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## FIRE FIGHTING AND RESCUE – LESSONS LEARNED OF VIETNAM

**Abstract.** Fires, explosions, incidents and accidents can happen at any time, anywhere, therefore, besides prevention, the organization of effective firefighting and rescue work is important households will make an important contribution to reducing loss of life and property. The article is based on analyzing and evaluating the results of firefighting and rescue work in Vietnam, from which, lessons learned in the organization of this work are drawn.

**Keywords:** Firefighting; rescue; Lessons Learned of Vietnam.

### 1. Make a problem

Like other countries in the world, in parallel with socio-economic development, the risk of fire, explosion, incident and accident is always potential. The prevention of fire, explosion, incidents and accidents is always a top priority, however, when a fire, explosion, incident or accident occurs, the research, organization and implementation are synchronous and effective the results of firefighting and rescue work will make an important contribution to saving lives, saving properties, preventing fire spreading and causing serious and especially serious damage. Therefore, the study of experience in this work organization has an important meaning in the combat practice of the fire prevention and fighting forces in the performance of their assigned tasks.

### 2. Practicality

#### 2.1. Situation of fire, big fire and incidents and accidents

– *Fire situation:* In the first 6 months of 2022, there were 848 fires nationwide (22 large fires, 397 medium fires and 429 small fires), killing 41 people, injuring 42 people, and causing damage to property estimated assets of 414.73 billion

VND and 40.87 hectares of forest. In addition, there were 1,778 incidents of short-circuiting of electrical equipment on electric poles, in people's houses and insignificant damage to grass, garbage and other scraps. Compared with the same period in 2021, the number of fires decreased by 306 cases (848/1,154 cases), 12 deaths (41/53 people), 35 injuries (42/77 people), and property damage increased 128.06 billion VND (414.73/288.67 billion VND). The number of big fires decreased by 02 cases (22/24 cases), property damage increased by 153.3 billion VND (332.2/196.9 billion VND) [1].

– *Situation of incidents and accidents:* In the first 6 months of 2022, there were 518 incidents and accidents nationwide (312 underwater rescues, 63 emergencies, traffic rescues, 12 overhead rescues, 03 rescues, construction collapses, 08 rescues in tunnels, deep wells, 03 landslides and 117 rescues other). Compared to the same period in 2021, information requesting rescue and rescue of incidents and accidents increased by 06 cases (518/512 cases) [1].

– *Big fire situation:* In the first 6 months of 2022, there were 22 major fires (22 cases

out of 2.626 fires and fire incidents, accounting for 0.84%); not cause damage to people; property damage was about 331.2 billion VND (331.2/414.73 billion VND, accounting for 79.86%). In which, the type of fire occurrence is the production, business and service establishments, there is no big fire in the type of household houses and forests. At the time of the fire, 09/22 cases occurred during the day, during working hours (accounting for 40.1%); 13/22 cases occurred at night, outside working hours (59.9%). No loss of life, damage to property was 31.2 billion dong [1].

In general, the fire situation in the first 6 months of 2022 decreased by both criteria (number of fires and human losses) compared to the same period in 2021. However, the fire situation was still concentrated in residential areas and houses single residences and houses in combination with production and business still have complicated developments (accounting for 46.75% of the total number of fires), there have been a number of fires that have caused serious damage to people and properties, interest comment. In addition, the number of fires at production, business and warehouse facilities accounts for a high proportion (accounting for 18.46% of the total number of fires). The areas and areas where the fires occurred are mainly in urban areas, localities with rapid economic development and urbanization, with many production and business establishments and concentrated residential areas.

Although the number of large fires has increased, compared to the required target, it is still ensured to control the rate of the number of large fires below 1% of the total number of fires. Large fires are concentrated mainly in localities with rapid economic and social development, with many industrial parks, many production and

business establishments, in which, the number of large fires occurs mainly in localities in South Vietnam (10/22 cases, accounting for 45.5%). The area where the fire occurred was mainly at production and business establishments interspersed in residential areas (accounting for 63.6%) and production and business establishments in industrial parks (accounting for 36.4%). The type of large fire that often occurs is mainly at establishments producing and trading inflammable items such as: Wood production and processing establishments; textile; plastic, paint, electronic components. The time when major fires occurred was mainly at night, outside working hours.

## **2.2. Results of firefighting and rescue work**

– *Professional training in firefighting and rescue and rescue:* The Police Department of Fire Prevention and Fighting and Rescue shall assume the prime responsibility for, and coordinate with the University of Fire Prevention and Fighting – the Ministry of Public Security of Vietnam in, researching and developing a draft of 20 training documents for firefighting and 10 training documents for rescue operations; completed 07 films of technical training, firefighting and rescue tactics. To guide the local police in formulating programs, plans, organizing training and inspecting firefighting and rescue operations for conscripts. Organized training to improve firefighting and rescue skills in 2022 for officers and soldiers. 100% of local police develop a plan to improve the effectiveness of training in firefighting and rescue operations. Maintained thorough training, tactics of firefighting and rescue, daily physical exercises for officers and soldiers, in which, some localities have organized additional training with appropriate contents with conditions and equipment of the unit such as: Using

new equipment and technology for firefighting; firefighting of adjacent houses and concentrated residential areas; firefighting in alleys, deep alleys, water shortage areas; high-rise building firefighting; ...

– *Standing work of readiness for firefighting and rescue:* Actively developing a plan and organizing a permanent inspection of readiness for firefighting and rescue on holidays and Tet at the police unit local authorities, thereby, promptly reminding and correcting limitations and shortcomings in the standing work of being ready for firefighting and rescue. Organize the inspection of the permanent work of the police of local units when taking place major events and national events. Monitor, guide and urge local police to seriously perform the work of standing ready for firefighting and rescue. Implement Circular No. 139/2020/TT-BCA dated December 23, 2020 of the Ministry of Public Security regulating the permanent work of firefighting and rescue of the People's Public Security force and guidance of the Department of Public Security Police of fire prevention and fighting and rescue and rescue – Vietnam's Ministry of Public Security, the standing work of being ready for firefighting and rescue and rescue is strictly maintained 24/24h as prescribed; assigning commanders and standing officers for firefighting and rescue and rescue with an average daily average of about 6.303 officers and soldiers and 2.324 firefighting, rescue and motorized vehicles of all kinds to be ready perform their duties when there is a fire, explosion, incident or accident. The police of the local units have strengthened the work of checking the readiness for firefighting and rescue, periodically and irregularly according to regulations; promptly issue documents to direct and correct shortcomings and limitations in standing work

for units and individuals that have not been seriously implemented.

– *The work of firefighting plans and rescue plans:* The Fire Prevention and Fighting and Rescue Police Department has guided the Police of 63 provinces and cities to survey and build 146 firefighting plans of the public security agency that mobilizes forces and means of firefighting and rescue and rescue of the police of many provinces and centrally-run cities to participate in firefighting and rescue, and submit it to the Chairman of the People's Committee of the province. Provincial people and the Minister of Public Security for approval according to regulations. In the first 6 months of 2022, the Ministry of Public Security has appraised and proposed the leadership of the Ministry of Public Security to approve 118/146 plans built by 48/63 local police (reaching 80.78% of the total number of plans). To fulfill the target of 2022, in the first 6 months of the year, the local police have registered to build and approve the firefighting plan of the police agency for 16.268 establishments at risk of fire and explosion. As a result, 12.839/16,268 plans have been developed and approved (reaching 78.9%) and organized to practice 2.302/2.506 firefighting plans of the police agency for facilities at risk of fire and explosion (reached 91.8%). Organized practice of 246/307 firefighting plans for residential areas with high risk of fire and explosion (reached 80.1%).

– *Organization of firefighting and rescue:* The Police force for fire prevention and fighting and rescue has mobilized a total of 4,302 turns of motorized fire fighting vehicles of all kinds and 26.637 turns of combat officers directly participated in fighting 750/848 fires; mobilized a total of 1.384 turns of vehicles and 8,207 turns of officers and soldiers to organize rescue of 785 / 1.778

fire incidents (accounting for 58.5% of total fires and fire incidents), the number of remaining fires and fire incidents was extinguished by the local forces and the people themselves (accounting for 41.5%). In addition, the whole force 1.179 turns of vehicles of all kinds and 7.203 turns of officers and soldiers directly participated in rescue and rescue for 518 incidents and accidents. Statistics show that, there are 02 fires requiring mobilization of forces and means of the neighboring local police according to coordination regulations; 17 cases must mobilize many forces and means of local agencies, organizations and households to participate in handling according to the plan of the provincial People's Committee. On average, one big fire requires 12.6 vehicles and 77.4 officers and soldiers, the average firefighting time of a big fire is about 6.6 hours. Through the evaluation results of firefighting and rescue, fire rescue shows that 95.7% of the cases are good and good; 4.3% of cases achieved the average score; no number of weak or poor cases. The process of organizing firefighting and rescue and rescue of fires, incidents and accidents, the fire prevention and fighting police force directly saved and guided the safe escape for 01 victims in fires, 259 people in accidents and incidents; found 301 victims' bodies, and at the same time guided thousands of people who were victims of fires and accidents and escaped safely; directly save and protect the safety of 435 houses and structures, directly save an estimated value of 236 billion VND and thousands of hectares of forest [1].

– *Lessons learned from fires, explosions, incidents and accidents:* According to statistics in the first 6 months of 2022, there were 419 fires and 518 incidents and accidents that are subject to a meeting to draw experience on a separate topic and send the organizational plan and report on

the results of lessons learned to the Fire Prevention and Fighting and Rescue Police Department according to regulations. Up to now, 416/419 fires and 467/518 incidents and accidents have been held to draw lessons; 182/185 records of management and monitoring of fire prevention and fighting activities have been copied and sent to the Police Department for Fire Prevention, Fighting and Rescue.

### **2.3. General assessment**

– *Advantages:* Legal documents in the field of fire prevention and fighting and rescue are increasingly being improved and improved. The work of monitoring, guiding and directing the professional aspects of firefighting and rescue is interested and focused. Organizing the work of standing ready for firefighting and rescue, 24/24h, directly receiving and processing information, maintained to ensure regulations; ready plans and plans to promptly mobilize and mobilize forces and means for firefighting and rescue; professional training has been gradually reformed and put into order; the organization of firefighting and rescue activities and learning from fire experiences have basically ensured the procedures and regulations; officers and soldiers with positive spirit, overcoming difficulties in deploying firefighting and rescue activities have been gradually raised, achieving many positive results. The above-mentioned achievements have contributed to curbing the increase in the number of fires, explosions, incidents and accidents, maintaining political stability, ensuring social order and safety, and effectively serving the community socio-economic development goals of the country.

– *Typical limitations and inadequacies:* Traffic systems in many places have not met the requirements of firefighting and rescue work.

Total number of roads for urban traffic, rural traffic, inter-regional traffic, etc. with a minimum width of 3.5m and a minimum height of 4.5m for fire trucks and ladder trucks to operate: 70.166/237.408 routes (accounting for 29.56%); the total number of junctions, intersections and corners that are not safe for fire trucks and ladder trucks is: 117.270/423.434, accounting for 27.69%; the total number of internal and internal traffic routes without parking for fire fighting vehicles is: 46.465/102.641, accounting for 45.27%; total number of roads, streets, alleys, alleys with platforms, platforms, barriers, roofs and roofs that obstruct the operation of fire engines; alleys and alleys with a depth of 200m or more: 35.561/260.464, accounting for 13.65%; the total number of unsecured bridges and culverts for fire trucks and ladder trucks to operate is: 14.276/30.890, accounting for 46.22%; the total number of establishments and residential areas with their entrances blocked by stakes and barriers; located in a small alley with a depth of 200m or more, fire trucks cannot access: 35.887/255.019, accounting for 14.07%; out of a total of 50.565 fire hydrants, the number of damaged or unrepaired water poles is 5.418, accounting for 10.7%; the number of water hydrants that can't get water (due to the end of the source, pressure, weak flow, ...) is 6.339 poles, accounting for 12.5%; There are 22.200 firefighting water tanks in the whole country, however, the number of tanks that can't get water is 6.865 tanks (accounting for 30.7%). There are 935 water intake wharfs, 288 water collection pits, of which 212 wharfs can collect water, 77 water collection pits fire trucks cannot collect water (accounting for 23.6%); There are 14.283 ponds, lakes, canals and ditches in the whole country, of which there are 6.023 ponds, lakes, canals and ditches (ac-

counting for 42.5%) fire trucks cannot get water, it is necessary to build water intake stations [1]. Some localities have not properly implemented the process of management, preservation and maintenance of fire-fighting and rescue vehicles, such as: Not discharging the bottom of the pump after firefighting and training; insufficient pressure of the respirator, the fire truck is damaged but there is no suitable replacement material, etc.; many fire-fighting and rescue vehicles have a service life of less than 10 years but operate stably, often having incidents or breakdowns; a part of cadres and soldiers have not yet mastered physical exercises, manipulating the use of fire fighting and rescue vehicles, are not proficient, have not followed the procedure, have exceeded the prescribed time; ... The selection of hypothetical situations in the plan of the police agency is still simple, not suitable for the scale and nature of the establishment's operations, especially those with high fire and explosion danger. The mobilization of many forces and means to participate in the situation in the plan has not been ensured as required; large fire situations, complicated developments involving the mobilization of forces and means of many agencies and organizations in the locality but not establishing a fire fighting command board as prescribed; ... The implementation of firefighting and rescue operations for a number of large-scale and complicated fires has not yet ensured the prescribed process and has not been effective due to the mobilization and mobilization of forces, vehicles are not timely, have not met the principle of maximum force and means in the area when there is a large-scale fire or complicated happenings; a number of fires have mobilized forces and means to fight fires that have not yet met regulations; the establishment of a reconnaissance team for a number

of fires with complicated developments does not guarantee at least 03 officers and soldiers to perform their duties.

– *Objective reasons:* The technical infrastructure conditions for firefighting and rescue and rescue have not developed synchronously, have not kept pace with the speed of socio-economic development, so they have not met the actual requirements off work. The assignment of responsibilities in the management and use of the fire prevention and fighting water supply system still overlaps, leading to the situation that the fire prevention and fighting water supply system is damaged and degraded long but there is no agency or unit responsible for remedying and repairing; Current physical facilities are limited and inadequate. Most of the barracks of the police units for fire prevention, fighting and rescue are currently not guaranteed and lack a uniform design; many barracks are degraded and have not been invested or repaired; many units do not have their own barracks or headquarters, have to share with other units or rent or borrow, so the facilities are not secure; The staff directly engaged in firefighting and rescue work in many units is still lacking, not meeting the requirements for performing tasks, leading to difficulties in arranging permanent positions, many units of combat officers and combatants have to be on duty continuously for many days, greatly affecting health.

– *Subjective reasons:* Party committees, some local authorities, and heads of facilities have not really paid attention to fire prevention and fighting, and rescue and upgrading in upgrading and renovating infrastructure floors, traffic, water sources for fire prevention and fighting; invest in infrastructure, arrange land fund, build barracks and equip facilities for units directly performing firefighting and rescue tasks. The construction of

the all-people movement for fire prevention and fighting and rescue and the implementation of the motto four on the spot in many places is still a formality, grassroots fire prevention and fighting teams and civil defense teams have not been maintained operation or operating efficiency is not high. The awareness and consciousness of a section of the head of the facility is still limited, not grasping the importance of the construction and practice of the plan, leading to the quality of the treatment plan meeting the requirements.

### 3. Lessons learned

– Completing a complete and appropriate legal system to meet practical requirements of firefighting and rescue, in which specific regulations on forces and means of firefighting and rescue are specified; commanding firefighting and rescue and rescue; organize firefighting and rescue activities; responsibilities of subjects in firefighting and rescue activities; regimes and policies when participating in firefighting and rescue activities; ...

– It is necessary to have the leadership and direction of the whole political system, local authorities, the synchronous and drastic deployment of the People's Public Security force, the core of which is the Fire Prevention, Fighting and rescue Police force;

– Technical infrastructure system in service of firefighting and rescue, such as traffic, water source, communication system, electricity system, etc. must be synchronous and ensure the operation of force firefighting and rescue means, when a fire, explosion, incident or accident occurs;

– Implement the formulation and practice of firefighting plans, rescue and rescue plans seriously and in accordance with regulations. In particular, it is necessary to pay attention to and focus on the organization of exercises to coordinate many forces and means of participation;

– To strictly implement the work of drawing lessons from each fire, explosion, incident, and accident that occurs, to promptly encourage and reward individuals and units for effective performance, and to criticize and review individual unit does not perform well. On that basis, advise and propose effective preventive measures and solutions as well as organize more effective firefighting and rescue activities;

– The police force for fire prevention and fighting and rescue should actively practice their bravery, practice themselves to improve their skills and tactics, and proficiently use tools and means to serve the fire prevention and fighting work firefighting and rescue has been equipped. At the same time, actively build and guide the fire prevention and fighting forces on the spot to ensure the standing work of being ready for firefighting and rescue; organize the implementation of unified and effective firefighting and res-

cue activities right from the time a fire, explosion, incident or accident arises;

– Ensuring funding for equipment and means for firefighting and rescue; at the same time, ensure funding for maintenance of firefighting and rescue operations; regimes and policies for forces participating in firefighting and rescue.

#### **4. Conclusion**

Each country has its own characteristics such as technical infrastructure planning, operational apparatus organization to meet the requirements of firefighting and rescue work. Lessons from Vietnam's experience from the perspective of the author's research and understanding are comprehensive and systematic. Accordingly, depending on the reality of each country, it can be researched and applied flexibly and appropriately, contributing to improving the efficiency of firefighting and rescue, thereby minimizing the risks of fire damage caused by fire, explosion, incident, accident occurred.

#### **References:**

1. Police Department of Fire Prevention, Fighting and Rescue (2022), Preliminary Report on the work of the first 6 months of 2022 and the direction of work in the last 6 months of 2022 of the Fire Prevention, Fighting and Rescue Police force, Hanoi.
2. Ministry of Public Security (2020), Circular No. 139/2020/TT-BCA dated December 23, 2020 of the Ministry of Public Security stipulating the standing work of the People's Public Security force to be ready for firefighting and rescue, Hanoi.
3. Government (2020), Decree No. 136/2020/ND-CP, dated November 24, 2020 of the Government detailing a number of articles and measures to implement the Law on Fire Prevention and Fighting and the Law on Amendments and Supplements supplementing a number of articles of the Law on Fire Prevention and Fighting, Hanoi.
4. Government (2017), Decree No. 83/2017/ND-CP dated July 18, 2017 of the Government regulating the rescue work of the fire prevention and fighting force, Hanoi.