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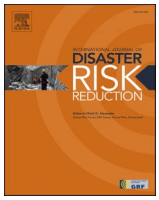

Disaster response from a comparative perspective

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1. Introduction

The Incident Command System (ICS) was formed in 1970s in California as a deliberated attempt to improve coordination among local, state, and federal agencies who were responding to a series of wildfires [1]. Later on, the ICS was gradually introduced to address coordination problems during crises other than wildfires and among agencies other than firefighting ones. This process was formally concluded in 2004 when the National Incident Management System was introduced in the USA, and required all crisis management organizations at local, state, and federal levels to employ the ICS when responding to various crises and to structure their activities accordingly [2].

Despite the fact that the US experience in applying the ICS was not uniform (advantages and deficiencies were pointed out in empirical studies) and that the concept is controversial, several countries followed the original solution and adapted it to their own circumstances. Research reports have been recently published on the application of the ICS in Norway [3], Japan [4], New Zealand [5], France [6], China [7], and Taiwan [8]. Similar solutions to the ICS were introduced in other countries as well. One of the last cases is Slovenia: civil protection and disaster relief authorities have recently expressed interest in forming a disaster response system with its core mechanism similar to that of the ICS [9].[1] Jensen and Waugh [10] announced widespread use of the ICS outside the USA, and it seems that the nature of the problem is universal: How can we organize a timely and efficient response to disasters in order to save lives, reduce damage, and reconstruct the affected community? However, Lam et al. [8] warned that the implementation of the ICS as a disaster scene command structure should take into account the country's "social structures, economic levels, and geographic conditions."

This article focuses on key theoretical considerations and general empirical findings that underpin the introduction and development of the ICS. The beginning of the article presents key elements of the "ideal type" ICS and the general empirical findings of its application. This is the basis for the empirical analysis of disaster response in Slovenia. Firstly, the normative disaster response procedure is introduced, and then several cases of disasters are explored in order to identify how the response to them was structured and what kind of problems were faced by disaster management actors in practice. In the discussion section of this article, Slovenian disaster response cases are compared, and findings are juxtaposed with the theoretical "ideal type" ICS and with general empirical evidence on the ICS, presented in a model. The key findings are provided in the conclusion.

The analysis of the Slovenian disaster response from a comparative perspective is guided by the following questions: What kind of response modes to recent disasters were used by Slovenian Civil Protection and Disaster Relief actors? Have responses to recent disasters that affected Slovenia been structurally and functionally comparable to the ICS? Is full adoption of the ICS an adequate solution for Slovenia, which experiences relatively less intense disasters and has a less complex disaster response system than some other countries? Could a positive experience within a firefighting organization that recently adopted a response system similar to ICS have an effect on the entire disaster response system in Slovenia?

2. Method

Triangulation of methods was used to explore the topic. At the beginning of the present study, selected secondary sources, such as scientific articles and monographs on the ICS, were collected and analyzed. A model was formed on the basis of theoretical assumptions and general empirical evidence on the ICS; this model guided the empirical analysis of the recent disaster response record of Slovenia. The model is comprised of several elements such as the universality and structure of ICS, leadership (forms of command and coordination of actors), standardization of response, and its response flexibility (Table 1). Then, a thorough secondary analysis of disaster cases was

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[1] The article is based on the findings of the research project "Formation of Comprehensive Disaster Response Model in Republic of Slovenia" commissioned by the Administration of RS for Civil Protection and Disaster Relief, and accomplished by a consortium of research institutions, disaster relief organizations, and individual practitioners under the auspices of the Faculty of Social Sciences, University of Ljubljana. The author was an active participant in the research. The author also acknowledges the financial support from the Slovenian Research Agency (research core funding No. 0206).

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conducted: the cases were wildfires in 2003, 2006, and 2013, flash floods in 2007, a storm in 2008, long-rain floods in 2010, and sleet in 2014. The primary criteria in case selection were actuality, the scope of disasters, and the variety of inter-organizational settings that were implemented in order to address the disaster and its consequences. The comparative method was used to search for practical modes of response during selected disasters and to juxtapose cases of disaster response in Slovenia with the aforementioned ICS model.

3. The "ideal type" ICS and its generalized experiences

The official definition of the ICS was written in the US Department of Homeland Security document National Incident Management System, according to which the ICS is "a widely applicable management system designed to enable effective, efficient incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure" [11]. The ICS involves all response organizations at all levels of authority, it is meant for all crisis situations, and it brings about a clear hierarchy of authority, with an Incident Commander or a unified command structure at the top. The key elements of the ICS are command, operations, logistics, planning, and finance and administration [1,10].

Table 1
ICS model based upon key theoretical assumptions and empirical evidence.

KEY ELEMENTS	THEORETICAL "IDEAL TYPE"	GENERAL EMPIRICAL FINDINGS
Universality	The ICS is suitable for all organizations and for all types of crises; the ICS is applicable in all communities	The ICS is externally imposed; some emergent and other actors operate outside the system; the ICS is suitable for routine, small, and less complex crises with less emergent actors and circumstances; it is suitable for hierarchical organizations (e.g. police and firefighters); the ICS is useful for small, well-integrated communities
Structure	Centralized; hierarchical	Centralization/hierarchy and networking are intertwined; occasionally the action begins at the bottom of the structure; modular structure; each structure is temporary and transient
Leadership	Command activity; authoritative	Facilitating activity; authoritative leadership in quickly changing circumstances of large and surprising crises is questionable
Forms of command	Incident Commander; unified command	Several command structures; various actors with various organizational cultures and working routines
Coordination of actors	The main objective (coordination of actors) is achieved through the ICS	Lack of inter-organizational cooperation; rigid communication (information flow); coordination is an objective still to be achieved; search for consensus and negotiations are crucial
Standardization of response	The ICS offers standardized and predictable procedures	Various forms of improvisation occur during disaster response, especially when the crisis is huge and surprising
Flexibility	The ICS is a flexible solution	The ICS is inflexible and cumbersome; very complicated; difficult to be understood and learned through training; has too many rules and various administrative forms; balance between control and flexibility is needed

Source: own presentation on the basis of theoretical background and empirical findings

Several scientists have addressed the ICS in their studies and have contributed theoretically to its illumination. For instance, Jensen and Thompson [2] saw the ICS as an on-scene response mechanism that is used by the organizations responding to hazard events (e.g. fire departments, emergency medical services, law enforcement agencies, public works departments, and voluntary organizations) to structure their activities. Jensen and Thompson [2] emphasized the universality of the ICS: it is mandatory for "all responding organizations to all hazard events regardless of their geographical scope, duration or complexity" (e.g. house fires, traffic accidents, and water main breaks, but also earthquakes, hurricanes, and terrorist attacks). The ICS is very ambitious: it desires "to standardize the organization and execution of on-scene response to all hazard events across all responding organizations" [2].

Jensen and Thompson [2] conducted a scoping study to summarize the expected advantages of the ICS: development of common terminology, modular organization and management by objectives, flexibility, scalability, and universal applicability as far as the nature of crises and the variety of organizations involved in the response are concerned. However, there is a lot of criticism in the scientific community dealing with disaster response: the ICS as a form of a command and control model is inappropriate, and the system is inflexible, slow, and cumbersome. There were also questions raised about whether such a system is needed to manage hazard events, whether it fits organizational realities of crisis management, and whether it adequately addresses information management and leadership. Skepticism is evident in terms of the appropriateness of the ICS as a command and control mechanism in contemporary circumstances.

Moynihan [1] juxtaposed the views of practitioners and scholars on the ICS. While the former praise the system, appreciating its hierarchical chain of command, use of centralized plans and limited span of control, the latter think the ICS is driven by a desire of political control, and ignores the importance of inter-organizational relationships, the spontaneous nature of the disaster response, the role of unorganized volunteers, and the potential conflict between organizations. Kendra and Wachtendorf [12], too, thought the ICS was accepted by disaster managers and rejected by the bulk of the scientific community, which warns that the ICS fails "to take into account perspectives beyond the responder community." Furthermore, the system is complex, and many documents are needed to explain the concept and functional details. Waugh [13] warned that modes such as the ICS are by their very nature slow, inflexible, and less adaptable in a disaster environment, characterized by uncertainty and rapid change. Jensen and Waugh [10] quoted the position of the US National Research Council that empirical research does not support any command and control model of disaster response, either as a "heuristic device" for the conceptualization of disaster management or as "a strategy employed" during disasters. Lutz and Lindell [14] reiterated that the ICS does not "generalize well to all types of organizations responding to all types of hazards".

Moreover, Moynihan [1] saw the ICS as a coordinating mechanism of multiple response organizations under a temporary hierarchical structure. However, his empirical research proved that the description of the ICS as strictly hierarchical was misleading due to the fact that in practical applications the hierarchical way and networking were intertwined. Therefore, the ICS is a highly centralized mode of network governance. Moynihan [1] offered a "network governance approach" that advocates some form of centralized structure but at the same time acknowledges that organizations retain part of their autonomy.

Therefore, a centralized mechanism is required, but network coordination based on trust is also of key importance.

Kendra and Wachtendorf [12] described the ICS as a system that is externally imposed on the communities in crisis. They were critical toward the traditional centralized and hierarchical response to disasters, but also toward Moynihan's compromise of network management as mentioned above. Instead, they offered a "management based on coordination by non-interference, or a redefinition of disaster activities as allied modules rather than a holistic connected network" (ibid.). Kendra and Wachtendorf [12] rely on the Emergent Human Resources Model, which gives the role of problem solving in a disaster to the people who are close to the action. It is very difficult to achieve coordination and leadership in quickly changing situations of large and surprising events.

Kendra and Wachtendorf [12] warned that despite the use of the ICS, coordination is still a mission to be accomplished in the USA's disaster response system, due to the fact that each time that a disaster occurs a fresh response system is needed. This repeats at federal, state, and local levels. Each emergency management structure is temporary and transient. The ICS is controversial; however, in some situations it was successful. It seems that the nature of the disaster and inter-organizational network are key variables in defining success: if the disaster is familiar and limited in scope, if the organizational structure consists of a smaller number of well-trained actors, and if the emergent activities are low, the chances for success are bigger. Although it is expected that the ICS is based on pre-established roles and procedures, in concrete situations it relies on consensus, coordination, and negotiation, which is quite the opposite from hierarchical communications and the reporting framework. Kendra and Wachtendorf [12] suggested that in any disaster, the ICS should be created by the participants themselves, involving their capacities for observation, interpretation, and creativity. Leadership as a central point of the ICS should not be a command activity but a facilitating one.

Buck, Trainor, and Aguirre [15] confirmed that the ICS model is only part of the answer to the question of how to organize a social response to disasters. The success of the ICS is higher if those who use it belong to the community in which it is used, if the disasters are routine ones, and if there are less emergent social and cultural circumstances. The authors think that the ICS is not a universally useful bureaucratic structure, but first of all a mechanism of inter-organizational coordination that brings about a certain degree of order in a chaotic organizational surrounding caused by disaster.

Boersma et al. [16] thought the ICS was formed on the basis of a military hierarchical command and control structure, and that it needed to be transformed into a more flexible multi-organizational setting that could match rapidly changing and dynamic conditions brought about by disasters. The ICS was based on assumptions that the first person on the scene is key for organizing a response, and that timely and accurate information should drive decision-making in the disaster response process. The main challenge in disaster response seems to be how to achieve balance between control and flexibility. Many cases of disasters revealed that formal plans broke down, there was no coherency among actors, they had conflicting objectives, and they used various working routines and methods. Consequently, relief operations frequently relied on emergent action and improvisation.

Research in the USA established that the ICS is perhaps better suited to centralized and hierarchical organizations such as firefighting organizations and police organizations that are satisfied with the existing model [17,18]. Vidal and Roberts [6], however, pointed to the difference between US incident management teams and French firefighters: the former want to bring order to the chaos, meaning that internal order is needed to overcome external chaos, whereas the latter want to organize chaos and they see minimal disorganization as an opportunity for enhanced adaptability of the response system.

The experiences of other countries implementing the ICS are extremely valuable for our analysis. Rimstad et al. [3] focused on a terrorist attack in 2011 in Norway, and established that the emergent operation structure was based on official and normative emergency plans but was modified to fit the functional imperatives in different sectors, each of them having its own command structure. Furthermore, information flow among various organizations and jurisdictions during response was not smooth, and that hindered the efficiency of the emergency response.

Okada and Ogura [4] reported that during the response to the earthquake, tsunami, and nuclear disaster in 2011 in Japan, the usual, strong hierarchical organization of Japanese government agencies impeded "the collaborative coordination and sharing of information" that were key to an effective ICS. The problem was also how to integrate the emergent private and non-profit organizations into a national system of disaster management that dealt with a complex triple disaster. Similarly, Hunt et al. [5] emphasized that in the case of a New Zealand oil spill off the coast, the ICS was not able to effectively integrate thousands of volunteers who wanted to help clean up the spill.

The ICS that has been gradually embraced by Chinese authorities exposed several universal initial problems. In the huge 2003 gas blowout, the main problems were inadequate information flow, the absence of emergency plans in state-owned enterprises, and command disorder due to a variety of emergency response organizational structures without commonly developed emergency procedures. However, in the case of a 2010 earthquake, many improvements were observed: a multilevel command structure involving commands on site, provincial and state levels was established and functioned effectively; comprehensive coordination facilitated teamwork among emergency organization representatives; and the military–local government joint command model proved to be a good solution in disaster response [7].

In order to analyze disaster response in Slovenia, the ICS model is provided in Table 1. The table confronts the aforementioned "ideal type" theoretical assumptions and the predominantly unfavorable general empirical findings.

4. Disaster response in Slovenia

The key functions of the **disaster management** system in Slovenia are prevention, preparedness, protection, rescue and help, provision of basic life conditions, and reconstruction.[2] The latter is provided by the ministries of environment and space, and economy, respectively, whereas all other functions are a responsibility of the Civil Protection and Disaster Relief System. This system involves municipalities, regions and national level, various institutions and organizations, companies and citizens. Civil Protection staffs are organized at local, regional, and national levels, and their main task is to lead and coordinate volunteer forces (volunteer firemen, humanitarian organizations, divers, scouts, etc.; 48,000 members in total), professional forces (professional firefighters, public health services, welfare services, public companies, etc.; 2800 members in total), and civil protection forces (first aid units, technical rescue teams, radiological, chemical, and biological units, etc.; 15,000 members in total, who are mandated to serve in the civil protection system by law) [19].[3] When needed, the Slovenian Police and Slovenian Armed Forces are activated to exercise disaster relief activities as well. As far as **disaster response** is concerned, the system envisages that a **Commander of Civil Protection** of the affected area **coordinates**

[2] Review of the journal Ujma, which is published annually and analyses disasters in previous year, suggests that Slovenia experienced approx. 50 relatively big disasters in the period 2003–2018: mostly floods, storms with strong wind and hail, droughts, wildfires and industrial fires, but also an earthquake and a sleet storm.

[3] The bulk of the system includes volunteer firemen (133,065 members in total), among them there are those with operational skills (approx. 47,000) who are organized in 1363 firefighting societies, 120 firefighting associations, 17 regions, and the Firefighting Association of Slovenia. The number of professional firefighters in Slovenia is relatively small — approx. 950 in total [20].

the activities of all involved organizations; but concurrently, they have a possibility to appoint an **Incident Commander** to perform operational tasks of disaster response.

Has this formal setting really functioned in response to disasters that recently occurred in Slovenia? The sample for our secondary analysis includes three consecutive wildfires in the Karst area, flash floods in Železniki in 2007, a storm with strong winds and hail in Kamnik in 2008, long-rain floods in 2010, and sleet in 2014. These cases were examined in order to identify the modes of Slovenia's disaster response.

Wildfires in 2003, 2006, and 2013 destroyed the natural environment and threatened some villages. Response to the wildfire in 2003 revealed that the firefighting officers were ill-trained and ill-equipped for dealing with a huge operation. They relied on their experiences and improvisation. The leadership structure changed several times during the intervention due to the rule that the officer with the highest rank at the scene assumes command. The operational staff was organized to lead the intervention, and involved not only firemen but also the local community and civil protection representatives. The Incident Commander appointed by the staff was at the same time the operational leader. He coordinated three operational sectors whereas the fourth sector acted rather autonomously. The Regional Deputy Commander coordinated bilateral help coming from Italy.[4] A public relations officer and a safety supervisor were appointed. High-ranking representatives of the Firemen Association provided professional advice to the Incident Commander. The experiences of this event led to the establishment of an Intervention Command System, with a structure very similar to that of the ICS, providing command, control, and coordination during the intervention, and covering fields such as operational leadership, planning, logistics, administration, and finances. Members of this structure included a media expert, who coordinated all involved organizations as far as disaster communication was concerned, and a safety supervisor [21].

The wildfire in 2006 required the activation of the National Firefighting Plan and the Intervention Command System. The operational staff comprised of firefighting officers leading the intervention, and representatives of the local community and civil protection performing logistical tasks. The exchange of staff members when needed was gradual and smooth, first taking place among the operational staff and then in other sectors. There were many deficiencies observed: civil protection was too passive, and there was a lack of trained personnel, ill-coordination with the Slovenian Armed Forces[5] whose daily interventions were delayed, lack of administrative support to the operational staff, and logistical problems [21].

Leading up to the wildfire in 2013, the Intervention Command System was fully adopted in the National Firefighting Plan and utilized in practice. This brought about more transparency, the inclusion of all stakeholders in the operational staff, better logistical support, including command vehicles, and adequate administrative support to the leadership [21]. Nevertheless, there were still problems, especially those related to difficult conditions, inadequate personnel policy, and false assessment of disaster events.

It is important to stress that none of the Civil Protection staffs in the affected areas were activated in 2003, 2006, or 2013 even though the rules required the staffs to be utilized. However, individual Civil Protection representatives were co-opted in the firefighting operational staffs.

Flash floods in Železniki in 2007 caused three deaths, and water flooded more than 350 houses, damaged more than 100 cars, and caused huge infrastructural havoc. The Civil Protection and Disaster Relief System was fully activated at the local and national levels [22]. The local Civil Protection staff was overwhelmed and overburdened by the disaster, whereas the regional one was activated with huge delay. That caused a unique solution, namely, the local and national civil protection staffs merged into an *ad hoc* operational group. The regional staff, when activated, took over the coordination of other municipalities that were also affected in this region. The leading figure of the operational group was the National Civil Protection Commander, who coordinated with municipality leadership twice a day in order to make the response more efficient and also to respect the authority and responsibilities of the mayor and municipal services. The organizational structure of the operational group was flexible. The de-escalation of the crisis allowed for gradual transfer of rescue activities exclusively to the municipality. Firefighters demonstrated high operational skills, they based their response on the above-mentioned Intervention Command System, and they solved many problems that were not envisaged by the general disaster relief plan. Police took a lot of the initiative, especially in the initial phase of the disaster when they collected and shared a lot of useful information, and coordinated with civil protection. The Slovenian Armed Forces played an important role in the process; however, they were de-activated rather late [22]. This means that the principle that the armed forces should be "the last to come and the first to leave" was not taken into account by civilian authorities.

This case demonstrated that disaster response was hampered by ill-preparedness of personnel, occasional communication problems, lack of standardized reporting, non-optimal threat assessment,[6] and the absence of municipal disaster relief plan for floods. Some local structures could not be activated because the response of the members was poor. Humanitarian organizations were not fully integrated in the system and did not operate in an optimal way because their activities were not planned and unified. Nevertheless, the National Civil Protection Commander acted as the Incident Commander, who directed, coordinated, and accelerated activities of various organizations [22].

The 2008 storm with strong winds and hail in Kamnik fell trees, devastated roofs, cut electricity and telecommunication installations, and flooded roads, making them temporarily useless. In this case, the vertical leadership structure during the disaster response had three different forms. In the first phase, the structure involved the municipal public firefighting service; in the second phase, the municipal authority with the mayor, deputy Civil Protection Commander, and appointed Incident Commander joined the structure; and in the third phase, the structure was completed by the Civil Protection staff of the most affected village [24]. Horizontally and functionally, the structure broadened as well, ranging from initial exercising of urgent operational tasks to other operational tasks, logistics, finances, administration, cooperation with public relations services, and contacts with state institutions. Therefore, the limited scope of the disaster allowed for incremental changes in leadership structure and functioning.

The Incident Commander was supported by the on-duty municipal fire department, local civil protection staff, and commanders of volunteer firefighting organizations. The mayor was responsible for communication with various audiences and for contacts with state institutions. The entire disaster response was limited to one municipality, and therefore there were less coordination problems [24].

Crucial for the successful performance of all disaster response-related

[4] Slovenia signed bilateral agreements in the field of disaster response with all neighboring countries (Italy, Austria, Hungary, and Croatia). Concurrently, Slovenia takes part in international relief mechanisms, such as the EU Civil Protection Mechanism, UN Office for the Coordination of Humanitarian Affairs, and NATO Civil Emergency Planning.

[5] One of the legal tasks of the Slovenian Armed Forces is to provide help to civilian populations in the case of disaster. Armed forces are activated on the initiative of the National Civil Protection Commander or their deputy. The decision is made either by the government, the minister of defence, or the Chief of General Staff of the armed forces if they are authorized by the minister of defence.

[6] Lin [23] emphasized the importance of threat assessment in the process of designing a multi-stakeholder, multi-level, bottom-up disaster risk management system.

processes is the system of collecting, processing, and communicating data and information. In this case, all actors responsible for various operational tasks constantly reported their activities. This was a planned process, with the required equipment made available, and education and training provided. The key figures of the disaster response were two persons, namely, the Incident Commander and the deputy Civil Protection Commander; meanwhile, the Civil Protection Commander played the role of counselor [24].

Long-rain floods in 2010 affected several Slovenian regions; however, we will predominantly focus on the capital of Ljubljana, where dozens of buildings were flooded, the infrastructure was damaged (e.g. 36 roads), agriculture in suburban areas suffered, potable water pumps were flooded, etc. Leadership tasks during long-rain floods were performed by Civil Protection commanders at national, regional, and local levels [25]. The National Civil Protection Staff did not function only in a formal operational setting, but also in a broadened one: they were joined by representatives of the armed forces, humanitarian organizations, the municipality of Ljubljana, and support services. Vertical coordination took place through a communication system and directly in the field through meetings with mayors and Civil Protection commanders. Horizontal coordination took place through different levels of staff meetings, via communication networks and during field meetings. The coordination at the governmental level, between the prime minister, ministers, and National Civil Protection Commander should be mentioned here as well. Cooperation with armed forces was rather rigid because the army representatives expected Civil Protection commanders to specify military help one day in advance, which was impossible given the quickly changing circumstances [25].

The Municipal Civil Protection Staff was active for ten days, around the clock. During the first few days, the staff members acted as a collective body, and later on they reorganized to individually cover fields such as operations, especially the coordination of rescue services, planning, logistics, finances, and administration. Consequently, the functioning of the staff became more organized and systematic. The Slovenian Police and municipal services representatives were co-opted in the staff. For the most affected part of the municipality, Barje, a special coordination group, was formed in order to coordinate actors, accelerate the exchange of information between them, and communicate with the affected population (who was frustrated and inpatient). The coordination group also took some of the burden from the shoulders of the Municipal Civil Protection Staff [25].

The structure of the staffs was in concordance with formal rules and with the key role of Civil Protection. In functional terms, this structure not only exercised operational tasks, planning, logistics, finances, and administration, but also dealt with public relations and international cooperation. Pre-disaster training of Civil Protection commanders and staff members was not optimal and that had great impact on the success of the entire operation.

Sleet in 2014 affected 11 out of 13 Slovenian administrative regions or 160 out of 212 municipalities.[7] Two people died during the disaster response. Most of the damage was caused to forests, agriculture, and electro and telecommunication infrastructure. The response to the disaster involved all levels, including the international one. Namely, Slovenia successfully requested the EU to activate its Civil Protection Mechanism and provide help. There was also help provided through bilateral international cooperation. Civil Protection staffs were activated at the national level, in 11 regions and in numerous municipalities. At the national level, the original *ad hoc* solution was found: the Support Group to the Staff, which operated in full capacity was established. Its important element was the Host Nation Support team that coordinated international help. The national Civil Protection Commander activated the National Unit for Rapid Rescue Interventions, monitored and coordinated rescue activities at the national level, provided help to municipalities, and monitored and assisted municipal Civil Protection staffs where needed. Slovenia did not have a national plan for sleet, and consequently the Commander activated the plan for floods. Regional Civil Protection staffs were mostly incapable of adequately dealing with the consequences of the disaster, which created a huge gap between the state and local levels [26].

Let us review the situation in two municipalities that were among most affected ones. In Postojna, the mayor established a Crisis Operational Staff to support the Municipal Civil Protection Staff after the initial response problems. His intention was to upgrade the existing organization and to introduce individuals responsible for coordination with the armed forces, firemen, Civil Protection units, Red Cross, welfare centers, and medical centers. The mayor temporarily suspended the civil protection leadership and appointed himself and his deputy to leading positions. The question is why this new structure was needed in addition to civil protection staff. It seems that this new structure stimulated its members, and increased their motivation and readiness to work hard and solve huge pending problems. Systematic and professional work contributed to the stabilization of post-disaster conditions, improved coordination among the actors, and made the communication process among them, and between them and the public, better [26].

The situation in Logatec was not as dramatic as that in Postojna, but the case is interesting due to the fact that in the pre-disaster period the municipality introduced a response system similar to the ICS. The initial leadership was performed by one person, but problems brought about by disaster increased, and a collegial leadership system was formed on the strategic level (unified command). Incident commanders were appointed for each operational task and in each sector of response; consequently, the coordination was smooth. Two-way communication from the mayor and the Civil Protection Commander to individual incident commanders was established. In three days, the system was fully accepted, and it was successful and efficient [26].

Source: own presentation on the basis of secondary analysis of cases.

5. Discussion

The findings on the Slovenian Civil Protection and Disaster Relief System's responses to recent disasters presented in Table 2 offer an opportunity to juxtapose these experiences with the model i.e. theoretical "ideal type" ICS and general empirical findings (Table 1). Key elements of the ICS are expected to be its universality [2,10,11,14,15], centralized and hierarchical structure [1,3,4,12,16], leadership [1,10], command [1,10], coordination [1,12], standardization [2], and flexibility [2,12,13,16].

In Slovenia, the response to the aforementioned disasters was not **universal**; on the contrary, crisis management actors demonstrated various modes of response (Table 2). As a matter of rule, the response was better during low-intensity events, and in smaller communities where actors knew and trusted each other (wildfires in 2006 and 2013, flash floods, storm, and sleet in Logatec). As previous research revealed, communities developed "local practice" not necessarily in conformity with formal rules and procedures. Additionally, in communities that are exposed to routine, "seasonal" disasters, people developed a "disaster subculture," allowing for quick shift of normal roles into disaster ones, and *vice versa* [27].

Formally, the structure of response was **centralized and hierarchical**; however, in practice there were numerous relations that ignored formal procedures. Some actors even functioned outside the planned response framework (humanitarian organizations, and volunteers). In **structural** terms, the firefighters used their own Intervention Command System (in the cases of wildfires and the storm) whereas in some cases we witnessed either a Civil Protection structure as a basis for organizing response (long-rain floods) or the formation of *ad hoc* structures, such as an operational group (flash floods), coordination group formed by Civil

[7] It is important to stress that regions in Slovenia are not autonomous territorial–political entities but only administrative entities through which the state exercises its prerogatives closer to the citizens.

Table 2
Disaster response modes in Slovenia and their relation to the ICS.

DISASTER	DISASTER RESPONSE MODE	OPERATIONAL LEADERSHIP OF INTERVENTION	RELATION OF MODE TO THE ICS
Wildfires 2003 / Wildfires 2006 and 2013	Firefighting response structure / Intervention Command System	Operational staff and fireman with the highest rank /Operational staff and fireman with the highest rank	Low structural, medium functional similarity /High structural and functional similarity
Flash floods in Železniki 2007	*Ad hoc* operational group consisting of national and municipal levels	National Civil Protection Commander	Low structural, high functional similarity
Storm in Kamnik 2008	Incremental activation of existing response structures	Retired municipal administrative worker in the field of protection and rescue	Low structural, high functional similarity
Long-rain floods in Slovenia 2010 / entire municipality of Ljubljana / Barje	National Civil Protection Staff / Municipal Civil Protection Staff / *ad hoc* coordination group	National Civil Protection Commander /Commander of Municipal Civil Protection /*Ad hoc* leader	Low structural, high functional similarity / Low structural, high functional similarity/ Low structural, low functional similarity
Sleet in Slovenia 2014 /municipality Postojna /municipality Logatec	National Civil Protection staff / *Ad hoc* Crisis Operational staff /Adapted the ICS	National Civil Protection Commander /Mayor and his deputy/ Incident Commander, unified command	Low structural, high functional similarity / High structural and functional similarity /Medium structural and high functional similarity

Protection staff (long-rain floods in Barje), or support group and crisis operational staff (sleet). Counseling and search for consensus in the decision-making process were often significant features of the disaster response.

The legally envisaged permanent and fixed structure became temporary and **modular** in practice — with a mixture of various actors. The role of Civil Protection staffs was not vivid enough in some analyzed disasters. Although formally part of the disaster response system, some administrative regions were not prepared enough to deal with disasters successfully, meaning that an active level between local community and the national level was missed, which caused the organizational and response gap.

The greatest structural difference between the ICS and Slovenian solutions is that in Slovenia the system similar to the ICS was formally developed only in firefighting organizations and predominantly for fires whereas the ICS should be universal in nature. It seems logical that firefighting organizations, which are operationally involved in disaster responses *in situ*, developed a consistent structure to address functional requirements. However, the wildfire cases examined here revealed that the Intervention Command System was not used solely by the firefighting organization but also involved other organizations. Municipality mayors, Civil Protection commanders or their deputies, and representatives of other organizations were co-opted in a common staff (unified command). This loose structure was not congruent with formal solutions that envisaged the key role of Civil Protection in disaster response. Moreover, this system functioned not only in response to fires but also in response to other disasters. Hence, some cases resembled the structure of the "ideal type" ICS (especially for the 2006 and 2013 wildfires and the sleet in Logatec) while others did not.

However, **functionally**, similarity with the ICS was relatively high, which is logical due to the fact that every disaster response requires tasks in the fields of operations, planning, logistics, finances, and administration. The difference was in the emphases dictated by the scope and nature of disasters and in adding tasks such as public relations (in the cases of wildfires, storm, long-rain floods, and sleet), safety of operation (wildfires), and international cooperation (wildfire in 2003, long-rain floods, and sleet).

Leadership was a subject of constant change, especially within the firefighting organization. Although the ICS envisages that one commander or unified command constantly lead the intervention, in the case of Slovenian firefighters the commanders changed in accordance with their rank: when an officer with a higher rank comes to the disaster scene, they assume command. This transfer is gradual and allows for the exchange of information between actors. Furthermore, if the higher-ranked officer agrees, the previous officer can continue their work.[8] Similarly, as in the USA, the firefighters were satisfied with their own disaster response system.

In case of smaller disasters (the wildfires in 2006 and 2013, and the storm) the firefighters played a key role and used their own leadership system, in which other actors were co-opted. In the case of huge disasters (flash floods, long-rain floods, and sleet), Civil Protection co-opted firefighters and representatives of other organizations for its staff. In some cases, actors integrated the response levels (national and municipal) or even formed parallel leadership structures. We witnessed a variety of **command forms**: appointment of an Incident Commander, unified command, and *ad hoc* structures.

The coordination of actors involved in the disaster response was a huge challenge. During minor disasters with smaller affected areas or less actors involved, the coordination was better (the wildfires in 2006 and 2013, storm, and sleet in Logatec). When there were many organizations involved coming from various levels of authority, with a mix of state and private, local and national, governmental and non-governmental, and civilian and military organizations, the complexity was high and coordination suffered (flash floods and sleet). Especially if the information flow was not smooth and timely. Although coordination was the key task of permanent structures, additional *ad hoc* groups were established to provide coordination (long-rain floods and sleet). Consequently, coordination remained an objective to be achieved in disaster response.

Standardization of response was often not the case, as we could see. Modular structures, leadership variations, absence of plans (in the cases of flash floods, and sleet), formal structures ignored and replaced by improvised solutions (flash floods, and sleet), and some emergent actors (humanitarian organizations, and volunteers) were witnessed. However, in Slovenia, humanitarian organizations (Red Cross and Caritas) and other NGOs (volunteer firefighters, Mountain Rescue Service, divers, speleologists, scouts and ecological unit) are rather profoundly integrated in the disaster management system. Many of them are obliged by law to perform "public rescue service". In some cases, standardized solutions functioned relatively well (wildfires 2006 and 2013, storm, and sleet in Logatec), but in some cases there were serious response problems (2003 wildfire, and the first phase of sleet in Postojna).

Flexibility was needed. Planning (where available at all) could not entirely envisage the disaster dynamics and consequences. It is important to stress that in the firefighting organization the solutions were premeditated and planned, a result of objectivistic analysis of its own experiences and critical identification of all advantages and disadvantages of previous disaster responses, whereas some organizations

[8] In his research, Jeraj [28] established that there is also a difference between ICS and Intervention Command system in terms of functional field, scope, adaptability and modular leadership, standardization of procedures, terminology, literature, and test of members' knowledge and skills, which were better designed in the US case.

introduced elements of the ICS spontaneously and improvised under the pressure of the circumstances. Nevertheless, the empirical evidence reveals that in some cases, organizational structures similar to those in the ICS brought about successful disaster responses (the wildfires in 2006 and 2013, and the second phase of sleet in Postojna, and sleet in Logatec). Hence, there was a need for some degree of flexibility and **improvisation**; however, the latter could only take place successfully on the basis of pre-disaster plans, procedures, and structures. Some cases proved that improvised solutions gave good results (flash floods, the second phase of sleet in Postojna, and long-rain floods in Barje).

To conclude this discussion, the comparison of Slovenian experiences and general empirical evidence on the ICS's utilization in other countries suggests that some characteristics of the disaster response were quite similar. For example, there was the occasional absence of plans and procedures, and consequently a lot of improvisation; actors that were not functionally integrated in the system worked autonomously outside it; and difficulties in communication hindered the flow of information. Moreover, there was inappropriate integration of the military in the disaster response, poor logistical and administrative support, and insufficient equipment, and some leading rescuers were not sufficiently trained.

6. Conclusions

Given the introductory research questions, the in-depth analysis, and the comparisons made in the discussion, it is possible to conclude that there was a variety of disaster response modes used in recent disasters in Slovenia, ranging from formal to informal ones, planned to *ad hoc* ones, and standardized to improvised ones. Some cases were structurally similar to the "ideal type" ICS, but some of them were not. Functional similarity was much higher, involving operations, planning, logistics, finances, and administration. Concurrently, some tasks pertaining to public relations, safety of operation, and international cooperation were added to the original concept.

As a matter of rule, Slovenia does not experience huge disasters with a lot of victims and extremely great damage, and therefore the disaster response is less complex and involves a smaller number of organizations than in some other countries.[9] Also important is the fact that Slovenia mostly experiences seasonal, weather-related events that affected communities are more or less familiar with. It is also relevant that the key role in the disaster response in Slovenia is played by firefighters, often supported by the military. Moreover, some non-governmental actors are well integrated in the system. Consequently, the formal introduction of the ICS might be a prudent decision as the research findings suggested that in such circumstances the ICS had a good chance to be successful. However, some local communities developed "local practices" and they could perceive a new system as being externally imposed on them. Additionally, the analysis findings suggest that standardized concepts do not always function well and improvisation is needed.

If Slovenian Civil Protection and Disaster Relief authorities make a decision to introduce the ICS, the best solution might be to broaden and upgrade the Intervention Command System version developed by the firefighting organization and make it useful for various (temporary) structures of disaster response. On this basis, the relationship between the firefighting organization and Civil Protection should be fostered so that it is without rivalry or struggle for prestige.

However, problems such as lack of expertise, unavailability of actors, inadequate planning and organization, lack of training, and poor equipment, as identified in some Slovenian cases, will not disappear with the introduction of a new response system.

Future research in this field should answer the question of what kind of legal, system, and organizational changes should be adopted by Slovenian authorities to make the transfer of the Intervention Command System developed by the firefighting organization to the entire disaster response system as smooth as possible.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijdrr.2020.101621.

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[9] The data on the victims of disasters included in the sample reveal that Železniki's flash floods caused three deaths, and the sleet event caused two deaths; meanwhile, in the other examined disasters there were no victims even though many people were affected and the economic damage was relatively high. In two explored cases (long-rain floods in 2010 and sleet in 2014) the damage exceeded 0.6% GNP, and the country was eligible to receive financial help from EU funds. Comparison to global trends and individual cases of huge disasters [29] confirms that disasters in Slovenia could be mastered.

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