hinweise%20und%20Empfehlungen%20zur%20Durchf%C3%BChrung%20einer%20Gefahren-%20und%20Risikoanalyse.pdf

49 The hazard and risk analysis carried out at the lower level shall be prepared together with the 'Hazard Prevention Plan'. The latter must be drafted by local authorities in order to ensure and maintain an efficient municipal fire service appropriate to the local conditions.

50 Guidelines can be found at this link: https://lste.brandenburg.de/sixcms/media.php/9/anlage1_1.pdf . See also https://lste.brandenburg.de/sixcms/media.php/9/Hinweise%20und%20Empfehlungen%20zur%20Durchf%C3%BChrung%20einer%20Gefahren-%20und%20Risikoanalyse.pdf

51 At a Federal level, the following risk analyses have been carried out since 2012: Floods (2012); Extraordinary epidemics (2012); Winter storm (2013); Storm surge (2014); Release of radioactive substances from nuclear power plants (2015); Release of chemical substances (2016); Drought (2018); Earthquake (2019). See the following link: https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/germany_en

52 MIK, 'Organisation of Disaster Protection', accessed 26 July 2024, https://mik.brandenburg.de/mik/de/innere-sicherheit/brand-katastrophenschutz/katastrophenschutz/

In the section dedicated to wildfires, besides the above-mentioned sections (common for every hazard), a description of the forest fire hazard classes and hazard levels and of the areas suspected of ordnance are also included. This classification complies with Article 2 of Regulation (EEC) No 2158/92 on protection of the Community's forests against fire (OJ L 217, 31.7.1992, p. 3), which stipulates that Member States must classify their forest areas according to the degree of fire risk into 'high forest fire risk', 'medium forest fire risk', and 'low forest fire risk' areas. Upon request, the Commission provided a list of areas classified according to forest fire risk. Land Brandenburg, except for the former rural district of Prenzlau, is classified as a high-risk area.

4 - Wildfire risk management planning

4.1 - Legislative framework and processes

- An overarching **state-level wildfire risk management/reduction plan** covering the various **phases of wildfire risk management** (wildfire prevention, preparedness, response, and recovery & lessons learnt) is not in place in Land Brandenburg.

- The '**Central Hazard and Risk Analysis**' (2022) includes a series of **recommended measures** as a result of the wildfire risk assessment. However, **a formal process for monitoring, evaluating and reporting** the implementation of these measures is not in place.

- **Forestry framework plans,** regulated under the Forest Act, aim to enhance and organise the forest structure while securing its essential functions.

An overarching state-level wildfire risk management/reduction plan covering the various phases of wildfire risk management is not in place in Land Brandenburg. The main laws dealing with wildfire risk management (Brandenburg Fire and Disaster Management Act, Forest Fire Decree, and Forest Act) mostly regulate the development of contingency plans at the various levels.

The only document including a series of overall wildfire risk management measures, so-called 'prevention, defence and mitigation measures', is the state-level 'Central Hazard and Risk Analysis', drafted in 2022 by the Crisis Management Coordination Centre (KKM) of the MIK and based on the federal and lower-level hazard and risk analyses. The 13 measures listed in the document describe the concrete measures undertaken by the state to counter the threat before, during and after the disaster occurrence – e.g., the preparation of contingency plans, including the so-called 'Disaster management plans', 'Special Forest fire plan', 'Forest fire alarm plan', and 'Forest fire alarm and deployment plan'.

Besides the list of measures undertaken by the State, a series of recommended measures is also included in the document as a result of the wildfire risk assessment.

With regard to forest planning, Forestry framework plans, regulated under the Forest Act (Article 7), aim to enhance and organise the forest structure while securing its essential functions. This involves assessing intra-forest configurations and the forest's interactions with its surrounding environment, focusing on spatial distribution of forest areas, nature conservation and landscape management.

Finally, when forest owners of lots larger than 50 hectares undertake preventive activities on their land (e.g., forest conversion), they should do so based on a Forest Management Plan. However, these plans are not legally enshrined in the Forest Act and are therefore not mandatory.

4.2 - Roles of stakeholders

The Central Hazard and Risk Analysis (2022) was prepared by the KKM of the MIK. As reported in the general conclusion of the document – which refers to the entire analysis of all risks – existing findings are agreed upon at the state level.

Regarding the Forestry framework plans, the LFB is responsible for their development, involving authorities, public interest groups, and representatives of forest owners, insofar as their interests are affected (Article 32, Forest Act). The member of the state government responsible for forestry (currently, the MLEUV) is authorised to regulate the detailed procedure for their preparation by means of a legal ordinance.

4.3 - Prioritisation of measures

The recommended measures included in the Central Hazard and Risk Analysis have been developed as a result of the wildfire risk assessment and based on the various elements that fed into the analysis.

4.4 - Monitoring, evaluation and reporting

Based on what is included in the Central Hazard and Risk Analysis, there is not a formal process for monitoring, evaluating and reporting the implementation and effectiveness of the recommended measures proposed. However, as detailed in the section on wildfire risk assessment, the recommended measures should be regularly updated and reviewed *('findings must be regularly evaluated and measures updated and reviewed – see, inter alia, recommendations for action').*

4.5 - Policy coherence

Given the limited number of plans available in this area, it is difficult to determine whether there is policy coherence among them.

4.6 - Conclusions

At the state level, the Central Hazard and Risk Analysis provides recommended measures to enhance wildfire risk management, developed as a result of its wildfire risk assessment. While these recommendations are not mandatory, implementing a follow-up process would provide valuable guidance for enhancing wildfire risk management.

Detailed knowledge and mapping of areas with UXO are in place – though maps are difficult to access due to restrictions – as well as a clear classification of wildfire hazard areas based on a well-established legal framework for classifying forest areas into different levels of wildfire hazard areas, dating back to the Fire Protection Act of 1956. This knowledge currently provides essential support for wildfire risk management and land use planning processes.

However, Land Brandenburg currently lacks an integrated wildfire risk management plan addressing all phases of the risk management cycle, namely wildfire prevention, preparedness, response, and recovery & lessons learnt. This

plan could be established through an update of the Forest Fire Decree. Such legislative revision would represent a key opportunity to develop a comprehensive and cohesive regulatory framework for wildfire risk management planning. It would also ensure strong links between the state-level plan and lower-level wildfire management plans, risk assessments, and existing hazard and risk analyses, thereby promoting a more integrated and effective approach.

The state-level integrated wildfire risk management plan should be aligned with an overarching strategy (see Section 2.7, Governance Conclusions) and rooted in the Central Hazard and Risk Analysis. The plan should clarify roles and responsibilities, streamline resource allocation, and enhance overall coordination. Also, the planning process must actively engage relevant stakeholders – both those directly involved in wildfire risk management and others who may contribute – and should include a broad public consultation process. Such engagement would foster cross-sector collaboration, build consensus, and ensure all perspectives are considered. To maintain effectiveness and guarantee measure implementation, a virtuous planning process encompassing monitoring, evaluation and regular updates could be formally established.

In terms of contents, it is extremely important that wildfire risk management measures also account for environmental and socio-economic changes, plausible future scenarios, climate change projections, and studies on fire behaviour. Additionally, the identification of high-risk areas should always be prioritised. For the state-level integrated wildfire risk management plan, the Wildfire Protection Advisory Board, linked to the WBZZ (see Section 2.7, Governance Conclusions), should play a central role in this process by providing evidence-based insights, including scientific studies and statistical analyses of wildfire causes, to inform planning and decision-making.

Overall, sustainable forest and landscape management approaches should be further emphasised in wildfire risk management planning. Specific guidelines, such as guidelines focused on firebreak planning, could be developed to promote these practices and ensure long-term resilience.

At the local level, further support could be provided to local authorities to strengthen their capacity for implementing wildfire risk assessment guidelines and enhancing their risk management planning. In particular, technical guidance should be provided to assist authorities in developing local wildfire risk management plans, especially for Wildland-Urban Interface (WUI) areas[53]. These plans must establish clear priorities, with a strong emphasis on managing wildfire risks in WUI zones in general and especially located near UXO areas. To ensure comprehensive support, the state authorities could implement a dedicated support programme designed to provide both financial and human resources, including targeted funding, technical expertise, and additional personnel to assist local authorities. Such an initiative would not only improve local preparedness but also foster a more cohesive and harmonised approach to wildfire risk management across all levels of governance.

53 Wildland Urban Interface (WUI): the communities located within or adjacent to areas that could be affected by wildfires potentially posing a threat to life and property (Source: Casartelli, Veronica, and Jaroslav Mysiak. 'Union Civil Protection Mechanism - Peer Review Programme for Disaster Risk Management: Wildfire Peer Review Assessment Framework (Wildfire PRAF).', 2023).

5 - Wildfire prevention

5.1 - Legislative framework and processes

- The **Forest Act** is the primary legislative framework that regulates wildfire prevention. It mandates that **forest owners** are responsible for specific fire prevention measures.
- The use of **firebreaks** concerning agricultural land at the edge of forests is regulated by the **Regulatory Ordinance on the creation of firebreaks** issued by MLUK in consultation with MIK.
- The **Brandenburg Building Code** outlines fire protection measures as part of its general construction requirements.

In Land Brandenburg, the Forest Act serves as the primary legislative framework for wildfire prevention. This act mandates that forest owners are responsible for specific fire prevention measures, including the establishment and upkeep of firebreaks, barriers and water extraction points for firefighting. Forest owners must also monitor high-risk areas, especially after fires have occurred in nearby regions (Article 20).

The LFB may also introduce preventive measures involving multiple forest owners following consultations.

Other legislative instruments relevant for wildfire prevention are the Regulatory Ordinance on the creation of firebreaks (dated February 23, 2021) and the Brandenburg Building Code. The former, issued by MLUK in consultation with MIK, regulates the use of firebreaks on agricultural land at the edge of forests and defines associated administrative offenses[54]. The Brandenburg Building Code outlines fire protection measures as part of its general construction requirements (Article 14). Section 4 of the Code establishes general requirements for building materials and components to prevent fires[55].

54 The link to the Regulatory Ordinance on the creation of firebreaks is the following https://bravors.brandenburg.de/verordnungen/obvanlwu

55 The Brandenburg Building Code can be found at this link: https://bravors.brandenburg.de/gesetze/bbgbo_2016#29

Box 3 - Example of good practice from Spain: strategic biomass management in WUI areas in Galicia

In Galicia, Northwest Spain, an innovative wildfire prevention programme focuses on the creation and maintenance of biomass management strips around WUI areas. These strategically placed strips serve as protective buffer zones, reducing the risk of wildfires reaching urban centres, villages, and critical infrastructures such as industrial sites, camping sites or gas stations. This system plays a vital role in safeguarding both communities and essential services.

The programme is governed by regional legislation, particularly Law 3/2007[56], which outlines responsibilities for maintaining these strips. Property owners must clear biomass annually before the fire season, with enforcement led by municipalities. Non-compliance results in administrative actions, such as fines or interventions where local authorities can perform the work and claim costs from landowners. When the cumulative costs of these interventions exceed the cadastral value of the property, and the landowner cannot be identified or enforcement proves difficult, the property may be subject to compulsory expropriation for public interest. Additionally, landowners can voluntarily join a contract system, paying an annual fee to the regional government to handle biomass management, ensuring professional and consistent maintenance of WUI.

Municipalities, in coordination with the regional government, oversee enforcement and compliance. Innovative tools like XESBIO2 [57]– a mobile application to access the comprehensive biomass management system in the biomass management strips, using a GIS viewer – facilitate efficient management by helping monitor strips, conducting inspections, issuing notifications, and providing real-time data. These technologies enhance the programme's effectiveness by streamlining operations and improving accountability.

Community involvement and education are integral to this governance model. Awareness campaigns help residents understand their roles and responsibilities in wildfire prevention, fostering collaboration and ensuring active participation. The initiative demonstrates how strategic landscape management and governance can significantly reduce wildfire risks in vulnerable WUI areas, protecting lives, property, and natural resources.

Box 4 - Example of good practice from Portugal: Technical Use of Fire

Portugal has developed a robust legislative framework for prescribed burning and the technical use of fire, serving as a cornerstone for effective wildfire management. This framework establishes detailed guidelines for planning, authorisation, and execution of prescribed burns, prioritising environmental conservation and public safety. It mandates specialised training and certification for practitioners, enforces strict monitoring and compliance measures, and encourages collaboration with local communities and fire services. By adhering to these legal standards, fire is strategically used as a tool to mitigate wildfire risks, restore ecosystems, and advance sustainable land management practices.

A good example is the GAUF[58] (*Grupo de Análise no Uso do Fogo*), a specialised unit composed of firefighters from the Special Civil Protection Force (FEPC), which is part of the National Authority of Emergency and Civil Protection (ANEPC). GAUF members are trained in fire behaviour in order to perform fire analysis regarding the use of technical fire, both in the context of fire suppression operations and during wildfire prevention activities (prescribed burns). One of the crucial dynamics nowadays at GAUF is the constant relationship with the scientific community, with a researcher participating in operational interventions.

56 https://www.lex.gal/galilex/9673

57 https://play.google.com/store/apps/details?id=gal.xunta.xesbio2&hl=en&pli=1

58 https://www.youtube.com/watch?v=0L-8fW8kTeQ&t=2s

5.2 - Landscape management

- In Land Brandenburg, **forest ownership is highly fragmented**. About 61% of 1.1 million hectares of forest is owned by around 100,000 private forest owners.

- As part of wildfire prevention efforts, a **forest conversion process** is in place, replacing conifers with more fire-resistant species. Additionally, the Forest Act mandates the implementation of **water extraction points** and the establishment of a **main network of forest roads**, under the responsibility of lower forestry authorities.

- The Regulatory Ordinance of MLUK mandates the **creation of firebreaks** to prevent forest fires.

Dominated by pine monocultures on dry, sandy soils, Land Brandenburg is highly susceptible to forest fires, making it the most fire-prone state in Germany. The combination of low water retention capacity, sparse rainfall, and large, contiguous coniferous forest areas exacerbates the threat. Additional vulnerability stems from forests with significant amounts of deadwood, moorland forests, and areas suspected to contain UXO, especially on former military sites where access is prohibited. Poorly accessible forest roads and proximity to human settlements further increase the risk.

Overall, forest ownership is highly fragmented, making the management and implementation of preventive measures at the landscape level a challenging task. Specifically, about 61% of 1.1 million hectares (ha) of forest is owned by around 100,000 private forest owners. 38% of these private forests are managed by individuals or entities that own less than 20 ha each. The largest single forest owner is Land Brandenburg, which possesses around 272,500 ha overseen by the LFB.

The MLEUV, on its website, acknowledges that addressing the root causes of fires is more crucial than merely early detection. As part of wildfire prevention efforts, particular focus is given to transforming pure pine forests into mixed or deciduous forests. The example of Treuenbrietzen in 2018 shows the effectiveness of deciduous firebreaks as a prevention measure. However, the MLEUV also recognises that this transformation is gradual. Therefore, it is essential to continue establishing fire water extraction points, maintaining forest fire barriers, and ensuring the upkeep of fire-fighting roads[59].

The Forest Fire Decree specifies that firefighting water extraction points must be established in large, fire-prone forest areas at appropriate water bodies or by creating artificial points like firefighting ponds, wells and underground tanks. These points should be clearly marked, maintained, and always accessible to fire engines. The lower forestry authority, in coordination with relevant authorities, is responsible for determining and recording these extraction points and necessary access and exit routes. Additionally, the lower forestry authority must establish a main network of forest roads for forest fire protection (Article 2.5).

Article 2 of the Regulatory Ordinance of MLUK from February 23, 2021, mandates the creation of firebreaks to prevent forest fires. Specifically, when harvesting highly flammable crops or storing combustible agricultural products during high fire danger levels (4 and 5) period, a six-metre-wide scarification strip must be established on arable land that is less than 50 metres from the forest edge. This strip must be kept clear of combustible materials and humus-rich topsoil to act as a firebreak. This requirement also applies to the storage of straw and other combustible materials.

59 'Forest Protection - Preventing Damage in Time', MLUK, accessed 10 July 2024, https://mluk.brandenburg.de/mluk/de/umwelt/forst/waldschutz/.

However, if the area between the harvest or storage site and the forest is naturally fire-resistant, the lower forestry authority may exempt it from this requirement. Landowners are responsible for creating these strips on their own land, while lessees must fulfil this obligation on leased land.

A number of prevention measures are also highlighted in the Central Hazard and Risk Analysis, including:

- Protection of forests at identified risk points by maintaining firebreaks, fire-resistant barriers, or fire-extinguishing points and monitoring fire-prone forests;
- Maintenance of forest fire protection maps (both analogue and digital) using the UTM system ETRS 89 at a scale of 1:50,000 (and in the future, also Forest fire incident maps at 1:25,000);
- Organisation and maintenance of long-distance water supply.

Box 5 - On-site visit to Jüterbog, a former military training area

The Peer review team visited Jüterbog, a former military training area spanning 7,150 ha, now designated as a nature protection site. The area, used for military purposes from 1864 to 1994, is heavily contaminated with UXO, making it one of Germany's most complex sites for forest fire prevention and management. Between 2018 and 2024, Jüterbog experienced five major wildfires, many triggered by human activity. Notably, in June 2023, a significant fire affected 710 ha in a UXO-contaminated zone. Firefighting efforts are highly challenging and resource-intensive due to explosive hazards, requiring specialised measures such as aerial firefighting and pre-established fire protection corridors.

The Brandenburg Wilderness Foundation[60], which manages the site, has implemented a targeted UXO clearance strategy for critical areas such as hiking trails and fire protection zones. However, the estimated cost of full clearance for the remaining area exceeds EUR 100 million, presenting significant financial and logistical challenges. Efforts to improve fire prevention include repairing key access paths and enhancing emergency response infrastructures. Despite these measures, the risks of wildfires in this ecologically sensitive and contaminated area remain substantial.

Figures 6 and 7 - The Peer review team and representatives from key institutions, including the Brandenburg Wilderness Foundation, during the on-site visit to Jüterbog.

60 https://www.wildnisstiftung.de/en/

5.3 - Fire use laws, guidelines, and enforcement

- The implementation of strict **fire safety measures** for forests and their immediate surroundings is regulated by the **Forest Act**. However, the law provides **exceptions**, recognising the need for certain essential activities.

- The **Brandenburg Fire and Disaster Management Act** defines the **duties of the population**, including the obligation to report any fire or event that endangers people, animals, property or the environment.

- The **Brandenburg Building Code** specifies fire prevention measures as part of its general construction requirements. However, it does not address specific regulations regarding the distance between forested areas and developed land.

The Forest Act establishes strict fire safety measures for forests and their immediate surroundings. It prohibits lighting or maintaining fires, handling burning or smouldering objects, and smoking within forests or within 50 metres of forest edges. However, recognising the need for certain essential activities, the law provides exceptions for forest owners (or their authorised representatives), individuals performing officially sanctioned work and property owners using fire at least 30 metres from forest boundaries. These exempt groups must still implement adequate fire prevention measures. Importantly, during periods of extreme fire risk (danger levels 4 and 5), even these exceptions are suspended, and the prohibition applies universally (Article 23).

Additionally, informative tools/guidelines on forest fire protection are provided by the MLEUV and the LFB, including Q&A[61] on preventive forest fire protection and leaflets, both in standard and mobile versions[62].

The Brandenburg Fire and Disaster Management Act defines the duties of the population, including the obligation to report any fire or event that endangers people, animals, property or the environment. Individuals are required to immediately notify the fire brigade by calling the emergency number 112 or the police at 110 (Article 12).

At the federal level, for the realisation of building projects (in and near the forest), the German Federal Building Code (BauGB) makes a fundamental distinction between three areas: the planned area with a development plan (Section 30 BauGB), the unplanned inner area (Section 34 BauGB) and the outer area (Section 35 BauGB). The Code also regulates the planning law requirements for the permissibility of projects in these areas, whereby forest fire protection must also be taken into account in each case. This applies especially to the preparation of the development plan by the cities and municipalities – as holders of municipal planning sovereignty –, where some requirements must be ensured, e.g., such as water supply systems and accessibility of fire and rescue vehicles In addition, public and private concerns, including the safety of the population, nature conservation and environmental protection or fire protection, must be taken into account in the land-use planning process.

This also applies to unplanned areas, particularly outdoor areas under planning law. In general, these areas should remain largely undeveloped to ensure the highest level of protection. However, some projects may need to be built in outdoor areas due to their nature or specific requirements. Section 35 of the BauGB sets strict conditions for such projects. In these cases, adequate infrastructure, such as roads and water supply, must still be provided. Additionally, the project must not conflict with or negatively impact public interests, such as nature conservation, landscape pre-

61 https://forst.brandenburg.de/lfb/de/themen/wald-schuetzen/waldbrandgefahr-in-brandenburg/

62 Further information on this can be found at these links: https://mluk.brandenburg.de/mluk/de/ueber-uns/oeffentlichkeitsarbeit/veroeffentlichungen/detail/~01-02-2024-waldbrandschutz-im-land-brandenburg ; https://forst.brandenburg.de/lfb/de/themen/waldpaedagogik/

servation, forest management or fire protection. Therefore, forest fire protection must always be considered when approving projects in unplanned areas.

In Land Brandenburg, the Brandenburg Building Code specifies fire prevention measures in Article 14 as part of its general construction requirements. It mandates that buildings must be arranged, constructed, modified and maintained to prevent both the outbreak and spread of fire and smoke. Additionally, the code ensures that, in the event of a fire, measures are in place for the rescue of people and animals, effective smoke removal and efficient fire-fighting operations. Article 5 of the Code sets the obligation to ensure access and driveways for fire services to the properties. While the code outlines general requirements for building materials and components to mitigate fire risks in its section 4, it does not address any specific regulations on mandatory minimum distances between (residential) buildings and forests (forest distance) – unlike other federal states (e.g., Saarland and Schleswig-Holstein). However, forest fire protection must be adequately taken into account as part of development planning in areas close to forests, as foreseen by the above-mentioned German Federal Building Code.

Box 6 - Examples of good practices from Spain and Italy: prevention guides for the population and tourists

Multilingual prevention guide - Living with forest fires (Mallorca, Spain)
The guide outlines straightforward steps to implement relevant regulations and recommendations for preventing forest fires from impacting residential areas. It is available in multiple languages including Deutsch, Spanish, Catalan, and English[63].
For more information visit the following links: https://xarxaforestal.org/es/di-e-gefahr-erahnen-2/

Guide for housing protection against vegetation fires (Italy)
The handbook, edited by the Ministry of Interior - Fire Department Public Rescue and Civil Defence, offers information on how to protect homes from the risk of vegetation fires. It is a concise, user-friendly guide for non-professionals on how to assess the safety of their homes against vegetation fires in WUI areas. The guide is available in Italian at this link: https://www.interno.gov.it/sites/default/files/2022-06/quaderno_incendi_di_interfaccia_def_0.pdf

Box 7 - Example of good practice from Portugal: Standards for wildfire resilience of buildings

In response to the dramatic consequences of the 2017 fires, the Portuguese Government issued a legal regulation (Order No. 8591/2022, of July 13) establishing specific requirements to enhance the fire resistance of buildings to a possible wildfire impact.

Under the umbrella of the Portuguese Integrated Wildfire Management System, buildings' owners already had the obligation to clear vegetation within a 50-meter radius of their buildings to reduce fire propagation. The new regulation goes even further by establishing measures to ensure that the building construction elements reduce the consequence of a wildfire. In basic terms, more demanding requirements were introduced in terms of material's resistance to fire compared to the regular fire safety standards. The regulation considers the performance of the building's construction elements and materials in relation to exposure to rural fires, focusing on the fire resistance of the structural elements, roofs, external wall coverings, doors, windows, and skylights.

From 2022, new buildings constructed in a high or very high wildfire risk area must fulfil these new standards. This means that the law will demand a higher level of fire resistance so that the building can withstand the impacts of a fire for a longer period.

The regulation is available in Portuguese at: https://files.diariodarepublica.pt/2s/2022/07/134000000/0006700072.pdf

63 https://xarxaforestal.org/wp-content/uploads/2023/08/DE_xarxa-forestal-guia-IUF22-V2-HIGH.pdf (German); https://xarxaforestal.org/wp-content/uploads/2023/08/ES_xarxa-forestal-guia-IUF22-V3-HIGH.pdf (Spanish); https://xarxaforestal.org/wp-content/uploads/2023/08/CA-xarxa-forestal-guia-IUF22-V4-HIGH.pdf (Catalan); https://xarxaforestal.org/wp-content/uploads/2023/08/EN_xarxa-forestal-guia-IUF22-V2-HIGH.pdf (English)

5.4 - Innovation and knowledge services

- The **'Geoportal Forst Brandenburg'** provides historical and current forest data.
- The Forest Act mandates **forest inventories and registries** for monitoring, without revealing forest owner identities.
- **Maps of suspected explosive ordnance sites** are available on a GIS Cadastre which is managed by the KMBD.

Numerous innovation and knowledge services/tools have been introduced in Land Brandenburg for wildfire prevention, including:

- Technological upgrades: Land Brandenburg has modernised its forest fire early detection system by implementing the 'FireWatch' system (see Box 10, Section 6.1), funded by the EU and the state. This system incorporates advanced smoke detection, enhanced software, and improved data transfer. Forest owners are required to support the installation and ongoing operation of the system.
- Geodata and monitoring: The 'Geoportal Forst Brandenburg', established by the LFB, provides both historical and current forest data, with 75% of the funding sourced from the ERDF[64].
- Forest Inventory: The Forest Act mandates the creation of forest inventories and registries for monitoring purposes, ensuring that the identities of forest owners remain confidential[65].
- GIS Cadastre: The Cadastre/GIS team of the KMBD has created and maintains a GIS cadastre mapping of suspected explosive ordnance sites[66].

A forest environmental monitoring database is available as a part of the 'International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests' (ICP-Forests[67]). It provides information on the environmental conditions of forests and the effect of environmental changes on the condition of the forest. This essentially includes the soil and forest condition survey (Level I) as well as the surveys of intensive forest environmental monitoring (Level II). The implementation of these monitoring programmes is coordinated nationwide and follows standardised survey methods.

Also, the research community actively contributes to innovation and knowledge development as part of forest fire prevention efforts in Land Brandenburg:

- The Technical University of Berlin focuses on modelling current and future wildfire susceptibility in Brandenburg. By identifying high-risk areas, it supports forest managers in enhancing prevention strategies and planning[68].

64 The Geoportal can be accessed at the following link: https://forst.brandenburg.de/lfb/de/service/geoportal/

65 The database of the forest inventory can be accessed via this link https://bwi.info/?inv=LWIBB2013

66 Polizei Brandenburg, 'Tasks and organisation of the Explosive Ordnance Disposal Service', accessed 2 September 2024, https://polizei.brandenburg.de/seite/aufgaben-und-organisation-des-kampfmitte/2386935

67 http://icp-forests.net/

68 More information is available at link: https://civil-protection-knowledge-network.europa.eu/system/files/2024-07/forest_fires_natriskchange2024katharina-horn.pdf

- The Thünen-Institute of Forest Ecosystems examines the impact of forest composition on fire damage. Its research demonstrates that mixed species stands, particularly those including broadleaf trees, experience less severe fire damage than pure pine stands. These findings underline the importance of integrated fire management, particularly in regions with limited firefighting resources[69].

- The ErWiN Project addresses forest fire knowledge gaps in Central Europe, with funding from the Federal Ministry of Food and Agriculture (BMEL) and the Federal Ministry of Environment, Nuclear Safety and Consumer Protection (BMUV). The project investigates wildfire susceptibility, fuel behaviour, firefighting deployment strategies, post-fire soil changes, and forest regeneration, providing actionable insights for forest fire management.

However, the current approach to forest fire research appears to be somewhat modular, with individual initiatives working in silos and limited or unclear engagement of end-users. This suggests that research projects on this topic are not always fully needs-driven.

5.5 - Conclusions

Wildfire prevention measures are governed by several legislative instruments, with the Forest Act being the most significant. Among others, the Forest Act mandates the establishment of water extraction points, a main network of forest roads, and imposes restrictions on fire use in forested areas, which are more severe during periods of high meteorological fire risk. However, there is a need to facilitate the implementation of such measures as well as improve coordination among stakeholders and strengthen collaboration with landowners. To achieve this, it is highly recommended to revise the legislative framework. For example, since prescribed fires are crucial for prevention, regulations should allow exceptions for their use in forest areas by certified and trained staff, provided safety requirements are met. Additionally, greater flexibility should also be ensured in Natura 2000 areas, in order to allow for the implementation of fire protection corridors and ensure their maintenance. Since relevant EU directives allow for wildfire prevention measures[70], it would be beneficial to assess whether the legal framework can be adapted to support pro-active wildfire prevention in areas with high wildfire risks. Decisions must also strike a balance between nature protection and the protection of people.

Despite the challenges posed by highly fragmented forest ownership, Land Brandenburg has demonstrated a good capacity in implementing wildfire prevention measures. One notable example is the ongoing forest conversion process, replacing monoculture with mixed forest stands which are more fire resistant, guided by ad-hoc analyses to identify suitable areas for conversion. Another successful example is the implementation of prevention measures in the UXO area of Jüterbog, a former military training area managed by the Brandenburg Wilderness Foundation. A significant portion of these efforts, including those in Jüterbog, has been funded by European programmes, such as the CAP and the EAFRD.

In the context of small private forests and lands, forest owners can implement a wide range of wildfire prevention measures – e.g., creating firebreaks and water supply points, and maintaining forest roads – through the support of Associations of forest owners (Forestry consortia). Additionally, they can also be supported by the publicly available

69 Gnilke, Liesegang, J., & Sanders, T. (2022). Potential forest fire prevention by management—An analysis of fire damage in pine forests. Thünen-Institute of Forest Ecosystems. https://literatur.thuenen.de/digbib_extern/dn065237.pdf

70 The Habitats Directive obliges Member States to take appropriate measures to avoid the deterioration of natural habitats and the significant disturbance of the species for which a site has been designated. Such measures may include preventive action aimed at avoiding the deterioration caused by forest fires. For more information see the following link: https://op.europa.eu/en/publication-detail/-/publication/855ca711-8450-11e5-b8b7-01aa75ed71a1

web-GIS 'Geoportal Forst Brandenburg' – though this is not widely known by the public – established by the LFB, which can assist them in implementing both climate change adaptation and wildfire risk reduction measures by providing essential data and information for decision-making. To ensure prevention efforts are effective and comprehensive, the responsibilities of landowners in implementing measures should be clearly defined. Furthermore, a system of sanctions should be introduced to address cases where forest or landowners fail to undertake the required preventive actions. In such instances, public authorities should be empowered to intervene and implement the necessary measures on private land to safeguard broader public and environmental interests.

In addition to ensuring the implementation of existing measures, prevention efforts in Land Brandenburg should be significantly increased, particularly in WUI areas, where prevention should take into consideration firefighting capabilities and operational needs. In this view, guidelines for developing wildfire-resilient WUI areas should be created, targeting both landowners and communities to ensure a coordinated and proactive approach. Wildfire hazards and risks that have already been identified in municipal hazard and risk analyses should also be consistently considered in preventive forest fire and settlement protection (see Section 5.3) when drawing up development plans and implementing preventive forest fire protection measures in neighbouring forest areas. Additionally, the municipal hazard and risk analyses should be made available and accessible to other authorities for such planning purposes.

Another priority within prevention efforts is the integration of wildfire prevention planning into forest management practices and plans. To facilitate this process, voluntary guidelines (particularly for high-risk areas) could be developed to outline win-win measures that foster a more systematic approach to mitigating wildfire risks. Since the establishment of a main network of forest firebreaks would be crucial to increase territorial resilience in Land Brandenburg, these guidelines could include, among others, practical support to effective firebreak planning. Agricultural landscapes could also play a role in preventing the vertical and horizontal continuity of vegetation, acting as natural barriers.

Implementing fuel management is also key for prevention. Developing some guidelines for fuel management at the landscape level (including but not limited to forests) would significantly support local communities and organisations in correctly and effectively implementing this practice. These guidelines should incorporate the reintroduction of grazing as a tool to manage fuel growth in forests and the implementation of firebreaks to be used also for economic activities.

Strengthening the connection between land use (territorial) planning and wildfire risk management is essential, taking into consideration synergies and trade-offs, while promoting policy coherence. It is crucial to clarify roles and responsibilities in land use/territorial planning in 'buffer zones' bordering forests and to define who is responsible for decisions in these areas in order to ensure effective management and coordination.

Overall, it is recommended that the lower forestry authorities involve the local and supra-local fire protection authorities appropriately in the planning process for preventive forest fire protection measures.

Finally, raising public awareness about wildfire risks is crucial for effective prevention. To achieve this, an overall wildfire risk communication strategy (including educational materials for schools) should be developed (possibly under the coordination of the WBZZ) and jointly defined with key actors. This strategy should be grounded in public perceptions of wildfire risk, also in comparison to other hazards such as floods and similar disasters, which could be evaluated through a survey specifically designed by the official agency responsible for statistical studies. This approach would help develop targeted awareness campaigns, aligned with public perceptions and concerns, and focused on self-protection measures. Most importantly, awareness campaigns should raise awareness about behaviours to adopt to prevent and protect from fires, especially in WUI areas and near forest with UXOs, and disseminate knowle-

dge and information on climate change and its impacts, based on data provided by scientific communities. To ensure consistency and homogenisation, the state could provide guidance to sub-state levels on key awareness messages.

Box 8 - Example of good practice from Portugal: 'Safe Village' and 'Safe People'

In 2017, Portugal introduced two key programmes – Safe Village and Safe People – aimed at enhancing the safety of individuals residing near the WUI areas. The 'Safe Village' programme focuses on population groups and forest protection by implementing structural measures to protect lives, property and buildings on the urban-forest boundary. This includes creating and managing protection zones and strategic infrastructure, identifying critical points, and establishing safe havens. The 'Safe People' programme centres on raising awareness through educating on risk prevention, self-protection measures, and evacuation drills, conducted in collaboration with municipal authorities.

These programmes are implemented via a protocol involving the National Authority for Emergency and Civil Protection (ANEPC), the National Association of Portuguese Municipalities (ANMP), and the National Association of Civil Parishes (ANAFRE). At the strategic level, this partnership sets national standards, conducts awareness campaigns, and implements national warning systems. At the operational level, it focuses on the local implementation of protection and awareness measures through municipalities and civil parishes, utilising their local presence and community mobilisation capabilities. The programmes aim to protect groups, prevent risky behaviours, raise awareness, evacuate high-risk clusters, and establish safe shelters. Additionally, a guide has been developed to support the local implementation of activities to protect individuals and property during wildfires, complementing national government efforts.

Fore more information see the Implementation Support Guide at this link: https://aldeiasseguras.pt/wp-content/uploads/2020/08/Guia-Apoio-Implementacao-EN-Web_2.pdf

Box 9 - Example of good practice from Italy: the 'I don't take risk' campaign

The 'I Don't Take Risks' campaign (***Io non rischio***) is a national initiative on good civil protection practices, led by the Italian National Department of Civil Protection (DPC) in partnership with the National Association of Public Assistance (Anpas), the National Institute of Geophysics and Volcanology (INGV), the Network of University Laboratories for Earthquake Engineering (ReLUIS), and the International Centre for Environmental Monitoring Foundation (CIMA), and in agreement with the Conference of Regions and Autonomous Provinces and ANCI (National Association of Italian Municipalities).

This public communication campaign seeks to enhance individual and collective awareness of the natural and human-induced risks affecting Italy, thus empowering citizens as active participants in the National Civil Protection Service. It promotes behaviours that help prevent such risks or mitigate their consequences.

The campaign focuses on fostering a culture of prevention and civil protection, covering risks such as floods, earthquakes, wildfires, tsunamis, volcanic activity (including the Phlegraean Fields, Stromboli, Vesuvius, and Vulcano), as well as industrial, nuclear, and large dam hazards.

For more information, refer to these links: https://iononrischio.protezionecivile.it/en/get-involved/schools/ and https://www.protezionecivile.gov.it/en/approfondimento/i-dont-take-risks/

6 - Wildfire preparedness

6.1 - Legislative framework and processes

- The **Forest Fire Decree** outlines provisions for early detection of forest fires, 'forest fire alarm plans', and training and exercises for fire service management and operational personnel.
- The **Brandenburg Fire and Disaster Management Act** requires local civil protection authorities to implement key preparedness measures, such as exercises, training, and drafting and regularly updating civil protection plans.
- Land Brandeburg is equipped with the **'FireWatch' advanced system for early wildfire detection**, which is established within the Forest Fire Control Centres managed by the lower forestry authorities.

In Land Brandenburg, wildfire preparedness is addressed in the Forest Fire Decree, the Brandenburg Fire and Disaster Management Act, and the Forest Act.

The Forest Fire Decree outlines provisions for early detection of forest fires, 'forest fire alarm plans', training and exercises for fire service management and operational personnel. Among others, it states that during the forest fire danger period, from March 1 to September 30, each forestry office must have a duty system in place. Also, it mandates the Forest Fire Control Centres (managed by the lower forestry authority) to evaluate, record and forward any registered smoke development, and notify the responsible Integrated Regional Control Centre and the on-duty personnel if a forest fire is confirmed (Article 3). Within the Forest Fire Control Centres, fire and smoke detection is implemented through the innovative 'FireWatch' system (see Box 10, below).

The Brandenburg Fire and Disaster Management Act requires civil protection authorities to implement essential preparedness measures to ensure effective disaster response. This includes conducting exercises, establishing and maintaining disaster relief units and facilities (including a disaster protection warehouse), training civil protection personnel and preparing and regularly updating civil protection plans (Article 37). Also, it outlines the 'Precautionary Obligations of Property Owners and Possessors' (Article 14), which includes the obligations for landowners, possessors, other authorised users and operators to assist authorities in wildfire preparedness (among other obligations) by providing and maintaining necessary equipment and facilities, such as participating in exercises and ensuring an adequate supply of firefighting water.

Regarding early warning, provisions are outlined in the Forest Act, which indicates that the state is responsible for maintaining a forest fire early warning system in endangered forest areas and that forest owners shall tolerate the establishment and operation of the forest fire early warning system free of charge (Article 20). Overall, several institutions are involved in the early warning system. The MLEUV publishes an official forest fire danger level for each district/independent city on a daily basis, based on data from the German Weather Service, while the State Forestry Competence Centre in Eberswalde (LFE) produces a monthly forecast of possible damage progression that is made available to forest owners. The latter forms the basis for measures to prevent biotic and abiotic damage[71].

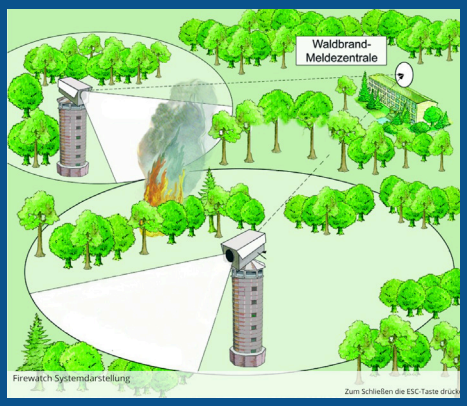
71 LFB, 'Forest Protection Information', accessed 20 July 2024, https://forst.brandenburg.de/lfb/de/ueber-uns/landeskompetenzzentrum-lfe/aktuelle-waldschutzinformationen/

Box 10 - Early detection of forest fires with FireWatch: visit to the Forest Fire Control Centre South

During the on-site mission, the Peer review team visited the Forest Fire Control Centre South, managed by the LFB, where it was introduced to the 'FireWatch' system for early wildfire detection. FireWatch is a multispectral sensor system that detects smoke and smoke-like phenomena in real time, providing comprehensive monitoring across Land Brandenburg.

With 108 cameras and a highly trained staff, the system triggers alarms at the five Integrated Regional Control Centres across Land Brandenburg, which, in turn, promptly alert the responsible fire departments within 10 minutes. Developed in partnership with the German Aerospace Centre (DLR), IQ FireWatch combines feature-based algorithms and artificial intelligence to monitor an area of over 125,000 ha[72].

Efforts are underway to expand this system and establish a cross-border network with Poland.



Figures 8 and 9 - On the left, a part of the Peer review team visiting the Forest Fire Control Centre South. On the right, an illustration of the fire and smoke monitoring via the FireWatch system, source: https://forst.brandenburg.de/lfb/de/themen/wald-schuetzen/waldbrandgefahr-in-brandenburg/~mais2redc54265de#

6.2 - Training, exercises, and international exchanges

- Different typologies of training programmes exist, in accordance with the **Brandenburg Fire and Disaster Management Act** and the **Forest Fire Decree.**
- In recent years, the LSTE has introduced specialised **wildfire-focused training programmes**, including a seminar on vegetation firefighting and a training in air coordination.
- The Brandenburg Fire and Disaster Management Act also regulates the implementation of **regular disaster management exercises** to test disaster management plans and enhance cooperation.

At the Federal level, the Federal Academy of Civil Protection and Civil Defence (BABZ), as part of the BBK, is the central educational institution of the Federation for disaster management and crisis management. It serves as a forum for scientific exchange, both nationally and internationally.

In Land Brandenburg, fire brigade education and training follow a primarily municipal approach and differ according to the type of fire brigade. Specifically, the Brandenburg Fire and Disaster Management Act (Article 24) and Forest Fire Decree (Article 6) mandate various training programmes:

72 IQ Technologies for Earth and Space GmbH, 'IQ FireWatch - Protecting People, Nature and Property'. For further information, visit this link: https://www.iq-firewatch.com/

- Basic training for professional and volunteer firefighters is overseen by the independent municipalities, association municipalities, offices, and independent cities.

- Further training and advanced education of volunteer firefighters are under the responsibilities of districts and independent cities. The state supervises the training and advanced education of both professional and volunteer fire department leaders, along with specialised training programmes.

- Preparatory training for careers in the fire service can be completed under private-law training and employment agreements, rather than a reversible civil servant relationship.

- Local fire protection authorities must also regularly incorporate forest fire fighting topics into the training and exercises of their fire brigades (Article 6, Forest Fire Decree). In addition, Article 6 also refers to the shared responsibility (in accordance with Article 24, Para. 9, Brandenburg Fire and Disaster Management Act) of the local fire protection authorities, the districts and the state for training and further education in the context of preventive and defensive forest fire protection.

Furthermore, the LSTE conduct its own training programmes, for which it is responsible within the framework of central training and education:

- Since 2019, the LSTE has offered a specialised seminar on vegetation firefighting, continually developing it to raise awareness among local fire departments and train instructors for on-site basic training.

- In 2020, the LSTE introduced training in air coordination for the first time, aiming to enable leaders of public fire departments and other disaster response organisations to provide expert advice and manage aerial hazard mitigation measures, especially for vegetation fires. By the 2022 training year, a further developed version of the course was launched, incorporating insights from extensive aircraft use during the recent forest fire season. These insights were gathered through joint evaluation events involving airborne BOS (Federal Police, Brandenburg State Police, German Armed Forces) and previously deployed drone experts in Brandenburg.

However, as noted in the 'Large Forest Fires in the State of Brandenburg: Report on the 2022 Wildfire Season' published by the MIK, firefighters have traditionally been trained and prepared mainly for static emergency scenarios such as building fires and traffic accidents. Recent events have highlighted that there is still a need for an enhanced training programme focused on vegetation firefighting. This training shall ensure both safer approaches and efficient implementation of measures, including the tactical toolbox for vegetation fires. The report also suggests considering international tactics for adaptation to local conditions[73].

The recommendations for vegetation firefighting training from the training subcommittee of the National Forest Fire Protection Working Group served as the foundation for introducing a tiered task-sharing training system in vegetation firefighting. Since March 2024, the LSTE has been offering a two-week training course for managers and instructors to enhance the distribution of specialist knowledge across the state of Brandenburg. To this end, the districts have been provided with standardised training documents for basic vegetation fire training. These recommendations aim to provide a comprehensive overview of the necessary training practices that are coordinated across the state.

As for exercises, the Brandenburg Fire and Disaster Management Act also regulates the implementation of regular disaster management exercises. These shall be conducted to test disaster management plans and enhance coopera-

73 The 'Large Forest Fires in the State of Brandenburg: Report on the 2022 Wildfire Season' can be accessed via this link: https://mik.brandenburg.de/sixcms/media.php/9/20230503_Waldbrandbericht%202022_barrfr.4344435.pdf

tion among authorities, units, institutions, and aid organisations involved in disaster response. Health professionals, hospitals, and facility operators may also participate in these exercises (Article 41). Additionally, according to the Forest Fire Decree, the lower disaster management authorities, in collaboration with the responsible forestry offices, are required to regularly conduct exercises focusing on forest fire fighting.

Box 11 - Good practice from Portugal: Prescribed Fire Training Exchanges (TREX)

The Prescribed Fire Training Exchanges (TREX) is another standout initiative leveraging the legislative framework for prescribed burning and the technical use of fire in Portugal (see also "Box 4: Example of good practice from Portugal: Technical Use of Fire"). It is organised annually by the Nature Conservancy in partnership with the '*Comunidade Intermunicipal* (Association of municipalities) *of Alto Minho*'.

This week-long programme offers fire management professionals from across the globe a unique opportunity to gain practical, hands-on experience in the technical use of fire. Led by international experts, TREX combines rigorous field exercises with in-depth discussions on critical topics such as fire ecology, pyrometeorology, smoke management and the Incident Command System (ICS). Participants not only acquire advanced technical skills but also deepen their understanding of the legal, environmental, and operational aspects of fire management.

6.3 - Conclusions

Significant investments have been made in recent years to enhance the early detection system, supported by advancements in data collection, analysis and sharing. As a result, a robust capacity to monitor the territory using new technologies and tools is already in place. Also, in line with federal guidelines, Land Brandenburg is in the process of implementing dynamic firefighting maps accessible through a web-geoportal. These maps will provide geo-localised information on firebreaks, roads, and water points.

Nevertheless, opportunities remain to further strengthen wildfire preparedness. Fire restrictions, public warnings, and awareness-raising actions should be activated based on a single, scientifically grounded, and widely understood risk index. In this regard, harmonising the fire risk indexes currently developed by the Meteorological Service and the Forest Administration is strongly recommended. Furthermore, regulations governing the content of civil protection plans at the local level should be improved to ensure their structure is harmonised and consistent. This would enhance the accountability and effectiveness of the plans in addressing risks and coordinating emergency responses. Additionally, clear standard operating procedures and ad hoc agreements should be established to efficiently request and promptly activate resources, such as aerial support from the Armed Forces or Federal Police. This is essential to improve the system's capacity to utilise aerial resources, reduce mobilisation time and clarify cost and reimbursement processes.

Regarding UXO areas, where ground firefighting activities are particularly challenging, it is highly recommended to improve the preparedness of neighbouring settlements. This involves developing dedicated civil protection plans and evacuation procedures, alongside targeted risk awareness, training, and exercises targeted to the population to enhance citizens' preparedness.

The importance of ensuring firefighter safety during wildfire response operations is well recognised, and recent investments in Personal Protective Equipment (PPE) reflect this commitment – although this has not yet been implemented due to local jurisdictions. However, as already recommended by the German Social Accident Insurance[74],

74 In the DGUV Information 205-014, the German Social Accident Insurance (DGUV) – an umbrella organisation of the Fire department accident insurance funds in the federal states – specifies that authorities (as employers) are required to provide the necessary PPE as part of an appropriate risk assessment. Further information is available at this link: https://publikationen.dguv.de/widgets/pdf/download/article/874

clearly defined standards for wildfire PPE should be included in regulations. To further improve safety, greater investment in specialised wildfire PPE is strongly recommended.

A wildfire fighting training programme has been established, integrating continuous updates and international best practices. The programme includes specialised courses for Group and platoon leaders as well as incident commanders at the State School and Technical Facility for Fire and Disaster Protection (LSTE), a training module on wildfires as well as a toolbox of tactical approaches to be adapted at the local level based on specific contexts. However, further improvements are needed. Specifically, given the significant reliance on volunteer firefighters, who ensure extensive territorial coverage and possess valuable local knowledge, it is recommended to expand wildfire training capacity. Specifically, the number of training courses at the basic level (especially at the local and district levels) should be increased to meet the needs of volunteer participants.

Furthermore, targeted training should be provided to all firefighters involved in wildfire response. Consideration should also be given to creating small, well-trained teams at the district level or state level focused on wildfire firefighting operations and forest fire analysis, which could be deployed during major events. Basic training courses should include safety procedures to better prepare first responders. Furthermore, it is recommended to expand the curricula of training courses at all levels to include additional topics, such as fire behaviour, prescribed burnings, and technical fire. Complementing theoretical courses with prepositioning initiatives in areas with high wildfire risk, could further strengthen training opportunities and operational readiness.

Ensuring that all potential wildfire incident commanders are adequately trained remains an area for further development. Consideration should be given to advancing the incident command system by providing specialised training for operations directors, with an emphasis on improving ground-air-ground communication. Establishing minimum requirements for assuming leadership roles in wildfire firefighting would help ensure high standards of expertise and preparedness.

Exercises incorporating worst-case scenarios are already conducted to test and improve communication and collaboration across administrations. However, pre-positioning initiatives, in addition to theoretical courses, could serve as valuable practical training opportunities. EU initiatives, such as the Exchange of Experts Programme and the Pre-Positioning initiative, should also be leveraged to enhance firefighter knowledge and skills, particularly regarding fire behaviour under extreme weather conditions, as experienced in the Mediterranean region.

7 - Wildfire emergency response

7.1 - Legislative framework and processes

- Germany's disaster management system operates as an **integrated emergency response structure** where the Federation can provide assistance upon state request through its operational forces and services.

- Initial responsibilities in response lie at the local level, where **volunteer fire brigades and aid organisations** play a key role. Professional fire brigades specifically operate in the cities of Brandenburg an der Havel, Cottbus, Eberswalde, Frankfurt (Oder) and Potsdam.

- At the request of the locally competent lower disaster management authority, the state, through the **Crisis Management Coordination Centre (KKM)** of the MIK can assume command using the disaster management units and facilities of the lower disaster management authorities or, at least, support the lower disaster management authorities.

Germany's disaster management system operates as an integrated emergency response structure where the Federation can provide assistance upon state request, following the subsidiarity principle. In Land Brandenburg, firefighting falls under the Brandenburg Fire and Disaster Management Act and the Civil Protection Ordinance, which primarily assigns responsibility to the independent municipalities, association of municipalities, administrative districts, and independent cities. The districts and independent cities take on the tasks of supra-local fire protection and disaster protection, while the state (through the MIK) supervises operations of regional importance[75].

At the local level, volunteer fire brigades and aid organisations play a key role in response operations. Besides volunteer fire brigades, fire departments also include five professional fire brigades within a total of 1679 local fire brigade units. Professional fire brigades specifically operate in the cities of Brandenburg an der Havel, Cottbus, Eberswalde, Frankfurt (Oder) and Potsdam[76].

Figures 10 and 11 - During the onsite mission, the Peer review team visited the Volunteer fire department of the city of Zossen, Local fire brigade of Wünsdorf.

75 MIK, 'Organisation of Disaster Protection', accessed 28 August 2024, https://mik.brandenburg.de/mik/de/innere-sicherheit/brand-katastrophenschutz/katastrophenschutz/

76 MIK, 'Fire and Disaster Protection', accessed 22 September 2024, https://mik.brandenburg.de/mik/de/innere-sicherheit/brand-katastrophenschutz/

At the request of the locally competent lower disaster management authority, the state can assume command using the disaster management units and facilities of the lower disaster management authorities (namely, the districts and independent cities). Specifically, in accordance with Article 6.2 of the Civil Protection Ordinance, the Crisis Management Coordination Centre (KKM) of the MIK may arrange for supporting the deployment of human and material resources. Finally, support may also arrive, upon request, by the Federation which supports the state through its operational forces – e.g., the THW, the Federal Police, and, with certain limitations regarding the use of weapons, the Armed Forces – and through services provided by the BBK.

Operational management follows the principles outlined in the Brandenburg Fire and Disaster Management Act, with 'overall management' (*Gesamtführung*) responsibilities shared by local, district, and state officials. With increasing coordination and organizational effort, the personnel and technical organisational structure of the KKM can be transferred on a scenario scale to the entire disaster control team through the Coordination group of the disaster control team (KGS). Specifically, the KGS is tasked with improving and expediting the collection and management of information, as well as shortening time for situation assessments. It represents the first level of support for districts and independent cities in non-police emergency situations, particularly during major incidents and disasters. The State's Forest fire protection officer, or a representative, assumes the role and responsibilities of forestry advisor in the KGS or in the State's disaster management staff (Article 4, Forest Fire Decree).

If the operational situation escalates beyond the capabilities of KGS, or if the 'overall management' is assumed by the MIK, the 'disaster control management' takes over. The 'disaster control management' is established to support the 'overall management' and is composed of the disaster management authorities as well as other authorities, institutions, and aid organisations whose involvement may be required[77].

The KKM works closely with the five Integrated Regional Control Centres, which manage emergency calls via 112 across Land Brandenburg. As mentioned in Box 10 (see Section 6.1, Wildfire preparedness), these Centres may also receive notifications from the Forest Fire Control Centres.

When resources are insufficient, aerial support can be requested through the KKM[78], which coordinates with both state and federal authorities. Since fire departments and emergency response units lack adequate helicopters for aerial firefighting support, they rely on resources from the German Federal Police and the German Armed Forces under the subsidiarity principle. Notably, the German Federal Police can assist with helicopters for fire detection and aerial firefighting[79], while the Armed Forces can also contribute to creating firebreaks. Requests for additional support from third parties can also be made as needed. The helicopter squadron of the state police can provide support with reconnaissance and coordination from the air.

77 MIK, 'Crisis Management Coordination Centre (KKM)', accessed 2 October 2024, https://mik.brandenburg.de/mik/de/innere-sicherheit/brand-katastrophenschutz/krisenmanagement/

78 When submitting a request for aircraft to fight forest fires, the requester must provide a written declaration agreeing to cover the associated costs.

79 Requests for Federal Police aircraft must be made through the on-call service of the KKM.

8 - Recovery and lessons learned

8.1 - Legislative framework and processes

- **Wildfire recovery** is mainly addressed in the **Forest Act**, which among others requires forest owners to undertake mandatory reforestation upon specific conditions.
- The Forest Act also regulates the **allocation of grants for forest fire damage**, covering 80% of reforestation costs in corporate and private forests.
- The Brandenburg Fire and Disaster Management Act requires the 'Disaster control management' to convene a **lesson learnt meeting** at least once a year.

In Land Brandenburg, wildfire recovery is mainly addressed in the Forest Act. Specifically, Article 11 requires forest owners to undertake mandatory reforestation within 36 months if areas larger than 0.5 hectares have developed into open-land-like conditions after wildfire events. For areas within legally protected zones, such as conservation areas, Fauna-Flora-Habitat (FFH) regions, or legally protected biotopes, specific regulations and directives must be followed.

Additionally, Article 21 establishes grants for forest fire damage, covering 80% of reforestation costs in corporate and private forests. Also, according to the Act, when forest land is converted for other purposes, responsible parties must pay a forest conservation fee if they cannot initially replant suitable trees or implement other protective measures.

These fees are used to enhance the forest's protective and recreational functions. They include the financial assistance from the state for rehabilitating damaged forests, improving the ecological health of the forest, and strengthening weakened areas. The funds also support measures aimed at enhancing the forest's overall conservation and recreational value (Article 8)[80].

In terms of lessons learnt processes, the Brandenburg Fire and Disaster Management Act requires the 'disaster control management' (see Section 7.1, Wildfire emergency response) to convene a lesson learnt meeting at least once a year. This meeting focuses on reviewing disaster preparedness measures and adapting to new circumstances to enhance response effectiveness (Article 38).

8.2 - Lessons learned

- In Land Brandenburg, there is **not a formal review process** in place to identify good practices and areas for improving the system after a wildfire.
- **Integration of lessons learnt** into the current framework have been carried out **informally** by some entities, such as the MIK and the LFB, through the publication of reports and guidelines.
- Although no longer operational, in the aftermath of the 2018 wildfire season the **Wildfire Working Group** was established to formulate new proposals for improving wildfire risk management.

80 LFB, 'Funds from the Forest Conservation Levy (WEA)', accessed 18 September 2024, https://forst.brandenburg.de/lfb/de/ueber-uns/bewilligungsbehoerde-forst/mittel-aus-walderhaltungsabgabe/

It seems that in Land Brandenburg there is not a formal review process in place to identify good practices and areas for improving the system after a wildfire. Integration of lessons learnt into the current framework have been carried out informally by some entities. Some recent examples are provided below.

The MIK, with the support of LSTE, produced the 'Large Forest Fires in the State of Brandenburg: Report on the 2022 Wildfire Season' (2022)[81], which provides suggestions for optimisation and solutions for improving primarily prevention and preparedness, both in relation to forest fires and fires on agricultural, wasteland, and other open land areas. The report is based on the lessons learnt from the major wildfire and forest fire events in 2022 – Treuenbrietzen OT Frohnsdorf, Neuseddin/Beelitz, Falkenberg/Elster, Bad Liebenwerda & Mühlberg/Elbe, Lieberose OT Butzen – and on several other key sources. These include presentations and discussion points from the LSTE's evaluation event on the 2022 forest fires; the discussion outcomes from a training seminar for district fire chiefs and fire brigade leaders; findings from the cross-departmental forest fire working group within MIK, involving district fire chiefs and interest groups; and statistical data from the LFB. This report was collaboratively prepared with broad participation from different authorities, companies, and institutions. Notably, some contributors were directly involved in large forest fires, both operationally and in an advisory capacity.

The LFB published a manual containing guidelines for forest practices in Land Brandenburg[82], including analysis of forest sanitary conditions after major fires. It also supports forest owners providing comprehensive recommendations on how to reforest and redesign their forests after a fire to enhance future resilience. Specifically, the LFB produced a document[83] that outlines possible measures in four key areas: forest protection, soil protection, reforestation/forest regeneration, and management of deadwood. The assessment of these measures is based on scientific studies, expert knowledge, and extensive experience from managing forest fire areas in northeastern Germany since the 1970s. Regular updates are planned to incorporate new scientific findings, ensuring ongoing relevance and effectiveness.

Finally, in the aftermath of the 2018 wildfire season, the Wildfire Working Group was established to discuss the season and formulate new proposals for improving wildfire risk management (see also Section 2.3, Coordination and partnership). The working group conducted an evaluation of the most significant wildfire events, organised the technical support for the creation of wildfire reports, and provided essential input for the thematic expansion of training and continuing education offerings in the state. It also addressed issues related to the introduction of new firefighting equipment for wildfire suppression and the administrative preparation for effective wildfire suppression[84]. However, as already mentioned, this working group is no longer operational. Instead, its activities will be incorporated into the WBZZ's framework.

81 The 'Large Forest Fires in the State of Brandenburg: Report on the 2022 Wildfire Season' can be accessed via this link: https://mik.brandenburg.de/sixcms/media.php/9/20230503_Waldbrandbericht%202022_barrfr.4344435.pdf

82 The 'Forest Protection Manual: Guidelines for Forest Practice in Brandenburg' can be accessed via this link: https://forst.brandenburg.de/sixcms/media.php/9/Waldschutzordner_2023.pdf

83 Access the document at the following link: https://forst.brandenburg.de/sixcms/media.php/9/Empfehlungen%20zum%20Umgang%20mit%20Waldbrandflaechen.pdf

84 'Draft for the Forest Fire Competence centre - Version 5 of the WBZZ, 2024'

Box 12 - Good practice from Italy: The Italian lessons learnt process

In Italy, after each summer wildfire season, a plenary meeting with key stakeholders is formally organised and convened by the Italian Civil Protection Department (DPC) with the aim to analyse any gaps in the wildfire risk management system.

A practical example of a post-forest fire season plenary meeting is the 'debriefing' organised in 2017 after the devastating wildfire season. The discussion of the strengths and weaknesses of the entire wildfire risk management system highlighted important gaps in the system that needed to be addressed. Hence, the debriefing resulted in the drafting of a document detailing various improvement proposals for each area of action, including a 'Course for Incident Commanders (training modules and certification) with national training standards.

Other debriefing sessions can be held among the operators of the State aerial fleet to discuss and analyse the outcomes of operations during the season.

8.3 - Data collection and analysis

- Since the mid-1970s, the federal administration has merged data from the states into a **comprehensive nationwide statistical database**.
- Some **data and statistics** are included in various **reports**, such as those produced by the LFB and the Central Hazard and Risk Analysis.
- Data collection and analysis is also supported by the **scientific community and academia**.

Since the devastating forest fires of the mid-1970s, the federal administration has merged data from the federal states into a comprehensive nationwide statistical database. This database provides detailed information on the sizes of affected areas, causes and losses of fires, and expenditure on forest fire prevention and control[85].

The Central Hazard and Risk Analysis includes comprehensive statistics on forest fires in Germany since the 1970s. It covers various causes of fires, the extent of the area damaged, and economic damage estimates provided by the Federal Agency for Agriculture and Food (BLE).

Some statistics and data are also included in the reports produced by the LFB, including the 'Annual Forest Protection Reports' (e.g., 'Forest Protection Report 2022'[86]), 'Forest Protection Diagnosis Reports', and 'Annual reports on forest fire statistics'[87]. Furthermore, the LFB provides updated information on suspected explosive contamination areas (prepared by the KMBD) through forest fire protection maps, accessible via a restricted link since 2022. However, how this data is used and managed locally varies greatly. Dynamic maps that regularly update information about these areas are not uniformly available to local fire units, who are the first responders to vegetation fires. According to the report 'Large Forest Fires in the State of Brandenburg: Report on the 2022 Wildfire Season' (2022), this lack of consistent access complicates the initial risk assessment and response planning. Regional and local authorities sometimes fail to share the maps and data from the KMBD with local fire units in a timely and coordinated manner. Additionally, because these maps contain sensitive information, they cannot be made publicly available. For instance, during two major vegetation fires near the Saxony-Brandenburg border, Brandenburg fire crews could access relevant

85 Statistics covering the national level are available at: https://www.ble.de/DE/BZL/Daten-Berichte/Wald/wald.html

86 The 'Forest Protection Report 2022' can be accessed via this link: https://forst.brandenburg.de/sixcms/media.php/9/ws2022.pdf

87 Forest fire statistics for 2023 and 2022 are available at these links (1) https://forst.brandenburg.de/sixcms/media.php/9/wbra2023.pdf and (2) https://www.google.com/url?q=https://forst.brandenburg.de/sixcms/media.php/9/Waldbrandstatistik%25202022.pdf&sa=D&source=editors&ust=1721399429950039&usg=AOvVaw0_t9cpADd1c7KbgZOqXhMs

maps from the KMBD, but maps for the Saxon areas were delayed. In this view, a couple of recommendations were proposed in the Report.

Data collection and analysis is also supported by the scientific community and academia, as demonstrated in the proceedings of the 18th Eberswalde Forest Colloquium 'Knowledge Transfer into Practice: Forest Fire – Catastrophe, Disturbance, or Opportunity?', published by the MLUK. In a study by Sanders et al (2023), data was collected from research sites in Baden-Württemberg, Rhineland-Palatinate, and Brandenburg, focusing on six forest types (beech, oak, Douglas fir, pine, spruce, and fir) based on the dominant tree species in the canopy layer. A total of 167 study areas were sampled to assess biomass in the undergrowth and on the forest floor. Based on the collected data, and in collaboration with fire experts from the Mediterranean region, fuel types for Central European forests were classified[88].

Land Brandenburg utilises data from Copernicus to create long-term statistical summaries and identify patterns in wildfire occurrences. Instead, the rapid mapping mode of Copernicus is not extensively used due to the time-delayed provision of information.

8.4 - Conclusions

Recent wildfire events have prompted the development of informal lessons learnt processes, which have helped identify weaknesses in the wildfire risk management system and opportunities for improvement. However, it is recommended to establish a formal lesson learnt process to systematically conduct performance assessments and identify ways to increase resilience, which could be done through the Wildfire Competence Centre (WBZZ). Additionally, the broad dissemination of key findings and recommendations for enhancing wildfire risk management would further support continuous improvement.

In terms of post-wildfire recovery, the development of comprehensive guidance for forest restoration and the support provided by the MLEUV to forest owners in rehabilitating burnt areas underscore significant efforts.

As for wildfire data, the importance of data collection, analysis, and sharing is widely recognised. Existing statistical data, aligned with EU standards, are already being used to identify wildfire hotspots and prioritise prevention and preparedness measures. However, expanding wildfire statistics to include detailed analyses of suppression costs and the economic losses to ecosystem services would allow cost-benefit analyses and provide valuable insights, further supporting evidence-based decision-making and enhancing wildfire risk management. These measures would help address future challenges more effectively.

In addition, to enhance knowledge of wildfire underlying causes and inform decision-making across the entire risk management cycle, strengthening post-fire investigations would be beneficial. In this regard, establishing specialised multidisciplinary post-fire investigation units that integrate advanced forensic techniques, meteorological analysis, and fire behaviour assessments could improve the accuracy of fire cause investigations and strengthen legal accountability for wildfire-related offences. Finally, clear Standard Operating Procedures (SOPs) should also be developed to define roles and responsibilities and guide actions when post-fire investigations result in prosecutions.

88 Sanders, T., Labenski, P., Ewald, M., Gnilke, A. (2023). Forest risk management – control screws & potential to reduce forest fire vulnerability. Knowledge Transfer into Practice: 'Forest Fire – Catastrophe, Disturbance, or Opportunity?' Proceedings of the 18th Eberswalde Forest Colloquium February 16, 2023, Eberswalde. Available at: https://forst.brandenburg.de/sixcms/media.php/9/efs73.pdf

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Sanders, T., Labenski, P., Ewald, M., Gnilke, A. (2023). Forest risk management – control screws & potential to reduce forest fire vulnerability. 'Knowledge Transfer into Practice: 'Forest Fire – Catastrophe, Disturbance, or Opportunity?' (Wissenstransfer in Die Praxis: 'Waldbrand – Katastrophe, Störung Oder Chance?')'. In *Proceedings of the 18th Eberswalde Forest Colloquium*, Vol. 73. Eberswalde: Ministry of Agriculture, Environment and Climate Protection, 2023. https://forst.brandenburg.de/sixcms/media.php/9/efs73.pdf.

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Annex 1: Land Brandenburg State Profile

Overview

Land Brandenburg, or the State of Brandenburg, is one of the sixteen federal states ('*Länder*') of Germany, located in the northeastern part of the Federal Republic of Germany. Brandenburg borders the states of Mecklenburg-Vorpommern, Lower Saxony, Saxony-Anhalt, and Saxony, as well as Poland. With an area of 29,654 square kilometres and a population of 2.5 million[89], it is Germany's fifth-largest state by area and tenth largest by population. Potsdam is the state capital and largest city, while other important cities are Cottbus, Brandenburg an der Havel, and Frankfurt (Oder).

Brandenburg surrounds the national capital and city-state of Berlin. Together, they form the Berlin/Brandenburg Metropolitan Region, the third-largest metropolitan area in Germany with a total population of approximately 6.2 million. The origin of the name Brandenburg is believed to be the West Slavic '*brani boru*'. One theory regarding the origin of the name suggests it means 'defensive forest', probably due to the fact that more than a third of Brandenburg's surface area is occupied by nature parks, forests, and lakes[90].

Figure A - Map of Brandenburg. Source: Encyclopedia Britannica

89 'Brandenburg', European Commission, accessed 22 April 2024, https://s3platform.jrc.ec.europa.eu/region-page-test/-/regions/DE4

90 'Brandenburg', Encyclopedia Britannica, accessed 23 April 2024, https://www.britannica.com/place/Brandenburg-state-Germany

Following German reunification, Brandenburg was re-established in 1990 and became one of the five new states of the Federal Republic of Germany. In 1995, the governments of Berlin and Brandenburg decided to merge the states to form the new state of Berlin-Brandenburg. This resolution was surprisingly rejected in a plebiscite in 1996: while the Berliners accepted, the majority of Brandenburgers opposed, and so the two states remained separate.

Country	Germany
Official name	State of Brandenburg
Capital city	Potsdam
Official languages	German, Sorbian, Low German
Area	29,654.16 km^2
Population	2,573,135 (December 31, 2022)
Currency	Euro (€)
Time zone	UTC+1

Politics and society. The government of Brandenburg consists of a state parliament, called '*Landtag*', and a prime minister, who is generally the leading member of the strongest party in the Landtag. Brandenburg is inhabited mainly by Germans and a small indigenous Slavic group, the Sorbs, concentrated in a wetland region in the southeast, called '*Spreewald*'. This area is bilingual, i.e. both German and Sorbian are used. Brandenburg is one of the least densely populated German states. Unlike the other East German states, it experienced a positive population growth rate between 1995 and 2000, mainly due to the suburbanisation of Berlin's economic activities and population. Since 2000, however, Brandenburg's demographic trajectory has reversed, although growth has continued in the suburban areas near Berlin, which have been among the very few East German areas to grow since the turn of the century.

Economy. The gross domestic product (GDP) of the state was EUR 78.7 billion in 2021[91]. As reported in the Central Hazard and Risk Analysis (2022), in 2021, Brandenburg's economic performance showed a modest improvement, with the volume-adjusted GDP increasing by 0.9% compared to the previous year. In terms of labour productivity, Brandenburg achieved 88.0% of the national average in 2021, the highest among East German states. In recent years, Brandenburg's infrastructure has been modernised, and unemployment has slowly declined. The Brandenburg-Berlin region, especially Potsdam, is home to an emerging cluster of research and development activities in the field of biotechnology.

Geography. Brandenburg borders Mecklenburg-Vorpommern to the north, Poland to the east, the Freistaat Sachsen to the south, Saxony-Anhalt to the west, and Lower Saxony to the northwest. The rivers Oder and Lausitzer Neiße form part of the eastern border, while the river Elbe is part of the western border. Other important rivers are the Spree and the Havel. The present landscape is largely the result of the last glaciation. Most of the state consists of a sandy plain interspersed with numerous fertile areas and expanses of pine forests. Brandenburg is traversed by tributaries of the Elbe and Oder rivers and boasts more than 3,000 lakes, making it the most water-rich state in the Federal Republic. Approximately half of the state's surface area is used for agriculture and another third of the region is covered by forests. The state is located entirely within the North European Plain and has a moderate climate, determined by both maritime influences, which predominate in the areas to the west, and continental influences, which affect the eastern part.

91 Crisis Management Coordination Centre, Ministry of Interior, 'Central Hazard and Risk Analysis of the State of Brandenburg', 2022.

Environment. Brandenburg is known for its well-preserved natural environment and ambitious nature protection policies, which were initiated in the 1990s. Since the reunification of Germany, 15 large protected areas and natural parks have been designated; these areas occupy about one-third of the country's territory. Each of them has a state-funded administration and a staff of park rangers who guide visitors and work to ensure nature conservation. Most of the protected areas have visitor centres. Among them, the Spree Forest ('*Spreewald*'), as an extensive floodplain and moorland landscape, was designated a biosphere reserve by UNESCO in 1991, under the name '*Biosphärenreservat Spreewald*'[92]. It is known for its traditional irrigation system, consisting of over 200 small canals within the 484-square-kilometre area, its unique flora and fauna, and its traditional flat-bottomed boats, the '*Spreewaldkähne*'. Its landscape was shaped during the last Ice Age.

Wildfire risk profile

Land Brandenburg is one of the most fire-prone areas in Germany due to its extensive forest cover, subcontinental climate, light and sandy soils with low water retention capacity, and the dominant main tree species, the pine ('*Pinus sylvestris*'). A further peculiarity of this state is that out of a total forest area of about one million hectares, about 292,000 hectares (ha) are suspected of containing explosive devices (UXO). In the event of a fire, this makes ground firefighting in affected areas more difficult and, in certain cases – especially near settlements – requires the support of aerial firefighting by the Federal Police or Federal Armed Forces. Against the background of climate change and the prevailing conditions in the state that favour forest fires (proportion of pine trees, site conditions, contamination of ammunition), the risk of forest fires is increasing. Preventive measures to protect against forest fires are mainly aimed at converting forests, limiting the conditions conducive to the outbreak of fires, and creating better conditions for successful forest fire fighting.

According to the latest forest fire report of 2023, 2022 was an exceptional year with 507 forest fires and a damaged forest area of 1,410.90 ha[93]. The last time such damage had been recorded was in 1983 and 2018. The special feature of 2022 was above all the size of the forest fires: eight fires exceeded 10 ha, four of which exceeded 100 ha. More than half of all forest fire reports were on fire danger levels 4 and 5. At the same time, these forest fire reports accounted for 98% (1,380 ha) of the total area damaged seasonally. Most of the forest fires (30 out of a total of 38) that were classified at least as serious incidents were concentrated in the most recent period under review, from 2018 to 2022. The areas of all serious fires listed were classified as suspected explosive device sites or areas where individual explosive devices could be identified.

92 'UNESCO Biosphere Reserve Spreewald', German Commission for UNESCO, accessed 23 April 2024, https://www.unesco.de/en/node/2390

93 MLUK, 'Forest fire statistics 2023, from the state of Brandenburg', accessed 24 February 2025, https://forst.brandenburg.de/sixcms/media.php/9/wbra2023.pdf

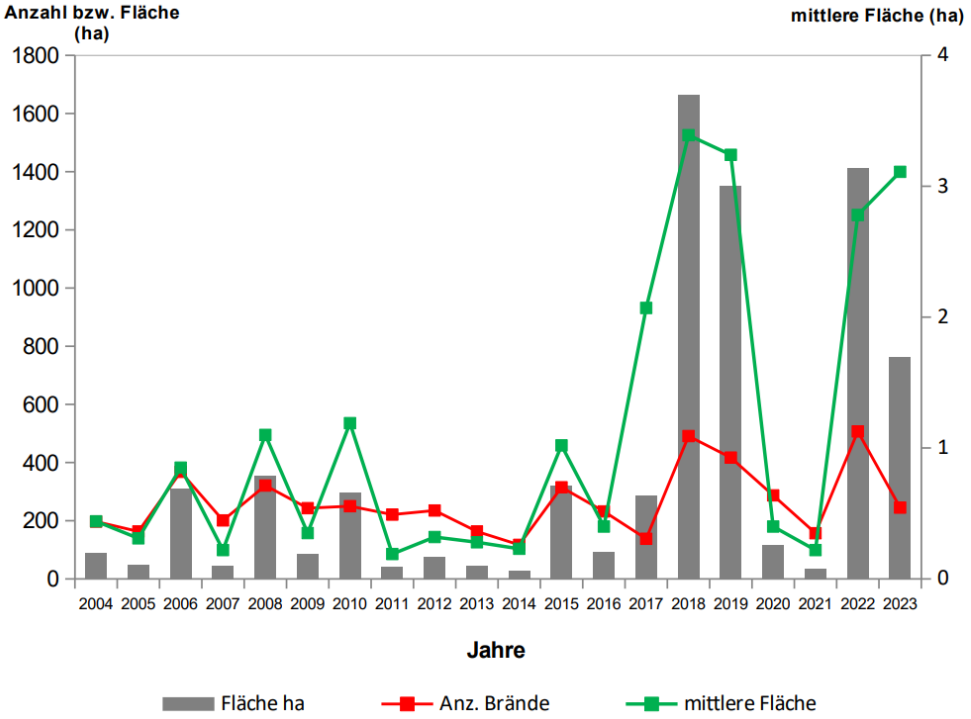

Figure B - Forest fires overview of the last twenty years. Source: *Forest fire statistics 2023*

Of all forest fires reported in 2022, 118 are suspected of intentional arson. The triggering cause of all the others remained unknown. Therefore, negligent arson was the cause of a quarter of the total fires. Lightning caused 23 forest fires. However, their surface area remained relatively small at 6.13 ha. Some forest fires were then caused by equipment and vehicles from the agricultural, forestry and railway sectors, especially during hot periods. While the burnt areas caused by forestry and railway activity were relatively small (1.87 and 1.86 ha), those caused by agricultural activity resulted in 22.93 ha of damaged areas. In nine cases the spontaneous combustion of old ammunition caused forest fires and the destruction of 41.06 ha of forest. The cause of the four largest forest fires is still unknown.

In 2022, the average size of the area affected by forest fires was 2.78 ha, significantly higher than that of 2021 with 0.22 ha. In 2023, this average rose further to 3.11 ha. In 2022, the time between the detection of the fire (alarm) and the start of extinction was short, on average 15 minutes. Also, with regard to expected climate changes, in particular the increase in extreme weather events, the average burned surface must be considered significantly larger[94].

The year 2022 has made citizens and emergency services aware of the fire risk that can develop in vegetation areas in the event of persistent high pressure combined with a lack of precipitation, long periods of intense sunshine, and strong winds. This situation was further aggravated by the non-negligible percentage of dead wood in forest areas (due to the winter storms of 2022, drought stress, and insect infestations). In addition to the large number of moderate forest fires that were controlled by local fire brigades in a short time, some forest fires were characterised by extreme behaviour due to unfavourable conditions. In some cases, several hundred hectares of forest were destroyed in a few hours with high rates of progress and spread. During the high-intensity phases of the fire, there was also a direct (risk of fire spread) or indirect (smoke) danger to residential areas, with evacuation orders for residents. The severity of these extreme forest fire events indicates a future trend that will increase due to climate change[95].

94 MLUK, 'Forest fire statistics 2022', accessed 17 May 2024, https://forst.brandenburg.de/sixcms/media.php/9/Waldbrandstatistik%202022.pdf

95 MIK, 'Large forest fires in the state of Brandenburg – Report on the 2022 forest fire season', accessed 17 May, https://mik.brandenburg.de/sixcms/media.php/9/20230503_Waldbrandbericht%202022_barrfr.pdf

Finally, in 2023, Brandenburg experienced a total of 245 forest fires, which is in line with the 20-year average. These fires impacted 763.14 hectares of forest, including areas affected by ignitions. Notably, the 688-hectare area burned in a major fire ranks as the fourth largest during this period. Of the 245 forest fires reported in 2023, 52 were intentionally set, while the cause of ignition remains unknown for 91 fires. Lightning strikes triggered five fires, affecting a total area of 1.73 ha. In 7 instances, the spontaneous combustion of old ammunition destroyed 13.91 ha of forest. The cause of one major fire has not yet been determined.

Annex 2: List of stakeholders consulted in the Peer Review mission

(at) fire: (at) fire - International disaster control Germany (Internationaler Katastrophenschutz Deutschland e. V.)
BAM: Federal Institute for Materials Research and Testing
BBK: Federal Office of Civil Protection and Disaster Assistance
BFB HOS: Federal Agency for Real Estate Tasks, Federal Forestry Division, Havel-Oder-Spree Federal Forestry Company
BFB WEB: Federal Agency for Real Estate Tasks, Federal Forestry Division, Westbrandenburg Federal Forestry Company
BIMA: Federal Agency for Real Estate Tasks
BMI: Federal Ministry of the Interior and Community
BPOL: Federal Police
DLR: German Aerospace Centre (OPTSAL)
DWD: German Meteorological Service (Branch Offices Potsdam)
HNEE: Eberswalde University for Sustainable Development, Department of Forestry and Environment
HU Berlin: Humboldt-Universität zu Berlin, Institute of Geography, Earth Observation Laboratory
INT: Fraunhofer Institute for Scientific and Technological Trend Analysis - INT Department for Technology Analysis and Strategic Planning (TASP) Business Unit Public Technology and Innovation Planning (TIP)
KMBD: Central Police Service of the State of Brandenburg, Explosive ordnance disposal service
LFB/LFE: State Forestry Office Brandenburg, Eberswalde Forestry Competence Centre
LFV BB: Brandenburg State Fire Brigade Association
LKT BB: Brandenburg Association of Districts
LSTE: State school and technical facility for fire and disaster protection of the state of Brandenburg
MIK: Ministry of the Interior and Municipal Affairs of the State of Brandenburg
MIL: Ministry for Infrastructure and Regional Planning of the State of Brandenburg Department 23 - Housing, Urban Planning Law
MLUK: Ministry of Agriculture, Environment and Climate Protection
NLB: Brandenburg Wilderness Foundation
OVGU: Otto von Guericke University Magdeburg
PIK: Potsdam Institute for Climate Impact Research
Pol BB PHuSt: Brandenburg State Police, police helicopter squadron
Pol BB WaWe: Brandenburg State Police, Technical Operations Unit, Water Cannon Group
SKV: Specialised forces Vegetation fire Oberhavel
SMI: Saxon State Ministry of the Interior, Department of Civil Protection
StGB Bbg: Brandenburg Association of Towns and Municipalities
SWD BB: German Forest Protection Association Brandenburg state association (Schutzgemeinschaft Deutscher Wald Landesverband Brandenburg e.V)
THW LVBEBBST: German Federal Agency for Technical Relief, Regional Association Berlin, Brandenburg, Saxony-Anhalt
Thünen: Johann Heinrich von Thünen Institute Federal Research Institute for Rural Areas, Forests and Fisheries, Institute for Forest Ecosystems
TU: TU Berlin, Institute for Landscape Architecture and Environmental Planning; Geoinformation Processing in Environmental Planning
TU DD: Dresden University of Technology, Department of Forest Sciences, Institute of Silviculture and Forest Protection
Waldbesitzerverband BB: Brandenburg Forest Owners Association (Waldbesitzerverband Brandenburg e. V.)
ZDPOL, ASBB: Central Police Service of the State of Brandenburg, Authorized Agency Digital Radio (ASBB)

Annex 3: Acronym Table

BB	Land Brandenburg
BABZ	Federal Academy of Civil Protection and Civil Defence
BBK	Federal Office of Civil Protection and Disaster Assistance
BLE	Federal Agency for Food and Agriculture
BMI	Federal Ministry of the Interior and Community
BMEL	Federal Ministry of Food and Agriculture
BMUV	Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
CAP	Common Agricultural Policy
CMCC	Euro-Mediterranean Center on Climate Change
DPRK	German-Polish Intergovernmental Commission for Regional and Border Cooperation
DG ECHO	European Commission's Directorate-General for European Civil Protection and Humanitarian Aid Operations
EAFRD	European Agricultural Fund for Rural Development
EAGF	European Agricultural Guarantee Fund
ERDF	European Regional Development Fund
ENT	Emergency Aftercare Team
FBG	Forest Management Association
GMLZ	Joint Situation Centre of the Federal Government and the States
ILB	Investment Bank of Land Brandenburg
IRLS	Integrated Regional Control Centre
KGS	Coordination group of the disaster management staff
KPI	Key Performance Indicator
KKM	Crisis Management Coordination Centre
KMBD	Ordnance Disposal Service
LFB	The State Forestry Agency of Brandenburg (Landesbetrieb Forst Brandenburg) or Forst Brandenburg
LFE	State Forestry Competence Centre in Eberswalde
LSTE	State School and Technical Facility for Fire and Disaster Protection
MIK	Ministry of the Interior and Municipalities
MLEUV	Ministry of Agriculture, Food, Environment and Consumer Protection of the State of Brandenburg
MLUK	Ministry of Agriculture, Environment, and Climate Protection of Land Brandenburg
PPE	Personal Protective Equipment
PRAF	Peer Review Assessment Framework
RDP	Rural Development Programme
SFDRR	Sendai Framework for Disaster Risk Reduction
SOPs	Standard Operating Procedures
THW	Federal Agency for Technical Relief
WBZZ	Wildfire Competence Centre
WEA	Forest conservation levy
WUI	Wildland-Urban Interface
UCPM	Union Civil Protection Mechanism
UXO	Unexploded ordnance