

IMPROVING THE EFFICIENCY OF THE VIETNAMESE POLICE FORCE OF FIRE PROTECTION AND RESCUE AT VARIOUS TYPES OF INCIDENTS AND NATURAL DISASTERS

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Purpose. Research of statistics of natural disasters in Vietnam and ways how to minimize human losses by improvement the effectiveness of rescue activities.

Methods. Statistical.

Findings. Proposals are presented to improve the effectiveness of rescue activities to minimize human losses in incidents and natural disasters.

Application field of research. Rescue activities for various types of incidents and natural disasters of the Vietnamese police force of fire protection and rescue.

Keywords: rescue operations preparation, natural disasters, Vietnam.

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Vietnam is a country with a coastline of about 3,260 km which stretches from North to South, with a narrow horizontal terrain and located in an area affected by many natural disasters of meteorological origin. Many natural disasters occur every year causing heavy damage to people and property. Under the impact of climate change in Vietnam, the natural disaster situation is becoming more and more complicated and showing signs of increasing, especially frequent storms, floods and fierce droughts. In recent years, extreme weather phenomenon has begun to increase and occur irregularly. Typhoons, landslides are some of the most dangerous natural disasters for many areas in Vietnam.

According to statistics in Vietnam in 2022, natural disasters occurred abnormally, extremely, and irregularly from the first months of the year and across the country, there were 1,057 natural disasters. Prolonged heavy rains in the North have caused landslides, flash floods in mountainous areas, urban flooding, industrial zones (March 4–6). Son La, Hoa Binh and Tuyen Quang reservoirs have had to operate flood discharge and maintain it for a long time. In the central region, 3 consecutive typhoons made landfall, and post-storm floods caused serious damage to people and property. Typhoon No. 4 (Noru) reached the strongest intensity, level 14–15, gust level 17, near super typhoon level in the South China Sea, rapidly weakened and made landfall in Da Nang, Quang Nam on September 28th caused heavy rain in the southern provinces of the Northern Plains and from Thanh Hoa to Quang Ngai. In particular, in Nghe An, the rain was very heavy 300–500 mm. At the same time, heavy rains after Typhoon No. 5 caused 3rd alarm floods on rivers from Quang Binh – Thua Thien Hue. Flooding was particularly severe, up to 1.5–2 m in Da Nang. High tide, combined with strong winds causing large waves of 1.5–2 m in the West Sea area caused overflow and landslides of the West Sea dyke, Ca Mau province. A lot of earthquakes occurred in a row in Kon Plong district, Kon Tum province. As of 28/12/2022, natural disasters have caused 175 deaths and losses; economic losses are estimated at VND 19,453 billion, 1.6 times higher than human losses and 3.4 times economic losses compared to the same period in 2021 [1].

According to the above statistics, the negative impacts of climate change in Vietnam have made all kinds of natural disasters more and more severe. This has set new requirements and duties for rescue forces, including the Fire & Rescue Police force. According to the provisions of Clause 1, Article 5, Decree No. 30/2017/ND-CP dated March 21, 2017 of the Government, stipulating that the Police force of fire prevention, fighting and rescue are specialized forces of the Ministry of Public Security for search and rescue [2]. On the other hand, in the Government's Decree 83/2017/ND-CP dated July 18, 2017, it is determined that the Fire & Rescue Police force is a permanent rescue force [3].

Facing the complicated developments of natural disasters, the Fire & Rescue Police force with its role and responsibility has actively and proactively implemented activities to respond to natural disaster situations. According to the statistics of the Ministry of Public Security of Vietnam, on average, every year, the Fire and Rescue Police forces of all local police have over 12,000 units of specialized vehicles and nearly 89,000 of cadres and soldiers directly organizing firefighting and rescue in 4000/6000 fires, incidents, accidents. The Fire and Rescue Police forces organize the guidance and save thousands of people, finding hundreds of bodies [4]. It has been shown that the organization of timely rescue activities in emergency situations of natural disasters and incidents has made an important contribution to protecting people's lives and minimizing damage to people and property. However, in the process of performing their duties, the Fire & Rescue Police force also encountered some difficulties and limitations, specifically as follows [5].

– Vehicles, equipment for rescue work of the Fire & Rescue Police force is still not synchronous, lacking in quantity that does not meet the requirements of rescue work when discharging incidents and disasters. The Fire & Rescue Police force has the shortage of number of officers and soldiers directly doing firefighting, rescue, does not meet practical requirements and experience in responding to incidents and natural disasters is limited.

– Deploying rescue in some situations of incidents, natural disasters (landslides, floods, collapses) still revealed many limitations and shortcomings. The coordination between the Fire & Rescue Police force and other units in rescue activities is limited when incidents or natural disasters occurred.

– In addition, the issue of climate change in Vietnam is and will be increasingly complicated, causing great damage to people and property. According to the forecast of the Ministry of Natural Resources and Environment of Vietnam, in the coming time, climate change in Vietnam will be more complicated. The average annual degree nationwide in the middle of the century has an increase of 1.3–1.7 °C. Storms are very strong and tend to increase. Rain during the period of monsoon activity has up trend. The number of hot days (the highest temperature days in $T_x \geq 35$ °C) grows over most of the country. The average sea level rise in Vietnam's coast is likely to be higher than the global average. The average sea level rise for the entire coastal strip of Vietnam by 2050 is 22 cm (14–32 cm) [6].

Thus, it can be seen that the extreme impact of climate change in Vietnam becomes increasingly complicated, leading to a sharp rise in the number of natural disasters formations (such as landslides, collapses of houses, buildings, floods, large fires) causing serious damage to people and property. This showed significant challenges for the Fire & Rescue Police force in responding and dealing with incidents and natural disasters that may occur in Vietnam.

In order to improve the effectiveness of rescue for various types of incidents and natural disasters, the Fire & Rescue Police force needs to focus on the following 5 issues [7].

Firstly, to focus on building up a regular, elite and modern force of fire prevention and rescue; strengthening the organization and apparatus of the fire protection and fire protection forces, ensuring the number of troops and professional qualifications of rescue force to meet the practical requirements set out in the rescue progress for all types of incidents, natural disasters. In addition, by the support of the Ministry of Public Security, the Government and the National Assembly it is promulgated and completed the legal basis for response to criminal incidents and natural disasters of the Fire Protection Police force, it is ensured that the regime and policies are suitable to the specific work of the Fire & Rescue Police force in rescue activities.

Secondly, to ensure the permanent regime of rescue 24/24 h, receive and process information in a timely and accurate manner; ensure the number of troops, vehicles and equipment of rescue for permanent participation; to strengthen the training of rescue operations, especially thoroughly, rescue tactics in situations of incidents and natural disasters that often occur in Vietnam such as floods, landslides, collapse of works, etc. At the same time, to focus on developing response and handling plans for various types of incidents and natural disasters that often occur in

localities. Annually organize rehearsal plans to respond to and handle all types of incidents and natural disasters, thereby helping the Fire and Rescue Police force to be proactive in responding to all kinds of incidents and natural disasters in Vietnam.

Thirdly, to organize effective rescue activities at the scene. The fire protection police force needs to quickly dispatch rescue forces and vehicles to the scene. For major incidents and natural disasters, it is necessary to establish a command board and staff to command and administer rescue activities with high efficiency. To organize reconnaissance activities to promptly capture information about the situation at the scene on the basis of which appropriate methods of rescue are chosen. To organize field zoning to ensure that rescue activities are convenient and achieve the highest efficiency. To deploy quickly appropriate rescue measures, techniques and tactics, combined with the use of modern specialized rescue devices and equipment to ensure efficiency in rescue activities for incidents and natural disasters. To establish a first aid area to conduct injury assessments and deal with injuries suffered by victims. To organize timely transfer of injuries, quickly take the victim to the nearest medical facility. At the same time the fire protection police force needs to closely coordinate with local authorities and other forces in the rescue, such as: military forces, mobile police forces, traffic police in search and rescue activities. To coordinate with medical forces in saving people using medical measures, organizing first aid for injured people.

Fourth, to focus on good political and ideological work, encourage morale for cadres and soldiers on rescue duty. At the same time, to ensure highly effective logistics for rescue activities. To arrange backup forces ready to perform tasks, provide food and water for officers and soldiers, temporary accommodation for rescue officers and soldiers. To ensure adequate preparation of backup rescue vehicles to replace vehicles operating with high intensity in the field. To provide enough fuel for specialized rescue vehicles and equipment (such as rescue vehicles, crane, motorcycles, excavators, hydraulic equipment, concrete cutters, etc.). To ensure current communications. In case rescue activities take place at night, where there is a lack of light, it is necessary to deploy appropriate lighting equipment for rescue activities at the moment;

Fifth, the Fire & Rescue Police force needs to carry out intensive research, transfer technology and apply scientific and technological achievements to actively producing search and rescue vehicles and equipment suitable to Vietnam's conditions. To strengthen international cooperation in order to enlist and take advantage of financial support, equipment, technology, capacity, rescue experience, thereby effectively deploying rescue activities for incidents and natural disasters. To invest in building material and technical facilities, building models for technical training, rescue tactics in situations of incidents and natural disasters. To equip cadres and soldiers doing rescue work with personal protective equipment; to procure modern rescue vehicles and equipment such as rescue vehicles, ladder vehicles, amphibious vehicles, chemical and radioactive rescue vehicles, and specialized rescue equipment. To apply modern technology in rescue operations for incidents and natural disasters.

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at various types of incidents and natural disasters**

**Повышение эффективности деятельности Вьетнамской полиции пожарной защиты
и спасения при различных типах инцидентов и стихийных бедствий**

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ПОВЫШЕНИЕ ЭФФЕКТИВНОСТИ ДЕЯТЕЛЬНОСТИ ВЬЕТНАМСКОЙ ПОЛИЦИИ ПОЖАРНОЙ ЗАЩИТЫ И СПАСЕНИЯ ПРИ РАЗЛИЧНЫХ ТИПАХ ИНЦИДЕНТОВ И СТИХИЙНЫХ БЕДСТВИЙ

Фам Вьет Тиен

Цель. Исследование статистики стихийных бедствий во Вьетнаме и пути минимизации человеческих потерь за счет повышения эффективности спасательных работ.

Методы. Статистический.

Результаты. Представлены предложения по повышению эффективности аварийно-спасательных работ для минимизации человеческих потерь при авариях и стихийных бедствиях.

Область применения исследований. Спасательные работы при различных типах происшествий и стихийных бедствий Вьетнамской полиции пожарной защиты и спасения.

Ключевые слова: подготовка спасательных операций, стихийные бедствия, Вьетнам.

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