

A Case Study of USAR SA-01: A Causal Analysis Related to the Non-deployment of the South African Urban Search and Rescue Team from 2017 – 2024

Nadia Taljaard-Nilsen

Northwest University

Potchefstroom, South Africa

DOI: <https://doi.org/10.5281/zenodo.15063997>

Published Date: 21-March-2025

Abstract: The effective deployment of Urban Search and Rescue (USAR) teams is critical for addressing humanitarian needs during international disasters. South Africa's USAR SA-01 team has the potential to significantly contribute to global disaster response efforts; however, it has yet to deploy internationally. This study aims to identify and analyze the causal factors related to the nondeployment of USAR SA-01 to international disasters. It focuses on the specific context of South Africa, providing insights into the intersection of policy, governance, and operational practice. The research employed an explanatory mixedmethods approach, combining a quantitative survey with a qualitative thematic analysis. The findings from the analysis were then incorporated into an Ishikawa cause-and-effect diagram to assess the policies, frameworks, and institutional dynamics that hinder the deployment of USAR SA-01. The findings reveal significant barriers, including a lack of accountability, inadequate funding mechanisms, and a misalignment of policies among government departments. The analysis highlights that the National Disaster Management Center's failure to mobilize resources undermines the operational capacity of USAR SA-01. In addition, the study identifies the need for better coordination among agencies to align USAR operations with national and international standards. The implications of this study underscore the necessity for reform within South Africa's disaster management framework to facilitate effective international deployment of USAR SA-01. By addressing the identified barriers, the study provides a pathway for strengthening South Africa's role in global disaster response efforts and enhancing its capacity to fulfill international obligations. Improved coordination, accountability, and resource allocation are essential for ensuring the sustainability and effectiveness of USAR capabilities in humanitarian crises.

Keywords: Urban Search and Rescue, South Africa, International Disaster Response, INSARAG.

I. INTRODUCTION

Urban areas face increased disaster risk due to factors such as high population density, tall structures prone to collapse, complex street layouts, and diverse social demographics [1]. Structural collapses can result in victims being trapped in hard-to-reach debris, with earthquakes being particularly feared for their potential to cause severe structural failures [2]. The immediate priority after such incidents is victim rescue [3]. Local communities often initiate spontaneous rescue efforts using basic tools or bare hands [4], which can effectively reach surface victims, but those trapped beneath rubble present greater challenges [3]. In these situations, specialized Urban Search and Rescue (USAR) teams are vital for locating and extricating entrapped individuals. Comprising Search and Rescue Specialists, these teams stabilize damaged structures, locate and extract victims, perform risk assessments, and address other needs within the impacted area [5].

Challenges such as the excessive cost of specialized equipment and the need for technical expertise hinder the establishment of Urban Search and Rescue (USAR) teams in many countries [6]. In situations requiring significant USAR responses, countries often depend on international reinforcements through bilateral mutual aid agreements [3]. As a complex and rapidly evolving form of international aid, USAR is primarily deployed during disasters in urban or semi-urban area [7]. To standardize and coordinate USAR activities, the UN Office for the Coordination of Humanitarian Affairs (OCHA) created the International Search and Rescue Advisory Group (INSARAG) in 1991 [8]. The INSARAG External Classification protocol was introduced to guide team assessments and training for meeting international membership standards [9]. Lachica [10] noted that governments engage in USAR operations and join bodies like INSARAG to bolster their reputation in Good International Citizenship. To enhance its international standing, South Africa joined INSARAG and formed the Gauteng-based Urban Search and Rescue Team, classified as a Medium International USAR Team (USAR SA-01) in February 2017 [11]. This made South Africa the second African nation, after Morocco, to achieve this status and the only classified USAR team in Sub-Saharan Africa [11]; [8].

Despite its classification, USAR SA-01 has yet to deploy internationally [12]. Its only response was to the 2022 KwaZulu-Natal floods, where delays resulted in the team arriving nine days after the critical rescue phase. This delay drew criticism from the UN Office for Humanitarian Affairs, emphasizing the need for streamlined deployment procedures [13]. The team's inactivity raises concerns about sustainability and risks declassification by INSARAG, undermining South Africa's credibility in global disaster response and potentially damaging its relationships with key organizations like the UN Office for the Coordination of Humanitarian Affairs (OCHA). The lack of deployments despite achieving INSARAG classification indicates misalignment in national policies. Thus, this study holds significant social value within its objectives to identify and address the immediate challenges related to USAR SA-01's deployment, thereby contributing to broader discussions on effective policy development that integrates existing legislative elements across government spheres. By tackling these deployment issues, insights may be gained on resolving "*wicked problems*," which are complex challenges with multiple causes and internal dynamics that, if unaddressed, could negatively impact society [14].

The study's scientific value lies in integrating diverse fields—Urban Search and Rescue, finance, public policy, international relations, and best practices—requiring an interdisciplinary approach to provide a comprehensive view and advance scientific discourse [15]. The non-deployment of USAR SA-01 highlights a significant research gap, as existing studies typically focus on successful deployments rather than the reasons behind non-deployment. By focusing on South Africa, it addresses the unique sociopolitical and legislative factors impacting the National USAR Team's development and deployment, addressing the literature gap on African experiences in international disaster response. Lastly by utilizing a Radical Structuralist Paradigm, the study analyses factors hindering USAR SA-01's deployment and proposes solutions to structural barriers, enhancing South Africa's international humanitarian capacity and global role.

The Conceptualization of USAR

USAR operations involve the location, stabilization, and extrication of victims from debris using specialized techniques [16]. Wong and Robinson [17] noted that USAR teams employ various detection methods, including void searching, audible callouts, search cameras, infrared imaging, electronic listening devices, and canine searching. These teams include a wide range of emergency response capabilities, which require each team member to complete a significant amount of training [5]. Kerns [18] highlighted that NFPA standard 1670 outlines international training and operational requirements for Urban Search and Rescue incidents, covering areas such as rope rescue; structural collapse search and rescue; confined space search and rescue; vehicle search and rescue; swift water search and rescue; wilderness search and rescue; trench and evacuation search and rescue; machinery search and rescue; cave search and rescue; mine and tunnel search and rescue; and helicopter search and rescue. In addition, USAR team members are encouraged to partake in additional training for specific team functions such as Hazardous Materials, Disaster Management, and K9 Handler certifications [19]. Due to the extensive training requirements related to USAR operations, Statheropoulos [1] contended that: "*USAR operations are time-consuming and technically demanding when compared to sea, mountain or rural operations*".

Challenges such as expensive equipment and the specialized nature of USAR activities hinder the development of USAR teams in many countries, particularly in Africa [6]. When a large-scale USAR response is needed, countries may seek international reinforcements through bilateral mutual aid agreements [3]. USAR teams operate in a high-pressure emergency environment, where rapid mobilization is crucial for maximizing lives saved [6];[20]. The critical "*golden hours*" or "*survival interval*" occurs within seventy-two to ninety-six hours after a disaster are linked to the highest chances

of rescuing live victims [3]; [16]. As such, the professional USAR team must be mobilized within 10 hours of activation and typically consists of 50 to 70 technicians with about 30 tons of equipment and multiple search dogs [6].

INSARAG as a coordination and standardization mechanism for International USAR Operations.

Effective coordination for deploying professional USAR teams can be challenging without pre-established procedures [6]. To address this issue, the International Search & Rescue Advisory Group (INSARAG), was established in 1991 under the UN Office for the Coordination of Humanitarian Affairs (OCHA), to streamline international disaster response efforts [16]. INSARAG unites over 90 countries and organizations, organizing them into three regional groups: Asia-Pacific, Africa, Europe and the Middle East, and the Americas [22]. Its primary goal is to improve coordination and reduce delays, enhancing rescue success [16].

INSARAG defines five key components for an operational USAR team: Management, Logistics, Search, Rescue, and Medical Assistance [22]. The Management component oversees all response activities, while Logistics manages resources, communication, and transportation [8]. The Search and Rescue components use technical and canine capabilities for locating and extricating victims, while the medical component ensures the health and emergency care of both the team and victims [8]. INSARAG also emphasizes deploying only prepared and trained teams, as unqualified teams can burden host countries [9]. To ensure effective deployment, INSARAG has established guidelines and an External Classification System (IEC), a peer-reviewed process verifying teams' international response capabilities [21]. Teams undergo a 36-hour simulation and reclassification every five years to maintain their status [21]. The IEC has three classification levels based on operational standards:

Light USAR teams, consisting of 17 to 20 members, are highly mobile and can be rapidly deployed to search for surface victims in the initial disaster phase. They are self-sustaining for 12-hour operations over five days, with transport capabilities [8];[3]. Medium USAR teams, with 38 to 45 members, perform complex operations, including technical and canine searches, and use heavy equipment. They operate autonomously, managing a worksite 24/7 for up to seven days [8];[3]. Heavy USAR teams, consisting of 55 to 60 members, can manage two worksites simultaneously, working around the clock for up to ten days, with four rescue teams rotating [8];[3].

After a successful IEC/R, a Classified USAR Team must meet the obligations outlined in the INSARAG Guidelines Vol II: Preparedness & Response, Manual C (2015). These include deploying to at least one international incident, participating in INSARAG Regional Earthquake Simulations, attending USAR Team Leaders and Regional Group Meetings, and financially supporting 3-5 USAR experts for IEC/R classification. The team is also required to facilitate bilateral mentorship assistance and support team members in undergoing relevant international training, such as UNDAC and OSOCC [8].

South Africa's International Objectives concerning USAR

South Africa played a key role in establishing the United Nations (UN), co-authoring the UN Charter's preamble, which emphasizes state sovereignty [23]. This principle ensures that humanitarian efforts, such as Urban Search and Rescue (USAR), can only occur with the consent of the affected government [24]. UN General Assembly Resolution 57/150 (2001) reinforced this, aiming to improve USAR effectiveness while respecting sovereignty. South Africa's re-entry into the UN in 1994 after apartheid, coupled with its adoption of a democratic constitution (Act 108 of 1996), marked its alignment with UN principles [23]. Since then, it has taken a leading role in global organizations, enhancing its reputation as a responsible actor [23]. As Lachica [10] noted, governments participate in humanitarian operations, including USAR, to bolster their reputation in Good International Citizenship. In line with this, the National Disaster Management Centre consulted INSARAG in 2010 to establish a National Urban Search and Rescue Framework, resulting in the publication of the framework in 2012 [25];[22]

The Establishment of a South African Urban Search and Rescue Team

South Africa's involvement in international disaster response, through NGO-assisted deployments, highlights its commitment to global humanitarian efforts. However, studies by Van Hoving et al. [26], Bookmiller [16], Bateman [27], and Du Rand [28] identified key challenges, including poor coordination, inefficient resource use, and insufficient adherence to INSARAG protocols, which compromised volunteer health. Van Hoving et al. [26] called for a centrally coordinated, well-prepared team to address these issues.

In response, the National Disaster Management Center (NDMC) assessed South Africa's USAR capacity and supported the development of classified teams in Gauteng and Western Cape Provinces [25]. By November 2014, a Gauteng-based team was established, and in 2015, its application for INSARAG External Classification was approved [29]. On February 23, 2017, USAR SA-01 achieved INSARAG classification as a medium-classified team after completing a 36-hour simulation, becoming the second African country after Morocco to do so [10]; [13].

Despite this achievement, USAR SA-01 has only been deployed once, during the 2022 KwaZulu-Natal floods. While it has participated in training exercises, including the 2022 BRICS Urban Search and Rescue Simulation [12], its mobilization for real-world missions has been limited.

Common Challenges within the South African Disaster Management System which influence the Non-deployment of USAR SA-01.

The deployment of USAR SA-01, as a component of the South African Disaster Management System, faces challenges parallel to those identified by Van Niekerk [30] in the broader implementation of the Disaster Management Act (DMA). According to Van Niekerk, obstacles such as inadequate funding, insufficient understanding and training in disaster risk management, and the lack of cross-departmental cooperation critically limit the effectiveness of disaster response. Additionally, the shortfall in political commitment and the scarcity of dedicated human resources further weaken the implementation of both the Disaster Management Act (57 of 2002) and the National Disaster Management Framework (2005).

Misaligned Mandates within the South African Disaster Response System.

Misaligned mandates within South Africa's disaster response system weaken coordination. Van Niekerk [30] argues that placing the National Disaster Management Centre (NDMC) outside top political offices diminishes its authority and hampers cross-sectoral collaboration as required by the Disaster Management Act and National Disaster Management Framework. Limited authority and funding exacerbate these challenges [30]; [31]. Jordaan [30] highlighted that the initial omission of the South African National Defense Force (SANDF) from the Disaster Management Act was addressed in 2015, when SANDF and the South African Police Service were included. Moreover, the fire services directorate's role in representing Urban Search and Rescue (USAR) internationally, despite lacking responsibility for disaster preparedness, reflects further misalignment [29]. The outdated National USAR Framework (2014), which excludes SANDF, may hinder USAR SA-01's deployment and requires revision.

Lack of leadership, support, and accountability from the National Sphere of Government.

In South Africa's disaster management system, misaligned power distribution weakens accountability and leadership. The Directorate of Fire Services oversees the Fire Brigades Services Act (Act No. 99 of 1987) but is not responsible for international relations or humanitarian response. Mbandlwa et al [32] emphasize that leadership is crucial for achieving goals, yet policies are often poorly implemented [32]. Effective policy execution requires strong leadership, management, and skills [33]. Without top leadership commitment, lower-level efforts are unlikely to succeed [34]. This suggests that the Directorate's lack of an international mandate may limit accountability and hinder the deployment of USAR SA-01.

Lack of Coordination leading to Siloism

South African Disaster Management policies require extensive networking and intersectoral collaboration [35]. Effective disaster management depends on a multi-agency approach with intergovernmental and multidisciplinary stakeholders [31]. Coordination, defined by Comfort [46] as aligning actions to achieve shared goals, is crucial but often hindered by specialized functions that neglect cross-departmental issues [36]. Horizontal coordination among non-hierarchical entities is challenging, with unclear role definitions for state and non-state actors in the Disaster Management Act and National USAR framework [31]. Poor intergovernmental relations lead to fragmented implementation and siloed operations, limiting multi-agency cooperation and affecting USAR SA-01's deployment [37].

Resource and Budget Constraints

Raju and Van Niekerk [37] identified funding as a major challenge in South African Disaster Management, hindered by bureaucratic barriers and limited procedural knowledge within government. The Municipal Systems Act mandates that functions like Disaster Management must be officially designated to secure funding. Despite available mechanisms [39], funding remains insufficient, with ongoing confusion about implementation [30]. Botha et al. [37] noted unclear funding

processes and sources across all government levels. Although the National USAR framework (2012) suggested donor funds and grants, it lacks procedural guidance, which may impact USAR SA-01 deployment.

Lack of Training and Skill Developments

In disaster risk management, staff often balance disaster-related duties with emergency service roles like fire services and public safety, which can compromise performance in both areas [37]. Rigorous training and high qualifications needed for USAR SA-01 membership have also limited the number of dedicated USAR coordinators in South Africa. Managers responsible for USAR frequently lack operational experience and juggle responsibilities across departments, potentially affecting USAR SA-01 deployments, a concern that requires further study [12]; [39].

Political and Institutional Commitments

Political support is essential to secure funding and resources needed to effectively address disaster impacts [37]. In this context, Botha et al. [37] argue that when politicians lack an understanding of the importance of disaster risk management, they deprioritize it, leading to challenges in funding, response, and recovery. This lack of political support and awareness is often accompanied by a focus on the funding limitations for disaster risk management [38]. Furthermore, insufficient political commitment and recognition of USAR SA-01 as the national Urban Search and Rescue Team could affect its international deployment capabilities, warranting further investigation to assess the potential impacts.

The literature review highlighted themes for further investigation during the quantitative survey and document analysis phase of the study, which should illuminate the causal factors hindering the deployment of USAR SA-01.

II. RESEARCH METHODOLOGY

This study aimed to identify factors impeding the deployment of USAR SA-01 through causal analysis, which examines how one event influences another [40]. Causal factors are unplanned contributors to adverse events, whose elimination could reduce their impact. As emphasized by Maxwell [41], establishing causality requires a well-defined data analysis strategy that distinguishes between different datasets. As such an Advanced Mixed Methods Research design was employed, using an explanatory sequential mixed methods approach within a case study framework, analysed through a Radical Structuralist Paradigm. This paradigm highlighted structural barriers such as bureaucratic inertia, resource limitations, and power imbalances [42]. By incorporating this paradigm, the researcher became an advocate for societal awareness of the interrelationships among the organizations and groups that hinder the deployment of USAR SA-01 [42]. The first phase utilized a quantitative online survey with ordinal measures, supplemented by a qualitative questionnaire to capture the experiences of the USAR SA-01 members from National, Provincial and Local spheres of government. This phase informed a qualitative document analysis to contextualize the findings, while the Ishikawa model was used to identify root causes within the case study framework (Creswell et al., 2011:8).

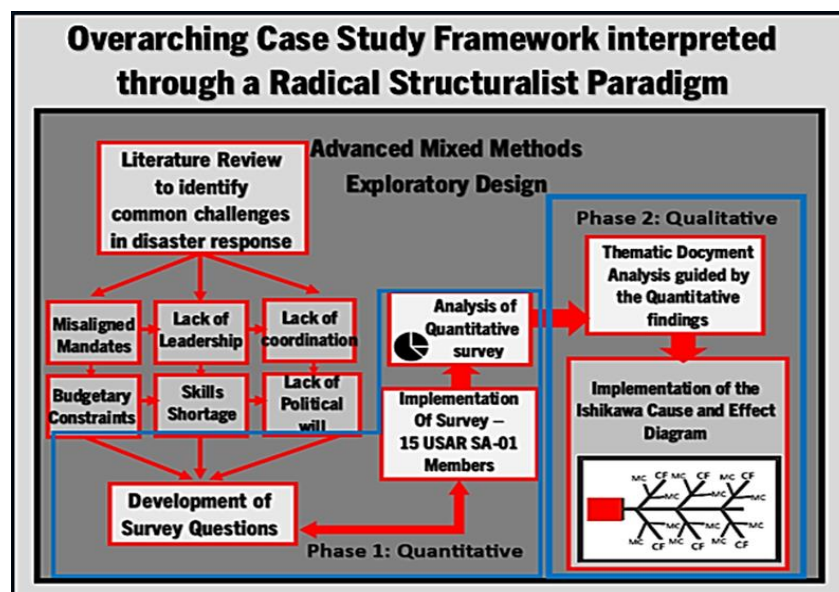


Fig 1: Conceptual Framework

Data Collection Instruments, Sampling, and Data Analysis Methods

Phase 1 – Online survey

The study's quantitative phase primarily utilized an online survey, based on challenges identified in the literature as a data collection instrument. According to Check and Schutt [44], surveys collect data through structured questions. The survey included closed-ended questions using a 5-point Likert scale, enabling responses to be quantified, along with follow-up qualitative questions for additional context. Both were designed within a broad scope to avoid bias and ensure authentic feedback on USAR SA-01's non-deployment. The sample, selected through purposive-homogeneous sampling [43], included 15 USAR SA-01 team members from national, provincial, and local government, all of whom voluntarily completed the survey and provided consent for their data as part of the ethical considerations

Phase 2 – Thematic Document Analysis

A qualitative thematic document analysis was conducted in the second phase of the study to contextualize the quantitative findings. The sample included selected legislative instruments, governmental policies, national and international guidelines, official documents, and annual reports. As noted by Hajri [45], thematic analysis helps compare data from diverse sources, aiding in an accurate portrayal of conditions. Documents and regulations unrelated to INSARAG or non-international USAR deployments were excluded from the analysis.

Phase 2b- Cause-and-effect Analysis utilizing the Ishikawa Diagram

Following the thematic analysis, the findings were re-examined within their thematic groupings utilizing an Ishikawa Diagram, which provided a structured methodology for identification of the root causes related to the nondeployment of USAR SA-01 [47].

Pr - Primary Branch represents the Problem Statement, CF - Major Branch represents the Main/ Major Cause and MC – Minor Branch represents resulting causative factors [47]

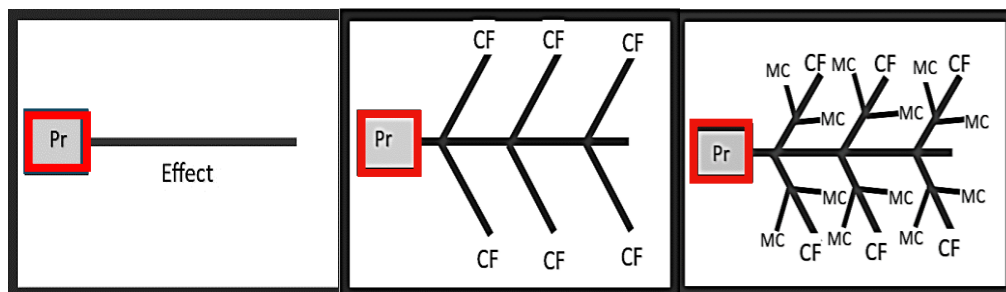


Fig 2: Application of the Ishikawa Diagram

III. RESULTS

The results identify factors hindering USAR SA-01's international deployment, based on quantitative survey data from USAR SA-01 respondents and qualitative follow-up questions. The Thematic document analysis contextualized the findings within South African disaster response context. The Key themes identified in the literature review include misaligned mandates (Theme 1), lack of leadership and support (Theme 2), interdepartmental coordination challenges (Theme 3) limited funding and resource allocation (Theme 4), training gaps (Theme 5), and political commitment (Theme 6). The findings highlight barriers to effective disaster response and suggest areas for strategic improvement, setting the stage for further analysis in the discussion.

Theme 1: Misaligned Mandates within the South African Disaster Response System.

Quantitative Findings

Since the introduction of the Disaster Management Act in 2002, significant issues have emerged around the alignment of mandates within the South African Disaster Management system [31]. Such misalignments have been flagged as barriers, impacting the deployment of USAR SA-01. Key issues include a lack of leadership from the NDMC, with the team not

being managed or acknowledged at a national level. Respondents highlighted these concerns, stating, “*We need a national office for USAR,*” “*The team should be managed from a national level,*” and “*The NDMC is not leading or supporting the team.*” Additionally, the team feels “*overlooked*” and unrecognized, leading to calls such as “*We are a national team, don’t forget us*” and “*National disaster management must commit to the team, support it as a national team instead of a provincial team.*” Regarding regulatory policies, 20% of respondents strongly disagreed, 13.3% disagreed, and 13.3% were neutral on the sufficiency of policies for international deployments. However, 26.7% agreed, and 26.7% strongly agreed that policies are sufficient, suggesting polarized views and uncertainty about the adequacy of the regulatory frameworks to support the team’s international capabilities.

Qualitative Findings

An analysis of policy documents supports the quantitative findings, revealing significant mandate misalignments that hinder South Africa's international disaster response, particularly the deployment of USAR SA-01. Section 231 of the Constitution mandates the Department of International Relations and cooperation (DIRCO) to lead foreign policy, including international disaster cooperation, supported by the 2005 National Disaster Management Policy Framework [48] and the 1998 White Paper on Peace Missions, which assigns peacekeeping roles to the Department of Defence [49]. The Medium-Term Strategic Framework 2019–2024 formalizes this division, assigning DIRCO to international obligations, including those under UN OCHA, and the Department of Defence to peacekeeping and search and rescue operations [50]. However, the 2014 National Urban Search and Rescue Framework designated the NDMC’s Fire Services Directorate as the primary contact for INSARAG, misaligning international mandates [22]. This misalignment has led to conflicting responsibilities, restricting USAR SA-01’s role in international deployments. Despite INSARAG’s recognition of USAR SA-01 as a national team, it remains provincially managed, highlighting a critical policy gap that affects both national and international disaster response coordination [8];[29].

Theme 2: Lack of leadership, support, and accountability from the National Sphere of Government.

Quantitative Findings

The study identified significant gaps in leadership, support, and accountability within South Africa's disaster response system, impacting USAR SA-01's international deployment. Issues included a lack of commitment from the NDMC (mentioned 6 times), structural weaknesses (2 mentions), and a general lack of accountability for non-deployment (4 mentions). NDMC's lack of support was the most critical barrier, cited 11 times. Respondents highlighted NDMC's insufficient backing, with 86.7% agreeing that “*There is no passion and commitment within the structures of the NDMC to assist the team with equipment and no willingness to send members for training.*” At the provincial level, 43% of respondents strongly agreed that the Gauteng PDMC lacked a proper understanding of USAR operations, stating, “*The Gauteng Disaster Management Centre must have a better understanding of how USAR team functions.*” Overall, respondents emphasized the need for consistent leadership and accountability across agencies to improve operational readiness, with one noting, “*Consistent leadership and support of the dedicated officers is important.*”

Qualitative Findings

According to section 155(7) of the South African Constitution (108 of 1996), the Directorate of Fire Services administers the Fire Brigades Services Act (Act No. 99 of 1987) but lacks a mandate for international relations or humanitarian response [51]. Despite this, the Directorate was designated South Africa's main contact with the INSARAG secretariat and UN OCHA in 2015 [29]. This structural gap limits accountability for international disaster response, undermining USAR SA-01’s leadership and preparedness. In contrast, the South African National Defence Force and Police Service are deployed under clear mandates from the National Executive and DIRCO, per section 7 of the Disaster Management Amendment Act (16 of 2015) [29] and section 5.3 of the White Paper on International Peace Missions [49]. This highlights the need for a formalized, accountable chain of command for USAR SA-01’s deployment.

Theme 3: Lack of Coordination leading to Siloism

Quantitative Findings

The lack of coordination was identified as a significant barrier to USAR SA-01’s deployment. In the quantitative results, coordination issues were cited four times as obstacles, with “*siloism*” between government bodies noted twice. One respondent pointed to “*poor coordination between USAR 01 leadership and provincial and municipal levels*” as a key

hindrance, while another highlighted the absence of a dedicated USAR office within the National Disaster Management Centre (NDMC), stating, “*The coordination from PDMC and NDMC, or the lack of a USAR office in the NDMC is the problem.*” Suggestions for improvement included establishing a dedicated USAR office and integrating relevant stakeholders, such as SAPS and SANDF, as essential contributors. Respondents emphasized that “*Relevant stakeholders for disaster management from national level must form part of the team e.g. SAPS, SANDF, etc.*” and “*We need more collaboration between organizations and organs of state... We cannot do this alone.*”

Qualitative Findings

The document analysis revealed a significant gap between the operational environment and policy. The National Urban Search & Rescue Framework [22] stresses the need for interagency coordination among primary responders, including fire brigades, EMS, and SAPS. Similarly, the National Disaster Management Policy Framework [48] mandates that contingency plans address agency responsibilities. DIRCO’s White Paper on International Peace Missions [49] supports coordinated international disaster responses, and the NDMC Annual Report (2016) calls for stronger USAR institutional arrangements. However, only one formal meeting on interagency collaboration for USAR operations was documented in 2015 [29]. The lack of coordination between the NDMC and DIRCO has allowed unclassified NGO teams to operate without adhering to INSARAG guidelines, posing risks to survivors and responders [52]. The revised Disaster Management Policy Framework emphasizes the need to adhere to international guidelines for volunteer deployments [48]. These findings highlight the need for improved coordination to enhance USAR SA-01’s effectiveness.

Theme 4: Resource and Budget Constraints

Quantitative Findings

The respondents highlighted that funding limitations significantly hinder the deployment capabilities of the USAR SA-01 team, reflecting broader financial challenges in South African Disaster Management, as identified by Raju and Van Niekerk [36]. Bureaucratic obstacles and limited procedural understanding were noted as key factors impeding efficient financial allocation. Survey results show strong consensus on the issue, with 53% of respondents strongly disagreeing and an additional 20% disagreeing that USAR SA-01 receives adequate funding. Budgetary constraints were mentioned 16 times, with specific concerns such as “*We need a dedicated budget and policy for deployment,*” “*Lack of Finance and funding,*” “*We do not have a budget,*” and “*Ensuring there is enough budget to support the team.*” These responses underscore the critical need for a stable, dedicated funding structure to effectively support USAR SA-01.

Qualitative Findings

The document analysis supports the quantitative findings and reveals that funding constraints critically impede the Deployment Urban Search and Rescue (USAR) SA-01 team. Van Niekerk [30] identified “*Finance follows funding*” as a significant issue, with USAR development hindered by insufficient allocations from the National Disaster Management Center (NDMC). This contradicts Section 9 of the National USAR Framework [22], which mandates the NDMC to secure funding for International USAR deployment, as reiterated in various government reports. The Gauteng USAR team faces sustainability issues, lacking funds for international deployments and INSARAG reclassification, which requires a comprehensive financial and logistical portfolio. Gauteng’s Provincial Disaster Management Center in 2017 obligated itself to cover the expenses, incurring a R7 million commitment without formal budget adoption or an established mandate [51]. This directly resulted in the non-deployment of USAR SA-01 to international disasters, as the budget for such deployments did not exist. Despite mechanisms like conditional grants and legislation mandating fiscal support for provincial functions, gaps in procedural knowledge left USAR SA-01 as an unfunded mandate, risking operational sustainability and adherence to INSARAG standards [53].

Theme 5: Lack of Training and Skill Developments

Quantitative Findings

Training was identified as a significant barrier to the deployment of USAR SA-01, with respondents mentioning it six times. The respondents expressed concerns such as “*No willingness to send members for training to expand their knowledge and obtain new methods to assist the team.*” Regarding awareness and training in relation to international disaster response standards, 53.3% of respondents strongly agreed and 26.7% agreed that they had read the INSARAG guidelines. Additionally, 40% strongly agreed and 53.3% agreed that they were familiar with national policies and regulations related

to international disaster response and disaster risk reduction activities, indicating an elevated level of awareness in relation to the operational standards despite the training gaps.

Qualitative Findings

The stringent training requirements and high qualifications necessary for USAR SA-01 membership have contributed to a limited pool of specialized USAR coordinators in South Africa. As such many managers tasked with overseeing USAR operations are operationally trained and often lack the administrative experience which may adversely impact the effectiveness of USAR SA-01 deployments [12];[39]. This skills gap directly contributed to the budgetary issues related to the deployment of USAR SA-01. The senior management was unfamiliar with the process for the procurement of funding as suggested in Section 9 of the National USAR framework [22] and Section 2(a) of the Financial and Fiscal Commissions Act (25 of 2003) which would have enabled the Department of Cooperative Governance and Traditional Affairs, via the National Disaster Management Centre, to transfer USAR SA-01's responsibilities to the Gauteng Provincial Disaster Management Centre, supported by a Conditional Grant as set apart in Section 7.1 (C) of the Division of Revenue Act (24 of 2024) identifies a schedule 6 grant as a national allocation for special programs [54].

Theme 6: Political and Institutional Commitments

Quantitative Findings

The lack of political will and support was identified as a significant barrier to the deployment of USAR SA-01, with respondents highlighting the team's marginalization and oversight at the national level. The respondents emphasized that the national team is often undermined, overlooked, or viewed as a provincial entity rather than a key national asset on seven occasions. Common sentiments included *"Getting the correct entities onboard to assist this team in growing and getting the support they deserve on all levels from provincial to national"* and *"The team must make sure that there is political will and involvement."* The respondents further reiterated that the team should be *"Given more scope to grow and opportunities to deploy"* and that the Government should *"Show willingness to have a South African team/s that can operate at an international level, take pride in the current team and develop more experts in the field of USAR, nationally"*.

Qualitative Findings

Political support for the external classification of USAR SA-01 was initially secured by the National Directorate of Fire Services in 2015-2016 [29]. The Directorate successfully engaged the Minister of Cooperative Governance and Traditional Affairs, who facilitated the approval process and initiated discussions with the INSARAG Secretariat. This led to the Gauteng USAR team undergoing an International External Classification (IEC) in 2017, a process that assesses a team's readiness and competency for international deployment [55]. Despite this early success and political backing from both National and Provincial Government, subsequent political and structural challenges led to diminishing support, resulting in instability within the team and reduced deployment opportunities.

Establishment of the Root Causes related to the non-deployment of USAR SA-01.

In the Ishikawa diagram, each of these categories would form a *"bone"* leading to the main problem. Under each *"bone"*, the specific causes listed would branch out, showing the underlying reasons for each primary issue. This structure helps visually illustrate how each cause contributes to the main problem, thereby identifying the following root causes to the USAR nondeployment of USAR SA-01.

IV. DISCUSSION

This study explores the systemic barriers hindering the deployment of USAR SA-01, despite its INSARAG classified status and international recognition. The findings reveal significant challenges within South Africa's disaster response framework, including fragmented mandates, poor interagency coordination, resource constraints, inadequate training, and insufficient political support. These issues collectively prevent USAR SA-01 from fulfilling its potential as a key asset in both national and international disaster response, by deploying to disaster impacted countries.

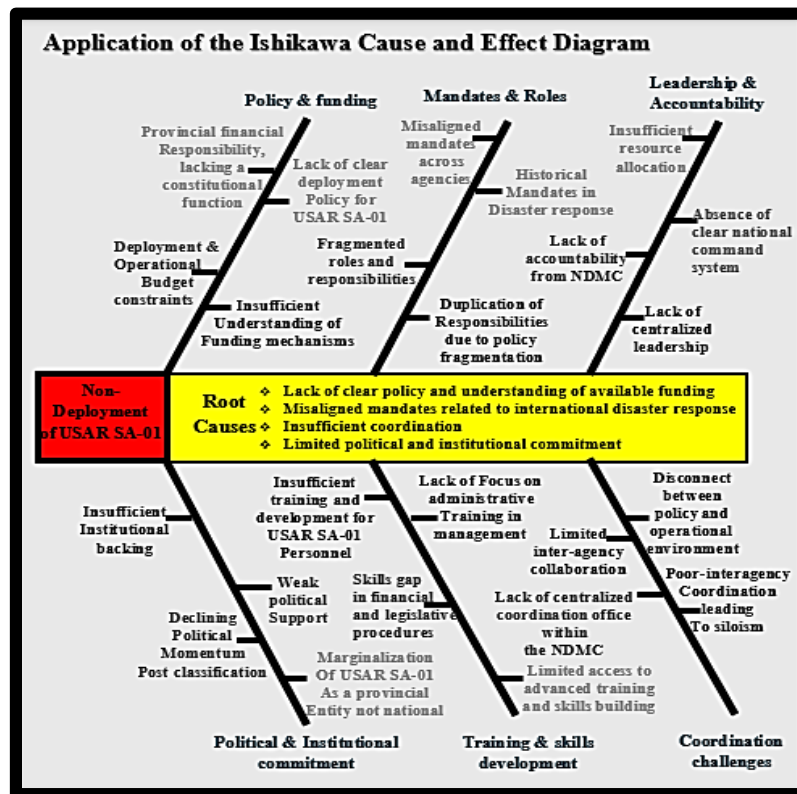


Fig 3: The Ishikawa Cause and Effect Diagram in accordance with the causal factors identified hindering the deployment of USAR SA-01

A central issue identified in this study is the misalignment of mandates among organs of state such as the Department of International Relations and Cooperation, the National Directorate of Fire Services, and the National Disaster Management Centre. These fragmented responsibilities result in overlapping roles, limited accountability, and operational inefficiencies. This aligns with Van Niekerk's [30] observations on the structural inefficiencies in South Africa's disaster management system, as well as international research on disaster response, which stresses the importance of clear role delineation and centralized command [56]. The study advocates for establishing USAR SA-01 as a formal national resource under NDMC oversight to streamline operations and enhance deployment capabilities.

Another key finding is the gap in sustained leadership and support for USAR SA-01 from the National Disaster Management Centre, affecting its operational readiness and international deployment. Legislative misalignments exacerbate these challenges, with the team lacking a clear command or accountability structure. While the Directorate of Fire Services engages with international disaster bodies, it lacks a formal humanitarian mandate, unlike the South African National Defence Force and Department of International Relations. These findings highlight the need for stronger leadership and alignment at both national and provincial levels, with legislative reforms to clarify USAR SA-01's mandate and improve its international deployment capacity. Legislative reforms are necessary to clarify the team's role and secure the ongoing political support needed for effective international deployment.

Budgetary constraints also remain a significant barrier to USAR SA-01's preparedness and international deployment. In 2017 the Gauteng Provincial Disaster Management Centre (PDMC) had taken responsibility for the funding of USAR SA-01, but without a clear mandate or dedicated financial mechanisms, the team faces difficulties in securing reliable, sustainable funding. This aligns with Van Niekerk's [38] discussion of the "*finance follows function*" concept as an oversight within South Africa's disaster management framework, which results in misaligned funding responsibilities and gaps in resource allocation. A sustainable funding model, such as a Schedule 6 Conditional Grant, is recommended to ensure consistent financial support for USAR SA-01's deployment capacity.

Coordination issues between key agencies, including South African Police Service, the South African National Defence Force, and USAR SA-01, further limit the team's operational effectiveness. This study's findings echo global research on the importance of interagency collaboration for effective disaster response [46]. The lack of a centralized coordination hub

exacerbates siloed operations and impedes information-sharing among agencies. Formalizing interagency collaboration through a centralized coordination structure within the National Disaster Management Centre could improve alignment with national disaster response objectives and enhance the overall effectiveness of both national and international disaster operations.

Training deficits, particularly in administrative areas, were also identified as a major challenge. While operational skills within USAR SA-01 are strong, the lack of administrative training—especially among senior management—has hindered financial and procedural management, limiting the team's ability to respond efficiently. This finding aligns with research by Taljaard [12] which emphasize the importance of both operational and administrative training for effective disaster response. Targeted professional development programs are needed to enhance the team's deployment capacity and operational efficiency.

Finally, the study underscores the critical role of sustained political and institutional support for the long-term success of USAR SA-01. While the initial political endorsement during the certification process was crucial, ongoing support is essential for maintaining the team's operational capacity. Without continued institutional commitment, USAR SA-01 risks losing the resources and backing necessary to fulfil both national and international disaster response obligations. This study advocates for policy reforms that secure long-term political support and institutional stability to ensure USAR SA-01's effectiveness in future disaster responses. The limitations include its focus on the South African context, which may limit the applicability of findings to regions with different structures or funding models. Additionally, the reliance on qualitative data from USAR stakeholders may introduce bias. Future research could expand by comparing USAR systems in other countries to identify broader best practices.

V. RECOMMENDATIONS

This study provides key recommendations to address structural challenges limiting USAR SA-01's deployment effectiveness and to strengthen its role in national and international disaster response. First, formalizing Memorandums of Understanding (MOUs) would fully integrate USAR SA-01 into South Africa's national disaster response framework as a designated national asset, simplifying deployment processes. Establishing a sustainable funding model through a Schedule 6 Conditional Grant would ensure consistent financial support, reducing reliance on provincial budgets and mitigating funding uncertainties. Aligning with INSARAG guidelines, a dual accountability structure between the NDMC and DIRCO is recommended to enable transparent decision-making and resource allocation. Officially designating USAR SA-01 as a national team would reinforce its role in international humanitarian missions. Finally, addressing skill gaps through targeted training would enhance deployment efficiency and fiscal management.

VI. CONCLUSION

In conclusion, this study underscores an urgent need for systemic reforms to unlock USAR SA-01's potential as a crucial player in disaster response benefiting both South Africa and the global humanitarian community. Despite its INSARAG classification and operational strength, structural barriers, fragmented mandates, inadequate funding, and inconsistent political support have kept USAR SA-01 underutilized. Addressing these obstacles is essential for strengthening South Africa's disaster resilience and reinforcing its standing on the global stage. In a world increasingly affected by disasters and humanitarian crises, deploying a well-prepared, expertly coordinated USAR team reflects South Africa's commitment to solidarity and international responsibility. By establishing USAR SA-01 as a national asset, securing sustainable funding, and strengthening interagency collaboration, South Africa can transform USAR SA-01 from a sidelined resource into a leading force in global disaster response. Each international deployment represents not only a lifeline to communities in need but also an act of diplomacy, highlighting South Africa's expertise, resilience, and humanitarian commitment. With these reforms, USAR SA-01 can fulfill its highest purpose: to save lives and alleviate suffering wherever disaster strikes, leaving a lasting legacy that reinforces South Africa's role as a trusted partner in global crisis response.

REFERENCES

- [1] Statheropoulos, M., Agapiou, A., Pallis, G., Mikedi, K., Karma, S., Vamvakari, J., Dandoulaki, M., Andritsos, F. and Thomas, C.2015. *Factors that affect rescue time in Urban Search and Rescue (USAR) operations*, NATURAL HAZARDS
- [2] Macintyre, A, G MD; Barbera, J, A MD, Petinaux, B, P MD, 2011, *Survival Interval in Earthquake Entrapments: Research Findings Reinforced During the 2010 Haiti Earthquake Response*

- [3] Auclair. S, Gehl. P, Delatre. M. 2021. *Needs and opportunities for seismic early warning prior to aftershocks for search and rescue teams: An in-depth analysis of practitioners' perceptions*. Department of Risks and Prevention,
- [4] Rom A & Kelman I. 2020 *Search without rescue? Evaluating the international search and rescue response to earthquake disasters*.
- [5] Bea. K. 2010. *Urban Search and Rescue Task Forces: Facts and Issues*. Library of Congress Washington DC
- [6] Katoch. A. 2006. *The Responders' Cauldron: The Uniqueness of international disaster response*. *Journal of International Affairs*, Spring/Summer 2006, vol. 59, PG: 153
- [7] UN OCHA
- [8] International Search & Rescue Advisory Group. 2015. *INSARAG guidelines Vol II: Preparedness & Response, Manual C: INSARAG external classification & reclassification* Pg:11, 12,30,36
- [9] Revet. S .2018. *Disasterland: An Ethnography of the International Disaster Community*.
- [10] Lachica. A. A. 2021. *Middle power South Korea's disaster response contributions: A case of good international citizenship*. *International Journal* 2021, Vol. 76(4) 494–510
- [11] Fire & Rescue International. 2017. *The USAR South Africa team classified as an USAR medium team by INSARAG vol 4 no 5 - Pg: 16 – 18*.
- [12] Taljaard. N .2022. *Urban Search and Rescue South Africa Team (USAR SA 01) participates in BRICs countries virtual USAR Simulation exercise* Fire & Rescue International Vol 6 No 5 Pg:49
- [13] United Nations Office for Humanitarian Affairs. 2022. *INSARAG Annual Snapshot. Timeline of Key Events*
- [14] Peters, B, G ,2017, *What is so wicked about wicked problems? A conceptual analysis and a research program*, *Policy and Society*, 36:3, 385-396,
- [15] Ursić L, Baldacchino G, Bašić Ž, Sainz AB, Buljan I, Hampel M, Kružić I, Majić M, Marušić A, Thetiot F, et al.,2016, *Factors Influencing Interdisciplinary Research and Industry-Academia Collaborations at Six European Universities: Qualitative Study*. *Sustainability*
- [16] Bookmiller. K. N. 2014. *The International Law of 96 Hours: Urban Search and Rescue Teams and the Current State of International Disaster Response Law*. In: Caron DD, Kelly MJ, Telesetsky. A eds. *The International Law of Disaster Relief*. Cambridge University Press: 2014:111 -136
- [17] Wong, J. and Robinson, C., 2004. *Urban search and rescue technology needs: identification of needs*. *Federal Emergency Management Agency (FEMA) and the National Institute of Justice (NIJ)*. Document, 207771, p.20.
- [18] Kerns, T, 2012, *A phenomenological study of urban search and rescue members who responded to a disaster*
- [19] Mommsen, M. 2022. *Urban Search and Rescue South Africa (USAR SA) first K9 Search and Rescue Handler's Team Certification*. [20] De Guttry. A, Gestri. A, Venturini. M. 2012. *International Disaster Response Law*, Chapter 20 Pg 490
- [20] Okita. Y. & Shaw. R. 2020. *Standards-setting and its implementation through the classification system for international urban search and rescue teams*. *Journal of Emergency Management* Vol. 18, No.3
- [21] Department of Cooperative Governance & Traditional Affairs. 2012. *The National Urban Search & Rescue Framework*
- [22] Dugard. J Du Plessis. M, Maluwa. T, Tladi. D. 2007. *Dugard's International law: a South African perspective 3rd ed*. Lansdowne, South Africa: Juta
- [23] Eburn, M. 2010. *International law and Disaster Response* Monash University Law Review 162
- [24] Department of Cooperative Governance and Traditional Affairs. 2013. *National Disaster Management Centre – Annual Report 2013 2014* Pg 26, 28, 38,

- [25] Van Hoving, D.J., Smith, W.P., Kramer, E.B., De Vries, S., Docrat, F. and Wallis, L.A., 2010. *Haiti: The South African perspective*. South African Medical Journal, 100(8), pp.513-515.
- [26] Bateman C .2010. *Haiti tragedy shakes up SA's emergency response planning*. South African medical journal / Suid-Afrikaanse tydskrif vir geneeskunde, 100(9), 552–553.
- [27] Durand. S. 2011. *Preparedness of South African nongovernmental organization relief teams for international earthquake response: A case study of the 2010 Haiti earthquake response*.
- [28] Department of Cooperative Governance and Traditional Affairs. 2015. *National Disaster Management Centre – Annual Report 2015–2016* Pg 21
- [29] van Niekerk D. A ,2014, *Critical analysis of the South African Disaster Management Act and Policy Framework*. Disasters. 2014 Oct;38(4):858-77
- [30] Kunguma, O., Ncube, A. & Mokhele, M.O., 2021, *COVID-19 disaster response: South African disaster managers' faith in mandating legislation tested?*, Jambá: Journal of Disaster Risk Studies 13(1), a1099
- [31] Mbandlwa, Z, M & Dorasamy, N & Fagbadebo, O, 2020, *Leadership challenges in the South African Local Government system*.
- [32] Naidoo, G & Xollie, T, 2011, *The Critical Need for an Integrated Leadership Approach to Improve Service Delivery by the South African Public Service*. Journal of US-China Public Administration,
- [33] Kim. B. 2023. *They call for aid: A study of South Korea's Non-deployment of Urban Search and Rescue Teams to Overseas Disasters Between 2015 to2023*. Oklahoma State University.
- [34] Vermaak, J., & van Niekerk, D. 2004. *Disaster risk reduction initiatives in South Africa*. Development Southern Africa, 21(3), 555–574
- [35] Raju, E & Niekerk. 2013. *Intra-governmental Coordination for Sustainable Disaster Recovery: A Case-study of the Eden District Municipality*, South Africa. International Journal of Disaster Risk Reduction.
- [36] Botha, D, van Niekerk, D, Gideon Wentink, G, Coetzee, C, Forbes, K, Elrista, Y, M Tshona, A, T, Raju, E, 2011, *Disaster Risk Management Status Assessment at Municipalities in South Africa*
- [37] Van Niekerk, D,2011, *Concept Paper: The South African Disaster Risk Management Policy and Legislation – A Critique*.
- [38] Wentink, G & Niekerk, D. 2017. *The capacity of personnel in disaster risk management in South African municipalities*. The Journal for Transdisciplinary Research in Southern Africa
- [39] DeCarlo, M. 2018. *Scientific Inquiry in Social Work*. Open social work education Roanoke Access Date: 15 February 2024
- [40] Maxwell, J.2004. *Using Qualitative Methods for Causal Explanation*. Field Methods -16. 243-264.
- [41] Gioia, D, A & Pitre E, 1990, *Multiparadigm perspective on theory building*, Academy of Management, Vol 15, No 4. Pg: 584 – 602
- [42] Creswell J.W, Ebersohn L, Eloff I, Ferreira R, Ivanova N.V, Jansen J.D, Nieuwenhuis J, Pietersen J, Plano Clark V.L .2016. *First Step in Research – Second Edition* van Schaik Publishers 2016
- [43] Check, J., & Schutt, R. K. (2012). *Research methods in education*. Thousand Oaks, CA: Sage. PG: 160
- [44] Hajri, F, I, 2013, *English Language Assessment in the Colleges of Applied Sciences in Oman: Thematic Document Analysis*
- [45] Comfort, L.K., 2007. *Crisis management in hindsight: Cognition, communication, coordination, and control*. Public administration review, 67, pp.189-197.
- [46] Loredana. E. M .2017. *The Analysis of causes and effect of a phenomenon by means of the “Fishbone diagram”* Annals of the „Constantin Brâncuși” University of Târgu Jiu, Economy Series, Issue 5 Pg:97

- [47] Department of Cooperative Governance & Traditional Affairs. 2005. *The National Disaster Management Policy Framework of 2005*
- [48] Department of International Relations and Cooperation, 1998, *White paper on the South African Participation in international peace missions*
- [49] Department of Planning, Monitoring and Evaluation. 2019. *Revised Medium Term Strategic framework 2019 – 2024* Pg 149, 151
- [50] The South African Government, 1996, *The Constitution of the Republic of South Africa (Act 108 of 1996)* Pg 76, 136,
- [51] Whittaker, J, Blythe McLennan, B, Handmer, J, 2015, *A review of informal volunteerism in emergencies and disasters: Definition, opportunities and challenges*, International Journal of Disaster Risk Reduction, Volume 13 Pages 358-368.
- [52] Kriel R & Monadjem M. 2007. *Public Finances* in S Woolman, T Roux, M Bishop, M Chaskalson, A Stein & J Klaaren (eds) *Constitutional Law of South Africa* (2nd Edition, OS, March 2007) Chapter 27 -22
- [53] National Treasury .2003. *Financial and Fiscal Commission Amendment Act, (25 of 2003)*.
- [54] Gauteng Province. 2017. *Gauteng Provincial Government I Co-operative Governance and Traditional Affairs I Annual Report I 2016/2017* Pg:12
- [55] Marks, D. and Lebel, L., 2016. Disaster governance and the scalar politics of incomplete decentralization: Fragmented and contested responses to the 2011 floods in Central Thailand. *Habitat International*, 52, pp.57-66.