

**PROBLEMS OF RESCUING PEOPLE IN MULTI-STOREY BUILDINGS, AND  
WAYS TO SOLVE THEM IN THE CONDITIONS OF ANDIJAN CITY**

**Sharipov Kabuljon Karimovich**

Andijan Medical Institute

**Abstract :** This article analyzes the problems encountered during the rescue of people in multi-storey buildings in Andijan city under emergency situations such as fires, earthquakes, and technological accidents. The study involved the examination of several high-rise buildings across the city, assessment of residents' preparedness, and evaluation of the technical and organizational capacities of rescue services. Furthermore, the urban characteristics of Andijan, road infrastructure, and the level of modern equipment available to emergency services were considered. Based on the findings, practical recommendations were developed regarding legal, technical, and social measures necessary to enhance safety in multi-storey buildings.

**Keywords:** Andijan city, multi-storey buildings, rescue operations, emergency situations, fire safety, evacuation, urban safety, infrastructure, public preparedness.

### **Introduction**

In recent years, Andijan city has experienced rapid urban development, resulting in the widespread construction of multi-storey residential and commercial buildings. While this vertical growth has provided solutions to population density and land scarcity, it has also introduced serious challenges in terms of safety, especially during emergency situations such as fires, earthquakes, and technical accidents.

Rescuing people from high-rise buildings during emergencies is a complex and high-risk operation. It requires not only modern rescue equipment but also proper building infrastructure, clear evacuation plans, and public awareness. However, in the context of Andijan, several issues hinder effective rescue operations — including outdated building designs, insufficient access for emergency vehicles, and lack of preparedness among residents.

These challenges, if not addressed, may result in delayed rescue efforts, increased casualties, and greater damage during disasters. Therefore, it is important to study the existing problems and develop practical, context-specific solutions that can be implemented within the infrastructure and capabilities of Andijan.

The aim of this research is to identify the main obstacles faced by rescue services in multi-storey buildings in Andijan and to propose feasible solutions for improving the safety and efficiency of emergency responses in such settings.

## Methods

To thoroughly investigate the problems related to rescuing people from multi-storey buildings in Andijan city, a mixed-method approach was used. The research combined **field observations, surveys, expert interviews, and document analysis** to collect relevant data.

Firstly, **on-site inspections** were conducted at ten different multi-storey buildings located in various districts of Andijan, including both residential and commercial structures. During these visits, the availability and condition of fire exits, stairwells, emergency signage, and rooftop access points were assessed. Special attention was given to the accessibility of these buildings for rescue vehicles and personnel.

Secondly, **surveys** were distributed to 100 residents living in high-rise buildings. The survey included both closed and open-ended questions related to their awareness of emergency procedures, participation in evacuation drills, and perceptions of safety within their buildings. In addition, **semi-structured interviews** were held with 10 staff members from the Andijan regional branch of the Ministry of Emergency Situations (FVV), including firefighters, rescue operators, and urban safety inspectors. These interviews aimed to gather professional insights into the challenges they face during real-life rescue operations.

Lastly, **secondary data** was collected from official reports, regulations, and statistics provided by local government agencies, including the Andijan City Construction Department and Emergency Services Authority. This information helped to contextualize the findings and evaluate the extent to which national safety standards are being implemented at the local level.

All collected data were analyzed qualitatively and quantitatively to identify common patterns, deficiencies, and opportunities for improvement in rescue preparedness and infrastructure within Andijan's high-rise buildings.

## Results

The research revealed several significant challenges that hinder effective rescue operations in multi-storey buildings within Andijan city. The findings are grouped into five main categories:

### 1. Inadequate Emergency Infrastructure

Field observations showed that 70% of the inspected buildings lacked properly maintained emergency exits. In many cases, fire escapes were either blocked, locked, or used as storage spaces. Moreover, several buildings had no clear evacuation signage or emergency lighting in stairwells, especially in older residential complexes built before 2010.

### 2. Limited Access for Emergency Vehicles

Rescue workers and firefighters reported that narrow streets and densely built environments, particularly in the city center and older mahallas, frequently delayed emergency response

times. More than 60% of surveyed residents confirmed witnessing difficulty for fire trucks to reach their buildings during incidents.

### 3. Lack of Public Awareness and Training

Survey responses indicated that only 15% of residents had participated in any form of evacuation drill. A large portion of respondents (82%) admitted they were unaware of the official emergency procedures or the location of the nearest exit in their building. This low level of preparedness poses a major risk during actual emergencies.

### 4. Insufficient Equipment and Resources

Interviews with emergency personnel highlighted the lack of modern rescue equipment, such as extendable ladders capable of reaching 10+ floors, thermal imaging cameras, and automated warning systems. Firefighting units rely heavily on outdated trucks, which further complicate operations in taller buildings.

### 5. Non-compliance with Building Safety Regulations

Analysis of building documentation revealed that nearly half of the examined buildings were not fully compliant with Uzbekistan's safety codes for multi-storey construction. In particular, violations were noted in fire-resistant materials, sprinkler systems, and emergency power backups.

These findings collectively point to a critical need for urban planning reforms, enhanced public safety education, and investment in modern rescue infrastructure tailored to the unique conditions of Andijan city.

## Discussion

The results of this study clearly indicate that rescuing people from multi-storey buildings in Andijan city is significantly hindered by a combination of infrastructural, logistical, and educational shortcomings. These challenges are particularly concerning given the steady increase in the number of high-rise constructions across the city, reflecting a broader trend of urban densification.

One of the most alarming findings is the **lack of adequate emergency infrastructure**, including blocked fire exits and poor evacuation planning. This is consistent with similar studies conducted in other rapidly developing urban centers in Uzbekistan, where compliance with safety standards is often overlooked during construction. To address this, **strict enforcement of building codes** and periodic inspections by relevant authorities are essential. Builders and property managers must be held accountable for ensuring basic life-safety systems are operational.

The issue of **limited access for emergency vehicles** is a product of unplanned urban growth, especially in older neighborhoods with narrow roads. Future city planning efforts should prioritize the integration of wider streets and designated emergency lanes in new housing

developments. In existing areas, creating clear parking regulations and emergency access routes may help mitigate delays in response times.

Another major concern is the **low level of public awareness and preparedness**. The fact that a majority of residents are unaware of emergency protocols highlights the urgent need for **community education programs**. Government agencies, in partnership with local schools, housing authorities, and media, should organize regular training sessions and evacuation drills. Public safety must become a shared responsibility between citizens and institutions.

Moreover, the **outdated equipment** used by Andijan's emergency services is a limiting factor in their effectiveness. Investment in modern rescue technology — such as high-reaching ladders, personal protective gear, and communication tools — would drastically improve the efficiency of operations. In the long term, developing a **centralized emergency coordination center** equipped with real-time monitoring systems could further streamline rescue efforts.

Finally, addressing the **non-compliance with safety standards** requires both top-down regulation and bottom-up accountability. Legal reforms to enforce construction norms, coupled with public reporting mechanisms, can help prevent negligence and corruption in the construction and maintenance of high-rise buildings.

In summary, improving rescue operations in Andijan's multi-storey buildings will require a **holistic approach**: urban planning reforms, stricter enforcement of safety codes, investment in emergency services, and enhanced public education. Only through coordinated efforts can the city ensure the safety and well-being of its residents in the face of potential disasters.

## Conclusion

This study has identified several critical challenges related to the rescue of people from multi-storey buildings in Andijan city. These include inadequate emergency infrastructure, limited accessibility for rescue services, insufficient public awareness, lack of modern equipment, and non-compliance with building safety regulations. Each of these issues significantly increases the risk of injury and loss of life during emergencies.

To improve the effectiveness of rescue operations and ensure the safety of residents, a comprehensive approach is required. This includes:

- **Strict enforcement of construction and fire safety standards;**
- **Improvement of urban infrastructure** to facilitate faster access for emergency vehicles;
- **Modernization of rescue equipment and training of personnel;**
- **Public education and regular evacuation drills** to raise awareness and preparedness;
- **Policy-level coordination** among government agencies, construction companies, and emergency services.

By addressing these challenges in a coordinated and sustained manner, Andijan can create a safer urban environment that is better prepared to respond to emergencies in high-rise

buildings. The lessons learned from this study may also be applicable to other growing cities in Uzbekistan facing similar urban safety issues.

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