

ARMED FORCES AND RURAL FIRES – PROPOSALS FOR FUTURE MEASURES ¹

AS FORÇAS ARMADAS E OS INCÊNDIOS RURAIS – CONTRIBUTOS PARA O FUTURO

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Abstract

This article proposes measures to enhance the participation of the Armed Forces in civil protection missions to combat rural fires. The scope of this action is limited to mainland Portugal, except in the case of air assets. To determine how this role can be enhanced, this work identifies gaps in the current civil protection system and investigates if those gaps can be mitigated by existing Armed Forces capabilities. To that end, a qualitative analysis of reports, plans and interviews with experts was conducted. The study revealed that the Armed Forces can play a greater role in civil protection missions by maintaining and enhancing the current forms of collaboration, as well as by educating the populations (both during surveillance and patrolling and during awareness-raising actions), providing training to civil protection personnel (such as command and leadership training), taking on more civil protection roles, some on a permanent basis (e.g. prevention and awareness raising), and developing doctrine and organizational guidelines for civil protection agencies.

Keywords: Armed Forces, civil protection, rural fires.

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Resumo

Este artigo tem por mote propor contributos para potenciar a atuação das Forças Armadas em missões de proteção civil, no âmbito dos incêndios rurais. Estando delimitado à atuação em território continental, excluindo o referente aos meios aéreos. Para se identificar como se pode potenciar esta atuação, identificaram-se as necessidades no sistema vigente, na perspetiva da proteção civil. Estas, foram confrontadas com capacidades existentes nas Forças Armadas que possam sanar tais necessidades. Para isso, efetuou-se uma análise qualitativa de relatórios, planos e entrevistas a especialistas. Tendo se concluído que, para potenciar a atuação das Forças Armadas, em missões de proteção civil é necessário manter e aprofundar as atuais formas de colaboração, em conjugação com ações de sensibilização às populações (quer durante a vigilância e patrulhamento, quer durante ações de divulgação), formação de quadros da proteção civil (nomeadamente em matérias de comando e liderança), maior participação em funções de proteção civil ou um papel permanente em algumas delas (por exemplo, na prevenção e sensibilização) e produção de doutrina e organização para a proteção civil.

Palavras-chave: Forças Armadas, proteção civil, incêndios rurais.

1. Introduction

The participation of the Armed Forces (AAFF) in Civil Protection (CP) missions is regulated by a legal framework that includes the Constitution of the Portuguese Republic, the Law on National Defence, the Organic Law on the Organization of the AAFF and the AAFF Missions. Within this framework, the AAFF can be “charged with cooperating in civil defence missions, tasks concerning the fulfilment of basic needs and the improvement of people’s quality of life” (Constitutional Law No. 01 of 12 August 2005), which include collaborating “with civil entities in [...] combating wildfires [...] and providing support in the event of natural or man-made disasters, in order to guarantee the safety of people and goods” (Ministry of National Defence [MDN], 2014).

Pursuant to Law No. 80/2015 (Basic Law on Civil Protection [LBPC]), CP comprises

the actions taken by the State, the Autonomous Regional Government, local authorities, citizens and all public and private entities to prevent collective hazards provoked by serious accidents or disasters, to mitigate their effects, and to protect and rescue endangered people and property.

The AAFF are CP agents, and as such are qualified to participate in

fire prevention, fire suppression and post-fire operations; supplement civilian personnel in health and safety activities, [...] conduct search and rescue operations; provide equipment and logistic support to operations; repair facilities; conduct ground, air and maritime reconnaissance and provide communications support. (Law No. 80/2015)

This work addresses the issue of rural fires, a timely topic in light of the changes that resulted from the events of 2017. The AAFF will have a role to play in this fight, as the problem cannot be solved

through an isolated or fragmented approach but only through careful planning and close cooperation between the different agencies that prevent and combat rural

fires, as well as by getting all responsible government bodies, municipalities, public and private services, and civil society involved. (Council of Ministers Resolution [RCM] No. 20 of 01 March 2018)

The study was delimited to cover only the firefighting activities carried out by the AAFF in mainland Portugal. The work does not address the autonomous regions because they are governed by a separate legal framework. The article will not cover the AAFF's air capabilities, which are the exclusive responsibility of the Portuguese Air Force (PoAF) (JMS No. 157-A, 2017) and are not managed in a joint capacity.

The General Objective of this article is to propose measures to enhance the role of the Armed Forces in civil protection missions to combat rural fires. To do so, the study will identify the gaps in the current system that can be overcome by the AAFF's unique resources. Next, it will assess if the AAFF have capabilities that can be used to improve the system. This will be done by answering the following Research Question (RQ): How can the Armed Forces take on a greater role in combating rural fires?

2. Theoretical and conceptual framework

This chapter presents the conceptual framework that served as a basis for the study and the analysis model that guided the investigation.

2.1. Integrated Rural Fire Management System

In the wake of the events of 2017, Portugal had to readjust the way it organizes, prepares for, handles and recovers from rural fires. The capstone of that change was the creation of the Integrated Rural Fire Management System (SGIFR).

The purpose of the SGIFR is to guarantee the protection and conservation of forests (management of rural fires) and the protection of people, property, and settlements (protection against rural fires). The system is based on a set of executive procedures (JMS No. 20 of 01 March 2018) which the AAFF are responsible for enforcing (General Staff of the Armed Forces [EMGFA], 2018).

The Single Directive on Prevention and Combat (DUPC) defines executive procedures and assigns responsibilities to the various stakeholders. The directive charges the AAFF with “cooperating in Civil Support missions and in tasks related to the fulfilment of basic needs and the improvement of people’s quality of life”.

Pursuant to SGIFR and the DUPC executive procedures, the AAFF participate in (JMS No. 20, 2018):

- Planning: they “define or reformulate (...) their involvement in the intervention plans developed in coordination with the ICNF [Institute for Nature Conservation and Forests], the GNR [Republican National Guard] and the ANPC [National Authority for Civil Protection]”;
- Prevention - awareness-raising: no tasks have been assigned;
- Prevention - fuel management and monitoring: the ICNF is responsible for coordinating prevention activities, in conjunction with the AAFF, the City Councils and the Town Councils. The AAFF also participate in fuel management activities in critical locations;

- Pre-Fire Suppression: the AAFF operate the information and communication systems needed for decision making and carry out surveillance activities in critical locations or regions. Cumulatively, the AAFF “build and refurbish facilities and conduct surveillance and deterrence operations as defined in the plans and rules of engagement that were prepared in coordination with the ICNE, the GNR and the ANPC”;
- Suppression - initial attack: the AAFF are responsible for coordinating and operating air assets;
- Suppression - indirect attack: the AAFF operate military capabilities (e.g. bulldozers and other equipment) and logistic capabilities (rest, health support, food and fuel) to supplement other CP agents. The AAFF are also tasked with supporting the decision-making process at the request of the National Emergency and Civil Protection Authority (ANEPC);
- Suppression - mop-up operations: the AAFF support mop-up and post-mop-up surveillance operations at the request of the ANEPC;
- Suppression - extinguishment: the AAFF have no defined responsibilities;
- Handling of social and environmental emergencies: the AAFF provide support to field personnel and affected populations;
- Post-event assessment: the AAFF have not been assigned any roles;
- Recovery: the AAFF have not been assigned any tasks.

Operational Directive 2 (DON2), issued as an addendum to the DUPC, defines tasks and coordinates the agencies that operate in rural areas and in the rural urban interface, in order to ensure the proper management of rural areas and the use of efficient suppression or firefighting techniques and tactics “risks” (National Command for Relief Operations [CNOS], 2019). The stated goal of the DON2 is to protect the lives and safety of citizens and agents, and to safeguard the national heritage and environment by ensuring the “mobilisation, preparedness, utilization and management” of existing capabilities. The AAFF are tasked with cooperating in “fire surveillance and detection”; “medical emergency activities”; participating in “mop-up operations and active post-fire surveillance”; using “Bulldozers (B) for indirect fire suppression, settlement protection and support to mop-up operations”; “logistic support to the firefighters in the TO by providing facilities, health support, food, water and fuel”; “supporting the evacuation of endangered areas”; “supporting the fire surveillance and detection system during the course of their regular activities” and provide Liaison Officers (CNOS, 2019).

2.2. Implementation by the AAFF

Even though some believe that the AAFF could participate in CP missions by creating a specialised unit that could be activated when the civilian structures have exhausted their resources and solutions (Rainha, 2013), at this time, the AAFF only intervene in a supplementary capacity and from a dual use perspective.

DIROP No. 032/2018 establishes the cooperation mechanisms between the AAFF and CP, defines how they coordinate with the CP structures and identifies the tasks and procedures for operations planning, coordination, execution and monitoring (EMGFA, 2018a). This DIROP also identifies the EMGFA, Navy, Army and PoAF emergency support capabilities:

- Command, control and communications;
- Military engineering;
- Health support and psychological intervention;
- Replenishment and services;
- Maintenance and transportation;
- Biological, chemical and radiological defence;
- Search and rescue;
- Support to firefighting operations;
- Air support;
- Maritime support.

The DIROP led to the elaboration of plan HEFESTO², which defines the measures for planning, coordinating and conducting AAFF prevention, patrolling and surveillance, detection, mop-up and post-fire surveillance operations (EMGFA, 2018). Based on this plan, each branch prepared its own plan, which defined the procedures for collaborating with the CP systems in the context of rural fires.

The Navy has issued a Temporary Order (IT) 02/2018 to “support the national CP authority in combatting rural fires”, which defines the internal procedures to coordinate the Naval Command (CN) structures in the generation, preparation, execution and sustainment of a Navy Force (FM) to support the ANEPC.

The Army has issued the Army Plan for Emergency Military Support (PAMEEX), which defines the procedures for collaboration in complex emergency situations such as major accidents or disasters, by providing rescue services, support to affected populations, logistic support, emergency communications, engineering and health support, throughout the national territory (Army General Staff [EME], 2018).

The PoAF has issued a plan that defines how it participates in CP activities, which establishes procedures and defines roles and tasks for PoAF personnel involved in and providing support to CP activities (Air Force General Staff [EMFA], 2018).

For the AAFF to be an effective partner, in addition to elaborating plans, it must coordinate with civil agents in an efficient and reliable way. This is only possible through consolidated procedures and joint training with other CP agencies (Costa, 2015). Furthermore, the plans of the branches must be aligned with the plans of the CP agencies, that is, the language must be consistent, and the list of AAFF capabilities must be up-to-date and familiar to the CP agents so that they can word their requests accordingly (Matias, 2013).

Coordination and communication problems, as well as a lack of joint training and educational activities leads to lack of awareness by AAFF and CP agents and to the lack of a joint doctrine to consolidate learning (Isabel, 2018).

² Plan HEFESTO defines the procedures that regulate participation of the AAFF in rural fire suppression operations. It was drafted after the fires of 2017, which revealed the need to reformulate the plans that define the participation of institutions in civil protection operations.

2.3. Analysis model

The analysis model aims to help achieve the specific objectives (OE), which in turn will help achieve the GO:

- SO1: To identify gaps in the Armed Forces participation in combatting rural fires;
- SO2: To assess the AAFF capabilities that can address those gaps.

The model also aims to answer the questions that have been raised by the RQ, that is, the subsidiary questions (SQ):

- SQ1: In what areas can the Armed Forces take on a greater role in combatting rural fires?
- SQ2: What AAFF capabilities can address the identified gaps?

The first step in building the analysis model consisted of delimiting the topic. The categories used to analyse the reports and interviews were the DUPC implementation processes, aligned with the HEFESTO plan. They can be found in the first column of the analysis model presented below. The analysis did not cover the processes in which the AAFF do not have tasks assigned and the suppression – initial attack process, where they are only responsible for coordinating and employing air assets.

3. Methodology and method

3.1. Methodology

The study uses an inductive reasoning methodology to draw inferences from the perceptions of the participants, and a qualitative research strategy supported by a case study research design, which allowed the researchers to analyse the participation of the AAFF in a specific context (Santos & Lima, 2019).

The study's primary sources are the reports of the Independent Technical Committee (CTI), the Independent Technical Observatory (OTI) and the Forest Fire Research Centre (CEIF) on the major fires that occurred since 2017, the AAFF Branch Plans, and interviews with CP experts and experts in areas that directly relate to the management of rural fires.

3.2. Method

3.2.1. Participants and procedure

Of the ten experts interviewed, seven were asked to describe the gaps in the participation of the AAFF in combatting rural fires, and three were asked to assess the AAFF capabilities that can be used to address those gaps. The following interviewees were asked to answer Part One: the 2nd National Commander of the ANEPC, the EMGFA Liaison Officer to the ANEPC, the Head of the ICNF Rural Fires Division, the Commander of the Fire Department Company Sappers of Setúbal, the President of the Centre for Civil Protection and Intervention Studies (CEIPC), who is also a member of the OTI, the GIPS Commander, and the District Operational Commander (CODIS) of Setúbal. The Head of the Naval Command Operations Division (COMNAV) of the Navy, the Deputy Commander of the CIMIC Cell (G9) of the Army Ground Forces Command (CFT), and the Head of the EMFA Operations Division were asked to answer Part Two. The number of interviews that would be conducted to assess the gaps

that the AAFF must address was not defined initially, however, it was established that seven would be the cut-off point. However, it was determined that one interview with a specialist from each branch would be enough to identify the AAFF capabilities that can address the identified gaps.

3.2.2. Data collection, analysis, and processing instruments

The document analysis involved collecting data from documents not produced by the researchers, such as legislation, regulations, plans or projects (Santos & Lima, 2019). This work analyses reports issued by the CTI, OTI and CEIF, and the AAFF branch plans of response to rural fires.

The interviews were used to collect experiences, opinions and attitudes. The respondents were not selected as part of a sample but according to a profile, that is, to their reputation, status or “title” as experts (Haro, 2016).

3.2.3. Data processing techniques

The data were processed using content analysis techniques to identify, synthesise and interpret the information collected from the recommendations of the reports and from expert opinions, that is, to draw inferences from the sources (Santos & Lima, 2019).

4. Data presentation and analysis of results

This chapter presents the data collected and describes the analysis. The following section describes gaps in the participation of the AAFF in CP missions to combat rural fires and the AAFF capabilities that can address those gaps.

4.1. Gaps in the participation of the Armed Forces

To answer SQ1, a semi-structured interview was conducted, as it would allow the interviewees to speak more freely and allow the interviewer to steer the conversation in a manner that facilitates the emergence of new categories (Haro, 2016).

In order to identify the gaps in the participation of the AAFF in CP missions, the CTI1 (June 2017 fires), CTI2 (October 2017 fires), CEIF (June and October 2017 fires) and OTI (assessment of the performance of the national CP system in rural fires and in the Monchique fire of 2018) reports were analysed. In addition to the data collected in the document analysis, seven interviews were conducted to supplement the reports and to identify new areas where the AAFF may intervene, thus achieving SO1.

4.1.1. Reports

The CTI1 report (2017) states that the AAFF should take on a more active role in the CP system, and that its capabilities are invaluable to provide support to prevention, logistics, mop-up and rekindling surveillance operations. This report considers that the participation of the AAFF is not appropriately regulated and that they are underused in forest protection and rural fire combat operations.

CTI1 (2017) mentions the possibility of defining “modalities to broaden the AAFP areas of intervention and to mobilise the capabilities of the different branches, particularly in structural prevention operations”. The report suggests that the AAFP be deployed in more missions that involve “patrolling areas with high structural risks or priority defence areas”, particularly when weather conditions are hazardous.

Although it does not mention the AAFP directly, CTI1 (2017) describes how the use of “ill-suited military charts” by the Operational Command Post led to a deficient situational awareness of the fire perimeter.

Regarding the provision of logistical support to operations and to populations in evacuation situations, the document stresses the need to employ the following capabilities: preparation and distribution meals, assembling facilities for resting and bathing, supplying power, lighting and water collection and treatment systems. The document also identifies the need for different types of support in building horizontal and vertical infrastructure, as well as in collecting water to replenish fire engines, as well as “different types of support to reconnaissance activities (roads, bridges, destroyed urban areas, etc.)” and health support (CTI1, 2017).

The CTI (2017) reinforces the need to continue to employ the AAFP in mop-up and reignition detection operations. However, it also states that better coordination between the AAFP and the ANEPC is needed. As the Emergency Military Support Regiment “has neither the conditions nor the capacity to be truly useful in emergency operations”, CTI1 suggests that a study be conducted using the Spanish Military Emergency Unit as a model for enhancing the role of the AAFP in CP.

To enhance the existing system, CTI1 (2017) suggests the creation of training activities for CP decision makers, who would benefit from “partnerships with more experienced systems in matters related to leadership, command and logistics (such as the Military Academy)”.

The CEIF (2017) acknowledges the “importance” of the AAFP in the June fires, stressing that “they could have been employed in a more effective manner”. The report states that it would have been beneficial if military personnel had been engaged in “indirect attack activities such as digging firebreaks”, thus releasing “firefighters to other areas where direct attack with water would be effective”. With regards to the use of bulldozers, the CEIF report states that “the teams were not trained to operate in a fire environment”, which “led to several occasions in which the teams parked their vehicles in hazardous areas, or in which the residual combustible material left over from the excavations was not disposed of properly”.

The CEIF (2017) suggests that there is room for improvement with regards to the safety procedures and equipment used by military personnel. Regarding the first aspect, the report states that the military personnel engaged in the operations wore “their regular work uniform, which naturally does not provide the best safety conditions for this type of activity”, and that this was due to the lack of sufficient Personal Protective Gear. As for the equipment, the report it points out that “agricultural machinery is sometimes used” in mop-up instead of “hand tools adapted to mop-up operations”. These gaps are the result of non-compliance with existing protocols.

In this TO, in addition to providing support in the form of food preparation and

distribution, the AAFF carried out “several CIMIC (Civil-Military Cooperation) activities that essentially consisted of damage assessment, psychological support [...], infrastructure recovery, food distribution and cooperation with city councils” (CEIF, 2017).

In regards to CP personnel, the CEIF (2017) acknowledges that there was a “lack of psychological and emotional preparedness to deal with a disaster of such proportions”. The report recommends training and educational activities be provided to “prepare commanders for this type of event” and encourage “interaction with other Civil Protection agents with leadership duties from the Armed Forces and Security Forces”. Furthermore, the military training of the then 2nd National Commander “proved invaluable to his role as COS” because it prepared him “to deal with a situation in which there was a large number of victims in a TO that was completely out of control” shortly after taking command of the operation.

The CTI2 report (2018) states that the support provided by the AAFF in the October fires fell “short of what would be desired”. The report remarks that, while the AAFF provide support to “Fire Prevention, Suppression and Mop-up operations, regrettably the manner in which they do it runs counter to the principles that guide the Military Institution” and that “where there should have been Planning, Preparation, Training and Joint Action, these Principles have often been ignored”. The report stresses the need to employ the security forces in permanent year-round surveillance activities, possibly with support from the AAFF.

It emphasises the need to improve coordination on the ground by having the AAFF representatives clarify the capabilities and limitations of the available forces and equipment to the CP agencies. For example, there were requests to deploy engineering units to a certain location, who were afterwards sent to a different location, with all the logistical adjustments that this entails, which affected the motivation of the personnel involved (CTI2, 2018).

In regards to rekindling detection, CTI2 (2018) mentions the need to improve mop-up and surveillance procedures. It stresses that the “appropriate use of bulldozers in mop-up operations, driven by properly trained and supervised operators, using infrared cameras to monitor the areas at greater risk of outbreak and expansion of fires” will help reduce rekindling.

Even though the SCIF report (2019) on the forest fires of 15 October does not mention the AAFF directly³, it explains that the team who prepared the report considers the comments and recommendations contained in the reports on the June fire – the CTI1 (2017) and the CEIF (2017) – to be valid and applicable.

The OTI (2018) report on the CP system’s handling of rural fires recommends that the AAFF should play a greater role in the efforts to reduce the impact of these events. However, it also mentions that the planning and preparation of activities carried out in coordination with other agencies should be improved.

The OTI (2018) recommends that the AAFF bulldozers should be used in a more effective manner in fire prevention operations, particularly in the construction and maintenance of fuel management lanes and access points to forest areas.

³ With one exception, when it makes an analogy between the “‘Damage Controlmen’ who work on board Navy vessels, for example”, and the “specialised intervention teams” that the CEIF suggests should be set up in industrial areas (CEIF, 2019).

At the request of ANEPC, the AAFF should continue to provide human and material resources to assist in fire surveillance and detection in coordination with the GNR. The report emphasises that the Forest Fire Management System has surveillance and detection features that should be better explored, specifically in “supporting decision making in mobile surveillance operations”.

Other measures that should be considered are “increasing the use of military logistical resources” to support the operations and the affected populations and continuing to participate in mop-up operations and active surveillance after the mop-up phase (OTI, 2018).

In regards to the handling of social and environmental emergencies, particularly where the population’s safety is concerned, the report recalls that the ANEPC, the National Institute of Medical Emergency and the AAFF have shared responsibilities, stressing the need to carry out “training exercises for agents and the general public”.

The report identifies the need for “greater collaboration between the training units of the different agencies, in order to benefit from scale effects and shared specialised resources”. Bearing in mind that “the AAFF, the GNR and the PSP have academies where their staff receive training and education”, the report proposes that the National Fire Brigade School be converted into “a Civil Protection Academy, with strong links to the higher education system, similar to the AAFF Academies”.

The OTI (2019) later issued a report on the Monchique fire of 2018, which mentions that, despite having “proper training and equipment”, “the military personnel in the platoons were not motivated to carry out mop-up operations and were more interested in participating in surveillance actions only”. Thus, the report recommends that there should be better use of hand tools and that “the military platoons be educated about the need to intervene with hand tools”.

Drawing on the AFOCELCA Technical Report, the OTI (2019) stresses that “it mentions some gaps in surveillance, and states that there must be rigour and zeal in carrying out these crucial tasks, and that there should be proactive surveillance and accountability for any re-ignitions that may occur”. As post mop-up surveillance is one of the tasks assigned to the AAFF, these comments may refer to actions conducted by the military.

Another capability that the AAFF frequently use in combating rural fires are bulldozers. The OTI (2019) highlights the importance of these machines in an event with the characteristics of the Monchique fire, stressing that their use must account for their operational limitations and that they “require operators with experience in forest fires”. The OTI adds that “the use of bulldozers to create containment lines, [...] should be supervised and complemented by ground capabilities and the use of hand tools”, as well as by “personnel capable of supervising the work”, which was not always the case in Monchique.

4.1.2. Interviews

The interviews served to collect expert perceptions. The 2nd National Commander of the ANEPC (P. A. Gaspar, face-to-face interview, 28 March 2019) states that the AAFF “make a tremendous difference, and should intervene more as a deterrent presence, that is, in prevention actions before fires break out”, adding that areas with a “military presence tend

to have a lower number of occurrences”. She wonders if “it wouldn’t be better to use the military in these roles rather than in the mop-up and post-fire surveillance platoons”.

The AAFF should use its communications capabilities, such as “information systems, vehicle tracking, all resources involved in operational decision-making support” to reinforce, or as an alternative to, the CP systems.

The AAFF’s extensive “logistics know how and resources” could be used “in a more active way to provide logistical support to major operations”. However, “platoons are needed, and they are an important element”, as they free up “the firefighters in the TO for locations that require a direct attack approach” (P. A. Gaspar, op. cit.).

When asked about the role of the AAFF in awareness-raising actions, she acknowledged that this “makes perfect sense in terms of prevention”, and that “during the course of your regular duties, if there are civilians present, you can also be a conduit for this message”, however, it is necessary “to invest considerably in knowledge exchange and training for military personnel in these areas” (P. A. Gaspar, op.cit.).

The AAFF Liaison Officer to ANEPC (J. J. Lavado, face-to-face interview, 16 April 2019) states that the AAFF should continue to support the ICNF in “engineering work, including opening fuel management lanes, road adaptations and improvement of water points” as well as in forest patrols and surveillance operations.

J. J. Lavado (op.cit.) states that communications and logistic support “are undoubtedly important areas where” the AAFF “could provide support”, clarifying that “from the point of view of deterrence, patrolling is combined with awareness raising” actions such as “distribution of leaflets and talking to the population to pass on the message that the ICNF wishes to convey”.

When asked about the difficulties that arise from the lack of standardised doctrine, a rotating service roster and the “problem of lack of know-how and experience in command and leadership” among CP personnel, in combination with the system used to train and select firefighting command staff”, J. J. Lavado (op.cit.) suggests a modality in which the AAFF could provide “training to CP staff to help streamline the system, even if only from a supplementary perspective, as well as to ensure consistency in terms of culture, doctrine, command and leadership”.

The ICNF Head of Division (R. M. Almeida, face-to-face interview, 24 April 2019) states that “the greatest advantage of the ICNF is its capacity to deploy machinery” because the AAFF have “engineering capabilities that can be used on the ground”, adding that “when we think about the AAFF’s human resources, we think about non-specialised labour, that is, we think about simple tasks that don’t require advanced technical skills” such as surveillance. He stresses that “these are the AAFF’s main areas of action in combatting rural fires, one because public agencies lack engineering capabilities [...] and the other by providing human resources”.

In light of the shortage of volunteers for CP roles, the “supplementary role of the AAFF should be made permanent” and the AAFF should take a more active role in knowledge development for the CP system. The AAFF will play a greater role in information management and decision-making support to the CP, as “they have information systems at their disposal,

and are accustomed to having to compile a lot of information from a variety of sources” (R. M. Almeida, op.cit.).

The Commander of the Fire Department Company Sappers of Setúbal (P. C. Lamego, face-to-face interview, 29 April 2019) states that the AAFB should continue to participate with engineering capabilities, but that this should be done “on a permanent basis”. Military communications must be “prepared in case the national system collapses” because that is “our⁴ core business, we don’t have to make it up as we go along, we just take our command posts and equipment, go into the field and say here it is”.

P. C. Lamego (op.cit.) reports that “the personnel on the ground often need a logistical base and food” because “firefighters are the simplest folk you can find, all they want is good food, a shower and a little rest, then off they go again”. The AAFB play an important role in this support because they have the capacity to do so, for example, by setting up water purification stations.

However, while “everyone is grateful and everything works without a hitch”, the AAFB should be prepared “for disasters, not only for the events that happen every year”.

By employing military personnel in mop-up operations “we are diverting military personnel to do jobs that are not theirs”, which involve “entering a dangerous terrain without the proper training, experience, equipment or knowledge of how to escape” because “mop-up operations are actually firefighting operations”. That is, if they “want to do it, they can, and they do help, but they are stepping out of their comfort zone” (Fr. C. Lamego, op.cit.).

P. C. Lamego (op.cit.) recognises that “no one trains fire commanders” and that, despite their personal qualities, there is a lack of doctrine and of a common training process. Therefore, there is a need “to give future fire commanders some basic training in command, control and doctrine”. This is “a type of support that the AAFB can provide” because they have the necessary “resources, knowledge and infrastructure”. A possible training model could include future commanders “spending a year or two together learning the same doctrine, in the same school”.

The CEIPC chairman (D. N. Caldeira, face-to-face interview, 17 May 2019) states that logistics “are the main shortcoming in the response structure of the civil protection system”. Therefore, the AAFB should have an increased role, as the use of “not only the resources but also the doctrine that the AAFB have at their disposal, as well as their organizational procedures and operational logistics, can significantly improve the conduct of operations”.

The use of AAFB personnel in mop-up operations “is (...) a negative factor in terms of human resource management”, as the young people who join the AAFB have a different motivation and felt that “they were being betrayed because they were told to do a job that did not meet their expectations”. Therefore, “it is necessary to reduce the missions” assigned to the AAFB, such as mop-up operations and other “tasks that end up being perceived as demeaning or secondary, and which require some degree of motivation” (D. N. Caldeira, op.cit.).

⁴ Authors’ note: Paulo Lamego is a Lieutenant Colonel in the Portuguese Army and is therefore referring to the AAFB.

When asked if the AAFB could be used in a different capacity, the interviewee acknowledged that “the civil protection system has gaps that can be easily overcome using the AAFB’s doctrine and organizational capacity”. These gaps include staff training, an area “where the AAFB have a great deal of experience, and where they can be a relevant partner”, particularly with regards to general staff and “operational command in civil protection operations”. In regards to general staff, he stresses that “practically all major failures (...) of large CP operations, especially those involving forest fires, can be explained by a lack of general staff roles in the command posts”.

Therefore, “the AAFB staff should be involved in the training of civil protection staff” to “enhance the skills and knowledge of the civil protection agents and people involved in crucial missions”, and there are “many possible avenues of cooperation, which should be explored in a more structural and structured manner” (D. N. Caldeira, op.cit.).

The interviewee considers that “there is a need to create a disaster and emergencies management speciality in the AAFB, which would cover all regular military training in addition to this specialisation”, especially at the level of “strategic management, for which military personnel are particularly qualified”, noting that it would be a matter of training specialised AAFB staff to fight “a different kind of war, the kind created by natural disasters or calamities” (D. N. Caldeira, op.cit.).

The GIPS Commander (R. A. Veloso, face-to-face interview, 20 May 2019) points out that since “a large part of the tasks carried out by the AAFB involves patrolling and surveillance, there is a need to improve the coordination on the ground” between the AAFB and the GNR.

The AAFB can improve the CP system in areas such as communications and logistic support, and should be employed “in a supplementary manner or when the CP structure collapses because the AAFB have sufficient capabilities and know-how at their disposal to work in overlap” (R. A. Veloso, op.cit.).

The AAFB “have bulldozers that can be used in indirect attack operations”, however, “they should work in coordination with the sector commanders because knowing how to operate the machines is not enough, they must be used” in a way that is appropriate to the TO. The interviewee stressed that “the issue of logistic support is vital because at this time, Portugal does not have a structure”, that is, “if the civil system were to break down, the AAFB have the capabilities to provide that support”. However, the AAFB “should be used as a reserve system, not as first responders”.

When the size of an event or the occurrence of several simultaneous events leads to shortage of firefighting capabilities, the AAFB can provide crucial assistance in the mop-up and vigilance phase. So far, the “intervention of the AAFB has been exemplary” (R. A. Veloso, op.cit.).

The District Operational Commander of Setúbal (E. L. Oliveira, face-to-face interview, 21 May 2019) stated that “all decision support tools, charts and geospatial referencing systems used by the military in CP operations play an important role in providing decision support in complex situations”.

The AAFB’s engineering capabilities can be used in several activities that range from “prevention, such as digging firebreaks or improving roads”, to indirect firefighting

techniques with the use of “bulldozers to perform various manoeuvres”, to mop-up operations (E. L. Oliveira, op.cit.).

The AAFF have “significant logistical resources that can play an important role in sustaining complex operations”, therefore, their use should not be ruled out.

Furthermore, “command staff should receive theoretical and professional preparedness training through a specific course in an academy”. The interviewee believes that “the AAFF’s theoretical knowledge in the art of command, leadership, training and preparedness makes this cooperation crucial” and that “it will certainly happen in the future” (E. L. Oliveira, op.cit.).

E. L. Oliveira (op.cit.) states that “awareness raising and educating the population about civil protection is another area in which the AAFF can participate”. He believes that “often, the awareness-raising actions of the GNR and other CP agents no longer have the desired effect” because they are carried out by the same agents that “issue fines and penalties”. That is, “if service members, who do not have policing roles, approach the populations, their willingness to participate and their attitude could be different”.

4.2. AAFF capabilities that can address the identified gaps

The plans that each Branch has drawn up to provide support in rural fires were analysed using the analysis model. This involved comparing the identified gaps to the tasks and activities listed in these plans. Having analysed the data, interviews were conducted with a representative from each branch, which served to collect further data on the capabilities that can meet the identified gaps, thus achieving SO2.

A structured interview was delivered to the interviewees to identify possible avenues for collaboration that emerged in the previous interviews. This was done because the categories had already been identified, and to look for specific answers on topics not covered by the Branch plans (SQ2).

4.2.1. Plans

The Navy plan that defines the procedures for supporting firefighting operations states that these tasks can consist of “patrolling, dissuasive surveillance, prevention, detection, mop-up operations and post-fire surveillance”. The Navy digs firebreaks using non-mechanical tools, conducts search and rescue operations, and provides equipment and logistical support to operations and affected populations (including production and distribution of food and supplies, such as medicine, water and fuel). It also provides temporary lodging (tents and spare rooms in the barracks), sets up emergency camps, refurbishes basic infrastructure and provides technical support. This support is carried out “using the means available and depending on the type of requested support” (IT 02/18, 2018).

The Army plan for emergency military support covers the following intervention activities: command, control and communications; engineering capabilities (firefighting and mop-up operations and infrastructure rehabilitation); medical and health support; psychological support; food safety; handling of small animals; logistic support to operations

and populations by providing equipment (barracks equipment, generators and water tanks), food and medicine, water, and fuel; provision of temporary lodgings (barracks or tents); vehicle maintenance and repairs; evacuation of affected populations; ground reconnaissance in the context of fire prevention, “which can consist of education the population, patrolling, surveillance, prevention, detection, mop-up and rekindling detection”; emergency charts (production and distribution) and geospatial analysis to support decision making; and firefighting support (EME, 2018).

The PoAF plan for CP operations (which does not cover air assets) states that this branch provides logistic support, land vehicles to transport cargo and people and engineering equipment (bulldozers) (EMFA, 2018).

4.2.2. Interviews

In addition to confirming the capabilities covered in the plans, the interviewees assessed their respective branch’s ability to meet the gaps identified in the previous section. The following section presents the main conclusions drawn from the interviews.

The Head of the Operations Division of COMNAV (J. M. Galocha, e-mail interview, 28 June 2019) states that “the Navy can assist in planning and preparing activities in coordination with the CP agencies”, and that “it can provide decision-making support through the use of charts and geospatial and information systems”.

When asked if the Navy can assist in fuel management and inspection operations, he stressed that the branch can support the security forces in monitoring activities on a permanent basis, however, this cannot “interfere with the Navy’s main tasks”. However, he argues that the Navy’s mechanised assets should not be used in fuel management activities and in improving access points and water points (J. M. Galocha, *op.cit.*).

The Navy can collaborate in surveillance and detection activities, as well as a deterrent presence. It can also “provide communications support, especially in coastal areas”.

J. M. Galocha (*op.cit.*) believes that the Navy can increase its logistic support role, particularly in providing food and water treatment services. With regards to mop-up and rekindling detection, the Navy has the necessary capabilities and “its personnel are trained and have appropriate equipment”. While the Navy has the capabilities required to support populations in evacuation situations and protect settlements, it “does not have engineering” capabilities (J. M. Galocha, *op.cit.*).

However, it can participate in awareness-raising actions to educate the population about wildfires. By capitalising on the “operational experience acquired living aboard the naval units”, the Navy can support the CP system in the production of doctrine and organizational guidelines and provide command and leadership training to CP staff. He concludes that “the Navy should enhance its participation in certain CP roles rather than take on a permanent role” (J.M. Galocha, *op.cit.*).

The Deputy Commander of the CFT G9 (S. M. Trindade, face-to-face interview, 26 June 2019) states that the Army can assist in planning and preparedness by “producing charts of critical areas and providing specialised staff for engineering, exercise planning or patrolling and surveillance activities”. The Army can also contribute with “charts and

geospatial and information systems". The "Army Geospatial Information Centre can produce charts (using scales that are not widely available) of critical areas and buildings, or identify potentially affected areas, flooded areas, no-go areas, among others" and can also "monitor the movements of the intervention modules using its proprietary geospatial referencing software".

The interviewee is confident that the Army can conduct monitoring activities on a permanent basis and provide more engineering capabilities for fire prevention and firefighting operations. S. M. Trindade (op.cit.) recalls that the Army actively participates in surveillance activities at the request of the municipalities, the ICNF and the ANEPC, and that this participation can be enhanced. That is, "regarding human resources, the main problems arise when there are last-minute requests" and that solutions such as the one implemented in 2019 (the Army received 23 vehicles for this mission) "have improved conditions both in terms of equipment and communications".

The Army can provide communications support by "using its SIC-T modules to re-establish communications when the systems used by other civil protection agencies fail, as this has been covered in several exercises" or by "setting up a military communications network that can be used by civil protection agents" (as of yet, no exercises have been held to train for the latter) (S. M. Trindade, op.cit.).

"It has enough trained and certified personnel" to participate in mop-up and rekindling detection operations, and that personnel is both "trained and has the appropriate equipment", including PPG and hand tools (S. M. Trindade, op.cit.).

The Army can provide logistical support, including food preparation and distribution, water treatment services, and engineering support, which it has done in the past. This support can be expanded to evacuated populations, as well as to the protection of settlements, as "our training exercises include evacuating people and goods to emergency camps".

"The Army can provide command and leadership training to CP staff, [...] because we do it daily and our training and habits are based on those command and leadership features". He adds that "the Army could have more CP roles" such as "helping coordinate CP operations". Furthermore, the Army has a "presence across the national territory and among the population, a mission to defend the population, and a positive image with the population" which it can put to use by "taking on permanent CP and awareness raising roles" (S. M. Trindade, op.cit.).

The Head of the COMNAV Operations Division (J. M. Galocha, e-mail interview, 28 June 2019) clarifies that the Navy can assist in planning and preparing activities in coordination with the CP agencies, and that it can provide decision-making support through the use of "charts, geospatial referencing and information systems", however, "it does not develop those charts and geospatial referencing systems".

A. D. Oliveira (op.cit.) acknowledges that the PoAF "does not have the capacity to assist the security forces by conducting permanent year-round monitoring operations" because "it does not have enough human resources to conduct patrolling actions in a sustainable manner". It also "lacks the capacity to provide more mechanised resources" for fuel

management activities, something that may change if an “additional bulldozer is procured to ensure sustained capacity”, as the “current capabilities are only enough for emergency support, or for occasional operations that cannot last for more than one / two weeks” in the other types of work.

Another shortcoming lies in the use of the PoAF in surveillance and as a deterrent presence, as “it does not have the ground assets required to provide human and material resources”. However, the PoAF can provide communications support when needed (A. D. Oliveira, op.cit.).

Although the PoAF does not have the capacity to “prepare and distribute food”, it can provide other services such as “water treatment and engineering support, both at the level of indirect combat and in clearing roads and removing obstacles, as well as small construction operations”, as well as “provide generator sets to supply electrical power” (A. D. Oliveira, op.cit.).

Due to a shortage of resources, the PoAF cannot play a larger role in mop-up and rekindling detection operations. When asked if the PoAF can be used to support affected populations, the interviewee answered that the PoAF can provide “aeromedical evacuations, psychological support, and support to medical teams” (A. D. Oliveira, op.cit.).

However, the Navy “cannot participate in awareness-raising activities” because to do so it would “have to be prepared to conduct land patrols, which is not one of its areas of action, nor are there plans to move in that direction”. However, it can help convey the message during its own awareness-raising activities.

A. D. Oliveira (op.cit.) believes that the PoAF can support the CP system by developing doctrine and organizational procedures and by providing command and leadership training, particularly “in the use of air assets, with special focus on air coordination” “from a military and aeronautical perspective”.

If the AAFB have an increased role but this role remains supplementary “this does not justify changing the current situation other than to improve coordination and reinforce some dual-use capabilities”. However, in order to participate in a specialised capacity, the AAFB “will have to readjust to accommodate a joint permanent structure that can implement all phases of the DUPC in a consistent manner” (A. D. Oliveira, op.cit.).

4.3. Analysis of identified gaps and the AAFB capabilities that can mitigate them

Table 1 summarises the gaps that have been identified (answering SQ1) and the existing capabilities that can address them (answering SQ2). The table presents the list of gaps (according to SO1) alongside the activities that are already developed by the AAFB, as well as those that may be developed immediately or in the short term (identified in SO2). By comparing both lists, the study identified the areas where the AAFB can intervene to enhance their participation in combating rural fires.

Table 1 – Overview of gaps and opportunities for intervention

	Gaps		Opportunities
	Framework	Interviews	AAFF
Planning	<ul style="list-style-type: none"> – Improving the planning and preparation of activities carried out in coordination with other agencies 	<ul style="list-style-type: none"> – Providing decision-making support by producing charts and using geospatial referencing and information systems 	<ul style="list-style-type: none"> – Support in planning and preparedness – Support in command, control and communications – Geospatial analysis for decision making, risk assessment and firefighting operations – Producing and distributing emergency charts
Prevention – Fuel Management and Inspection	<ul style="list-style-type: none"> – Regulating and improving the way the AAFF participate in prevention and firefighting activities – Possible support to the security forces in monitoring activities – More frequent use of mechanised assets – Greater support in building and maintaining fuel management lanes and access points – Surveillance operations in coastal areas 	<ul style="list-style-type: none"> – Engineering support (opening fuel management lanes, clearing roads and improving water points) 	<ul style="list-style-type: none"> – Permanent support to Security Forces activities – Using mechanised assets for fuel management, building and maintaining fuel management lanes and access points, and improving water points. These capabilities are maxed-out and cannot be increased – Digging firebreaks with non-mechanical tools
Post-fire suppression	<ul style="list-style-type: none"> – Communications support – Reconnaissance – Increasing patrolling, surveillance and detection 	<ul style="list-style-type: none"> – Increasing deterrent presence, surveillance and patrolling – Providing communications (supplementary system) 	<ul style="list-style-type: none"> – Providing communications support – Conducting surveillance, detection and deterrence operations (difficult when requested at short notice)
Suppression – CAA	<ul style="list-style-type: none"> – Using AAFF capabilities (vertical construction, health support and bulldozers for indirect attack) – Logistical support to operations and populations (preparing and distributing meals, setting up facilities for resting and bathing, supplying power, lighting and water collection and treatment services, and supplying fuel) – Educating personnel about the possibilities and limitations of military and engineering equipment – Ensuring that hand tools are used along with bulldozers 	<ul style="list-style-type: none"> – Logistic support – Water purification support – Improving coordination in the use of bulldozers 	<ul style="list-style-type: none"> – Logistic support (food preparation and distribution, water treatment services and engineering support) – Refurbishing basic infrastructures and providing technical support

Suppression – Mop-up	<ul style="list-style-type: none"> – Participating in mop-up and rekindling detection operations – Improving the use of hand tools and the motivation of military personnel to participate in mop-up operations 	<ul style="list-style-type: none"> – Mop-up platoons – Providing appropriate training and equipment for the personnel involved – Engineering support with bulldozers 	<ul style="list-style-type: none"> – Conducting mop-up and rekindling detection operations using trained personnel with appropriate equipment (PPG and hand tools) – Support with bulldozers
Handling of Social and Environmental Emergencies	<ul style="list-style-type: none"> – Support to evacuation operations – Extending participation to the protection of settlements and support to evacuations 	–	<ul style="list-style-type: none"> – Psychological support – Support in handling small animals – Logistic support to the population by providing equipment (barracks, generators and water tanks) and food, medicine, water and fuel – Providing transportation for evacuations – Providing temporary accommodation (buildings or tents)
Common to the DUPC / HEFESTO	<ul style="list-style-type: none"> – Improving coordination between the AAFF and the ANEPC – Improving command and leadership in the conduct of operations – Decision-making support and fire analysis 	<ul style="list-style-type: none"> – Participating in awareness-raising actions – Supporting the CP system by developing doctrine and organizational guidelines – Providing training to CP staff (command and leadership) – Making the AAFF's supplementary role permanent – Enhancing the role of the AAFF in the CP system – Setting up a specialised emergency response unit in the AAFF 	<ul style="list-style-type: none"> – Conducting awareness-raising activities to educate the population – Supporting the CP system by developing doctrine and organizational guidelines – Supporting training for / training CP staff in command and leadership – Enhancing participation in CP activities – Taking on a permanent role in the CP system
	SQ1		SQ2

Analysing the answers to the SQ provided an answer to the RQ. The AAFF can enhance their role in combating rural fires by adopting the following measures.

In regards to Planning, when reformulating their participation in the plans, the AAFF should improve their integration. Another proposed measure is to support the CP system through the use of decision-making support tools (charts, geospatial referencing and information systems). The AAFF can provide this support by producing and distributing emergency charts. These capabilities can also be used to support decision making in the remaining executive procedures.

Although the DUPC does not assign Prevention - awareness raising tasks to the AAFF, this type of support could have positive results. While AAFF can provide this support, the military personnel involved must be given additional training.

In regards to Prevention - fuel management and inspection, there is a need to regulate and

enhance the use of military engineering capabilities (improving fuel lanes, access lanes and water points). However, due to a shortage of equipment, this measure may prove difficult to operationalize. Another recommendation is to use AAFF personnel in monitoring activities to support the Security Forces (providing that the AAFF have the resources to do so).

With regard to Pre-Fire Suppression, in addition to the tasks defined in the DUPC, the AAFF can assist by providing supplementary communications support. The study also identified the need for increased patrolling and surveillance for detection and / or deterrence purposes. The AAFF can provide this type of support, however, due to human resource constraints, the requests for intervention should preferably be made ahead of time.

The AAFF should expand their current roles in the Fire Suppression – CAA process. However, the training given to the operators and the coordination when bulldozers are used should be improved. All sources agree on the need to significantly increase logistic support for ongoing operations. The study found that committing more engineering resources may prove difficult due a shortage of these resources in the AAFF. However, the AAFF can play a greater role in logistic support, including basic infrastructure rehabilitation.

As for Fire Suppression - mop-up operations, the AAFF should continue to provide bulldozers, mop-up platoons, and forces to conduct post-fire surveillance. However, the AAFF must have appropriate equipment, and the training and motivation of the military personnel involved in these operations must be improved. At this time, the AAFF consider that their personnel have the appropriate training and equipment, therefore, the identified gap has already been addressed.

Regarding the handling of social and environmental emergencies, the AAFF should be involved in supporting populations during evacuation operations (including the actual evacuation), and its role should be extended to the protection of settlements. The AAFF can distribute barracks equipment, medicine and fuel, prepare and distribute food, and provide water collection and treatment services. The AAFF can also provide temporary lodgings (using spare rooms in the barracks or setting up tents). Other specialised support may also be available, such as psychological support and handling small animals.

While this does not directly relate to any of the DUPC executive procedures, the study identified the need to improve coordination between the AAFF and the other agencies in the system. One way to operationalize this is to provide specialised CP training to some military personnel, handling CP as if it were a type of warfare.

The AAFF should also be used to improve the CP decision-making process. The support provided by the AAFF should include decision support tools. However, its main focus should be on supporting the production of doctrine and providing command and leadership training to CP personnel, particularly ANEPC and firefighting personnel. The AAFF have asserted that they have both the ability and the desire to play a relevant role in addressing this gap.

The study revealed that the AAFF should take on a larger role in the CP system, and may even play a permanent, non-supplementary role in some cases. Furthermore, while the AAFF have the required capabilities, some of those capabilities may have to be enhanced.

5. Conclusions⁵

After 2017, Portugal began readjusting its procedures for dealing with the scourge of wildfires. These readjustments included the implementation of the SGIFR, the transformation of the ANPC into the ANEPC (with the introduction of a new land division method) and the redefinition of the tasks assigned to some of CP agencies. The AAFF, as a CP agent, but also as a result of their constitutionally defined mission of collaborating in “tasks concerning the fulfilment of basic needs and the improvement of people’s quality of life”, are naturally affected by these changes.

The study that this article was based on drew on the analysis of legal documents and directives that address the topic (the DUPC, the HEFESTO plan, the DON2, and the LBPC, among other documents). The data that provided an answer to SQ1 (In what areas can the Armed Forces take on a greater role in combatting rural fires?) was collected from the CTI1, CTI2 and CEIF reports on the 2017 forest fires and by the OTI reports on the Monchique fire (2018), as well as from the CP system for combating wildfires. This data was supplemented by interviews with experts (the 2nd National Commander of the ANEPC, the EMGFA Liaison Officer to the ANEPC, the ICNF Head of Division, the Commander of the Fire Department Company Sappers of Setúbal, and the Chairman of the CEIPC, the GIPS Commander and the Setúbal CODIS). To answer SQ2 (What are the AAFF capabilities that can address those gaps?), the CP plans developed by the AAFF were analysed, and three officers were interviewed (one from each branch). As these officers were involved in planning their respective branches’ CP activities, they were able to describe the AAFF capabilities that can be used to address the identified gaps. Finally, the answers to both SQs were combined, providing the answer to the RQ and achieving the study’s GO.

The findings provided an answer to the RQ (How can the Armed Forces take on a greater role in combating rural fires?) and suggested measures to enhance that role, thus achieving the GO. Therefore, the Armed Forces can take on a greater role in combating rural fires by:

- Continuing to participate as they have until now, improving coordination and increasing logistic support, and assessing the possibility of providing communications support;
- Educating the population, both during surveillance and patrolling or during awareness-raising actions;
- Providing joint command and leadership training for CP staff;
- Taking on more CP roles, such as prevention and awareness-raising activities, possibly on a permanent basis in some cases;
- Developing doctrine and organizational guidelines in collaboration with CP agencies;

This article’s contributions to knowledge are the list of gaps identified in the national system for combating wildfires, with special focus on the gaps that can be met by the AAFF. Furthermore, the study revealed that the AAFF have both the desire and the capabilities to mitigate these shortcomings. That is, by identifying opportunities to use capabilities that are inherent to the AAFF to improve the system, such as know-how and experience in command and leadership, organizational procedures, and doctrine development.

Naturally, operationalizing these measures will require future studies to examine the

⁵ After this article was finished, the Independent Technical Observatory (January 2020) published an *Assessment Report on the Fundada Fire* (Vila de Rei - Mação), which in no way changes the conclusions of the study.

different forms of support that the AAFF can provide. These studies should also assess the feasibility, acceptability and suitability of the proposed measures, as the present study is a theoretical work, and the opinions of the interviewees do not obligate their respective institutions to take any measures.

The interviewees had a common connection to the Setúbal district, which may have influenced the findings, as other districts may require different AAFF capabilities.

Future studies should look at how to best provide communications support, how to improve logistic support, and the benefits / downsides of both expanding the CP roles of the AAFF and making those roles permanent. Another question that remained unanswered concerns the emergency military support that would best fit the AAFF (“individualising” the participation of the branches as opposed to the use / establishment of a Joint Force).

References

- Air Force General Staff. (July 2018). *Participação da Força Aérea em ações de Proteção Civil*. [Participation of the Armed Forces in civil protection tasks.] Lisbon: Air Force Staff.
- Armed Forces General Staff. (2018). *Plano HEFESTO*. [Plan HEFESTO] Lisbon: Armed Forces General Staff.
- Armed Forces General Staff. (2018a). *Diretiva Operacional n.º 32/2018 - Participação das Forças Armadas em ações de proteção civil*. [Operational Directive No. 32/2018 - Participation of the Armed Forces in civil protection tasks.] Lisbon: Armed Forces General Staff.
- Army General Staff. (June 2018). *Plano de Apoio Militar de Emergência do Exército*. [Army Emergency Support Plan] Lisbon: Army General Staff.
- Constitutional Law No. 01 of 12 August. (2005). *Seventh Constitutional Revision Diary of the Republic - 1st Series - A, 1, 4642 - 4686*, Lisbon: Assembly of the Republic.
- Costa, D. M. (2015). *As Forças Armadas em apoio à proteção em caso de catástrofe (Individual Research Paper, Joint Staff Course)*. Lisbon: Institute of Higher Military Studies.
- Council of Ministers Resolution No. 20 of 01 March (2018). *Diretiva Única de Prevenção e Combate* [Single Directive on Prevention and Combat] Diary of the Republic, 1st Series, 43, 1132 - 1141, Lisbon: Presidency of the Council of Ministers.
- Council of Ministers Resolution No. 157-A. (2017). *Aprova alterações estruturais na prevenção e combate a incêndios florestais* [Approves changes to the wildfire prevention and suppressions structure], pp. 5818-(2) to 5818-(5). Diary of the Republic No. 208, 1st Supplement, 1st Series, 27 October . Lisbon: Presidency of the Council of Ministers.
- Decision No. 1553 of 13 February. (2015). *Unidades orgânicas flexíveis da Autoridade Nacional de Proteção Civil*. [Flexible Organic Units of the National Authority for Civil Protection.] Diary of the Republic, 2nd Series, 31, 4125 - 4133, Lisbon: Ministry of Internal Administration - National Authority for Civil Protection.
- Decree-Law No. 12 of 16 February. (2018). *Agência para a Gestão Integrada de Fogos Rurais, I. P.* [Agency Integrated Rural Fire Management, P. I.] Diary of the Republic, 1st series, 34, 990 - 995, Lisbon: Assembly of the Republic.
- Forest Fire Research Centre (2017). *O Complexo de Incêndios de Pedrógão Grande e Concelhos Limítrofes, Iniciado a 17 de junho de 2017*. [The fire complex of Pedrógão Grande and neighboring municipalities, Report initiated on 17 June 2017] Coimbra: University of Coimbra.

- Forest Fire Research Centre (2019). *Análise dos Incêndios Florestais Ocorridos a 15 de Outubro de 2017*. [Analysis of the forest fires of 15 October 2017] Coimbra: University of Coimbra.
- Haro, F. A. (2016). *Investigação em Ciências Sociais - Guia Prático do Estudante* (1st Ed.). Lisbon: PACTOR.
- Independent Technical Committee 1. (2017). *Análise e apuramento dos factos relativos aos incêndios que ocorreram em Pedrogão Grande, Castanheira de Pera, Ansião, Alvaiázere, Figueiró dos Vinhos, Arganil, Góis, Penela, Pampilhosa da Serra, Oleiros e Sertã entre 17 e 24 de junho de 2017*. [Analysis and discovery of facts relating to the fires that occurred in Pedrogão Grande, Castanheira de Pera, Ansião, Alvaiázere, Figueiró dos Vinhos, Arganil, Góis, Penela, Pampilhosa da Serra, Oleiros and Sertã between 17 and 24 June 2017.] Lisbon: Assembly of the Republic.
- Independent Technical Committee 2. (2018). *Avaliação dos incêndios ocorridos entre 14 e 16 de outubro de 2017 em Portugal Continental*. [Report on the fires that occurred between 14 and 16 October 2017 in mainland Portugal.] Lisbon: Assembly of the Republic.
- Independent Technical Observatory. (December 2018). *Avaliação do sistema nacional de proteção civil no âmbito dos incêndios rurais*. [Report on the civil protection system for combating wildfires] Lisbon: Assembly of the Republic.
- Independent Technical Observatory. (May 2019). *Avaliação do incêndio de Monchique*. [Report on the Monchique fire.] Assembly of the Republic.
- Isabel, P. M. (2018). *A Articulação entre as Forças Armadas e os Agentes de Proteção Civil (Individual Research Work)*. Lisbon: Military University Institute.
- Law No. 80 of 3 August. (2015). *Segunda alteração à Lei n.º 27/2006, de 3 de julho, que aprova a Lei de Bases da Proteção Civil*. [Second ammendment to Law No. 27/2006 of 3 July, which approves the Basic Law on Civil Protection.] Diary of the Republic, 1st Series, 149, 5325, Lisbon: Assembly of the Republic.
- Matias, L. J. (2013). *Articulação Operacional dos agentes de proteção civil em caso de catástrofe natural (Individual Research Work - Joint Staff Course)*. Lisbon: Institute of Higher Military Studies.
- Ministry of National Defence. (2014). *Missões das Forças Armadas*. [Armed Forces Missions] Lisbon: Ministry of National Defence.
- National Command for Relief Operations. (2019). *Dispositivo Especial de Combate a Incêndios Rurais*. [Special Device to Combat Rural Fires] Carnaxide: National Emergency and Civil Protection Authority.
- Rainha, J. (2013). *Forças Armadas: recursos logísticos de interesse dual (Individual Research Work - Joint Staff Course)*. Lisbon: Institute of Higher Military Studies.
- Ramalhete, J. M. (2010). *As Forças Armadas e a Protecção Civil no âmbito nacional e regional (Individual Research Work - General Officers Course)*. Lisbon: Institute of Higher Military Studies.
- Santos, L. A. B., & Lima, J. M. M. V. (Coords.) (2019). *Orientações Metodológicas para a Elaboração de Trabalhos de Investigação*. IESM Notebooks, 8. Lisbon: Institute of Higher Military Studies. Retrieved from: https://cidium.ium.pt/docs/publicacoes/CADERNO_8.pdf
- Temporary Order 02/18. (2018). *Apoio à ANPC no âmbito dos incêndios florestais*. Alfeite: Naval Command.